SERVITIZATION OF SECURITY ENTRANCES

Master graduation thesis

Douwe Jolles

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Author
Douwe Jolles

Email
douwejolles@gmail.com

Studentnumber
4222067

Graduation committee:

Chair
Sicco Santema

Mentor
Quiel Beekman

Company Mentor
Jonas Oijevaar,
Boon Edam

P R E F A C E

This report represents the last step I have to take before graduating my master Strategic Product Design at TU Delft. After little over 6 years of learning it is time to show the skills I have mastered during an intense but wonderful part of my life.

Starting the bachelor Industrial Design Engineering in the summer of 2012 was somewhat of a wild guess into where my future would lie. During this bachelor I gradually discovered my passion for design and innovation. It provided me with tools to express my ideas and develop them during this process. However, it also learned me that becoming a hardcore product developer is not my forte.

Instead I became more interested in the why and how of things: Why would someone buy this product? Why is it not working as it should be? How can we use this to an advantage? How can we sell this and make it a succes?

With the urge to learn about how I can answer those questions and provide those answers in a convincing, structured way I chose to do a master in Strategic Product Design. In two years I learned a lot about business, consumer needs and implementation of innovation. During the courses I constantly pushed myself into finding out the true value of things and create interesting, realistic solutions to both new and old challenges.

As a showcase of what I have learned I present this report, which is the result of months of hard work, sleepless nights and busting my brain. During the graduation project I tried to stay as organised as possible and always be aware of what was finished and what had to be done.

I would like to specifically thank my supervisory team for supporting me during the whole process. I am not someone who often asks for feedback. This sometimes results in supervisors questioning if I actually am doing well and making progress in my project. Luckily the team trusted me and my work ethics, which resulted in positive feedback during meetings.

A word of thanks also goes out to the companies that helped me with my research and were so kind to provide honest and qualitative insights into how the real world works. Without them I would not have been able to provide useful insights and this thesis would have never existed.

At last I want to say thanks to my family and friends who gave me the much needed relaxation between moments of hard work, opened new doors in my mind and always motivate me to get the most out of everything.

Summary

Servitization. It can be seen in all branches and it seems as if every company is shifting towards a business model where they do not only sell products, but offer service, financing and advice. The security branche is no different. With companies wanting to focus on their core business they do not longer want to buy security cameras, locks and gates. Their real need: the ability to work and store on a secure location. Part of this is having a secure entrance that fits with their needs.

Boon Edam is a company that claims to be: 'your entry expert'. Following the servitization trend they want to invest in a service for their clients and create a competitive advantage in the market.

The goal of this thesis is to create a strategy for Boon Edam that creates this competitive advantage in the market. This strategy is based on a model for finding opportunities for security services, as designed by the author. This model is iterated several times during the thesis as more information is found from practice.

The author uses customer driven design to create a service that fits with the demands and needs of Boon Edams client. First a research is conducted to provide a starting point for the graduation project. This also provides a general understanding in different aspects related to Boon Edam and security entrances, as well as a first view on requirements for the design. The research consists of various methods to understand and visualize the position of different stakeholders.

After this, six stakeholders of Boon Edam are interviewed to provide qualitative insights in the customer needs. This results in reviewed thoughts on assumptions made in the research phase, as well as a framework for the design of the service.

Using the framework and the information of the interviews a service is proposed which should provide Boon Edam with the competitive advantage. The service focusses on improving the customer relationship by offering them more support in their decision making and evaluating and improving their entrance solution. According to Baines et al. (2017) this can be seen as advanced services, which should lead to:

- Growth in revenue and profit
- Improved responses to customer needs
- Improved product innovation
- The building of new revenue streams
- Increasing customer loyalty
- Setting higher barriers to competition

After the design of the proposed service is explained an implementation plan is written for Boon Edam to adopt the service within their portfolio. With this implementation plan it should be possible to have the service fully implemented at the end of 2019 latest.

INTRO

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Glossary

Within this report there are a few stakeholders that are oftenly mentioned:

Boon Edam
Boon Edam is the company providing the security entrance solutions. They will be discussed more in detail later in the Intro-section/

Client
The client are companies that is buying products of Boon Edam. They decide what solution to buy and what it should be able to do.

User
The user are the persons that use the entrance solution on a day-to-day basis. The solution is designed for them and they have a major role in the demands and needs. However they do not make the decision to buy the product.

Third party
Third parties are parties involved in the using of a security entrance solution without actually walking through the door/gate. They can be security management, a guard, etc.

External party
External parties are parties involved in the development of products of Boon Edam. They have parts installed in the solution or provide knowledge to Boon Edam about the function of their products.

Project overview

This report is divided into several sections. Those sections represent the stages of the project process. The Intro-section provides information about the project setup and the authors interest.

In the Research-section the initial research will be described. This research provided a starting point for this graduation project. It also discusses the setup of the qualitative research done in the Analysis-section.

The Analysis-section discusses the execution of the research and compares the results with the findings of the Research-section. It then provides a problem definition and directions for the design.

The Design-section starts by providing a framework and general overview of the service. It then explains the phases of the service in a more detailed matter.

In the Implementation-section provides information on how Boon Edam can implement the service within their company

Finally, the Conclusion-section wraps up the project. It also provides a list of the used sources and appendices.

Within this thesis a model is used to provide a framework for finding opportunities. This model will firstly explained in the Intro-section. During the report the model will be reviewed and iterated, up to the point where it is integrated with the designed service, Boon Edam Evolving Entries.

All interviews and directly derived information such as statement cards are marked as confidential by the author. Therefore they are not included in this report and can be found in confidential appendix report. This can be requested at Jonas Oijevaar, Boon Edam.

INTRO RESEARCH ANALYSIS DESIGN IMPLEMENTATION CONCLUSION

Problem introduction

Nowadays customers become less interested in buying a product and more interested in buying a function (Ctac.nl, n.d.). As a result of this trend more and more companies start thinking about implementing a service based business model. One of this companies is Boon Edam.

One of the results of servitization is increased revenue of the company. While this is a positive development, there is one aspect of servitization that seems more important to Boon Edam. To provide a good service it is necessary to have a good customer relationship. The reason for this is that the client must stay involved with the company to keep buying the service. Therefore servitization shifts the focus of a company from transaction to relation. This results in a stable source of income.

Another result of this good customer relationship is that Boon Edam gets a competitive advantage in the market. At this moment they can easily be substituted by any of their competitors as they all sell similar products. For the potential client this means that there isn't an obvious choice within this sector

If Boon Edam can enhance some unique selling points, their company has better control over their clients. As security gates have a lifespan of around 10 years (facto.nl, n.d.) there lies an opportunity for Boon Edam to interact with their clients.

This problem becomes more important whilst looking in the nearby future, where the use of security entrances may decline, as the possibility to track people becomes bigger and therefore easier to control the access to buildings. By servitizing their business model Boon Edam gains a stable customer relationship with their clients, which results in securing the existance of the company in the future.

About Boon Edam

Boon Edam is a company that supplies top quality revolving doors, high security doors and speed gates to customers across the world (Boon Edam Global, n.d.). They belong to the top of their field. Being a third genaration Dutch family business they pride themselves on their knowledge and dedication to this specialized market. They guide their clients in making their entry vision become real. To do so they commit themselves to help you with the decision making process and even after sales and service in order to let their products add value to the company.

They are renowned for their tailor-made solutions on standardized products. This helps to add value to the customer experience. And with over 140 years of experience there can be said that they have proven their reliability.
Clients often return after their long lasting entrance solution is finally up for replacement.

Besides this Boon Edam invests in creating on-trend crafsmanship. This can be seen from their focus on providing products that are efficient, safe and have a relatively small impact on the environment.

Boon Edam is active all over the globe. They do not only partner with distributors, but offer direct sales and service to every territory. As a result they can provide fast and local experience to every potential client. This goes for all phases of a project, from design to maintenance. they ensure that the end result is always worthy of the premium Boon Edam brand.

Part of this is the care Boon Edam has for their clients rate on investment. With their expertise they can help the client find the perfect balance between the level of security and all other factors that are involved in an entrance solution.

Motivation and personal interest

During the last year of my master Strategic Product Design at TU Delft I had the opportunity to choose different electives that suited with my thoughts on design. During this period I decided to choose electives that were both user and business centered. My motivation for this was that you can't design a proper product or service without knowing what the user actually wants and expects from it. Therefore I think customer driven design is the best way to innovate.

Besides the customer one of the things I think designers lack in general is the business side of their products. While some of us might have knowledge about marketing, creating a solid business plan is often something we find particularly hard.

During one of the electives a guest lecture was given by Victor Visser. As a graduate from IDE TU Delft he was asked to tell us something about his job at Boon Edam. After he finished he told about the opportunity to graduate at Boon Edam.

With the semester coming to an end I remembered this opportunity and started looking into the different ideas that came from Boon Edam. Some of the proposed graduation projects seemed really interesting to me as they fitted with the path I had taken during the past half year. So I made the decision to contact them and discuss a graduation project.

During a meeting with Jonas Oijevaar and Victor Visser in Edam we made a proposal for what is now the thesis you are reading.

As part of the design brief of this project I set a few goals I wanted to achieve with this graduation project:

With this project I want to show that I am capable of understanding customer needs and making them valuable to a company. This way I can design solutions that are tailored to both company and customer. During my electives I chose to do mostly projects that were customer oriented, as I find it interesting to use their needs to create value for companies. I want to deepen my skills in customer driven design and creating strategies for companies.

One of the opportunities I see is the possibility to create a more future driven end-result than I have done so far. In my other projects this often was a bit vague due to the lack of time. Therefore I want to learn how to design a strategy that can be implemented for a long time, and how this must change during the years.

Boon Edam offers a great opportunity for this, as they are working in a rapidly changing market. Due to innovation their expertise might have to change during the coming decade, in order to maintain their market share. This creates a need for a good innovation plan that can create and conserve value towards their customer.

Another thing I want to improve are my skills in creating a viable business plan. I have touched upon this many times during the BSc and MSc, but I have never made a detailed plan around a product/ service I designed. This project seems as a good chance to write a more detailed plan.

Model: Finding opportunities for security services (FOFSS)

To structure the search for opportunities for a service within the security business the FOFSS model is designed (figure 1.). This model is based on functionalities of security entrance solutions as explained by van Os, J. and te Kaat, K. (n.d.), Paxton-nl.com (2018) and Greg Schreiber (2018). By categorizing the functionalities into five groups a circular sequence was designed which explains how innovation happens within the security branche.

The first thing that is important about products in the security branche is that they offer security. In specific for security gates this means that they form a first line of defence and prevent unwanted access. As a logical and physical access control mechanism they protect the space behind the doors.

While offering this security it is possible that the gates offer more functionallity. By implementing an autorization system and an incident management system the entrance can provide easy access and damage control for users. It can also be used for crowd control which or designed in a way that people can get by efficiently (two way door). Also preventing things like piggybacking is added functionality to the entrance solution.

With many added functionality it is important to think about the ease of use. For example, integrated access cards that serve as IDs can provide a benefit to the users of the entrances. Another benefit of this example is that owners of such a card can access multiple areas without having to bring multiple keys.

With so many things going on in the software of the entrance solution a database can be created to analyse certain datapoints. By monitoring and analyzing who enters, how many times a gate opens, how many people pass within a certain time frame, etc., this data will provide good insights in company processes. This can be used to look for flaws or improvements of the company.

As a result of this analysis opportunities will arise. Those opportunities can result in change of company processes, or change of the design of the entrance. When an opportunity is taken and a solution is implemented the entrance solution will have improved security, functionality and/or ease of use. This will then lead to a new cycle as it changes the original setup of the security entrance.
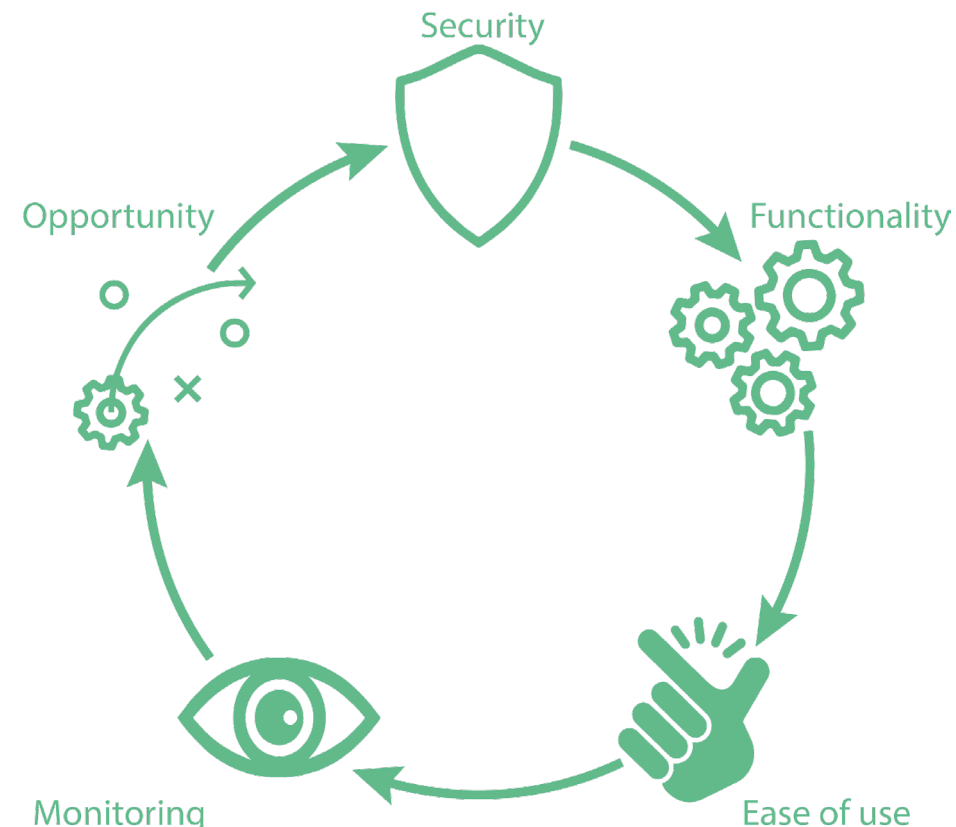

Figure 1. FOFSS model

RESEARCH

In order to design a good solution to any problem it is important to research the topic thouroughly. A sufficient understanding of the problem and the framework around it is needed to make sure all aspects are considered during a design project. In other words: the difference between a good design and a great design is the amount of knowledge and thoughts that have been put in the product or service. For every project this research must be done in different fields, so that all aspects can be taken into account. For this particular project it is important to look into the following topics:

Boon Edam
To find a fitting solution for Boon Edam knowledge is needed about the company and its surroundings: What do they have to offer? What does the market look like? Who are their competitors and what do they do different? What other stakeholders play a part within their sales? This knowledge can be used to find solutions that are both fitting within Boon Edams portfolio and can be a unique selling point towards potential customers.

Business Triads
The sales situation of Boon Edam is one in a B2B-environment. It creates a situation that is called a business triad. This means that the company sells to a buyer, which will not be the end user. As this is a specialized way of selling products, expert knowledge on this can be used to define requirements for solutions: How are do the relationships look like in a service triad? What is the desired way of communication? What are the desired roles and outcomes of every stakeholder? How can Boon Edam provide a service that is fitting in this system?

Trends within service design
One thing that is always important, no matter what is designed, are the trends within its field. They can be used to understand what is going on, explore opportunities and anticipating on the future. In this case it provides an answer to the questions: How does servitization work in general? What implementation does it have in the security sector? What opportunity does this provide for Boon Edam?

Customers
Since the aim of this project is to create a service for Boon Edam, creating an understanding of the current customer situation is extremely valuable. This helps with deciding on what parts of the interaction can be improved. In this project the customer is adressed as the client of Boon Edam, not the actual user of the products. Things to find out are: What is the thought process of potential customers? How do clients buy a product from Boon Edam? What do they find important while selecting a proper solution? How do they they think Boon Edam performs and what could be improved?

Boon Edam
Product portfolio

Figure 2. shows an overview of the security entrance solutions Boon Edam offers their clients. The product portfolio provides an insight in the products Boon Edam already has. It can be used to find gaps and opportunities on both product and service level.

The diagram displays the variety of possible solutions which gives an insight in the diversity clients have to deal with. When selecting an entrance for a building the client has expectations of what it should look like, but doesn't know what entrance would fit best. The diversity of the products can make it difficult for the client to choose which one will be fitting. At this moment Boon Edam helps them picking the right solution by consulting the client based on a set of criteria.

Another important thing that can be learned from this portfolio is the amount of options Boon Edam can already provide to their clients. Since developing a new product will cost a lot of time and money it is good to know what products Boon Edam has ready to distribute to their clients. From a service perspective this means that these are the products that should be involved as main part of the service.
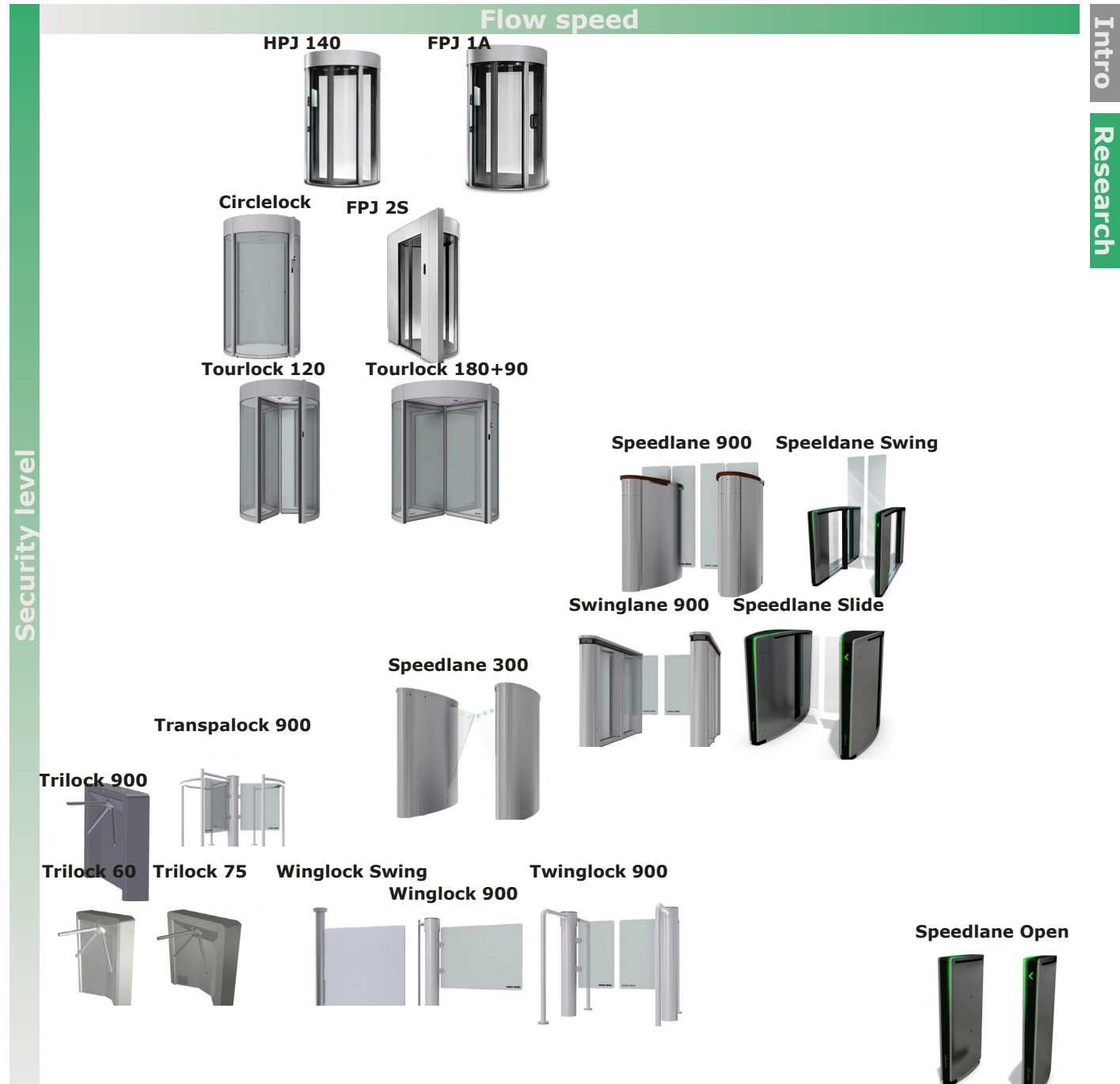
Figure 2. Product portfolio Boon Edam

Competitors

To provide some insights into the market a small competitor analysis is made (Figure 3.). This mainly focusses on the products they have in their portfolio and the services they offer. The last criterion is the most interesting as services of competitors might be an example for the design of the service of Boon Edam.

Using data from the IHS Markit research-Security summary (2017) provided by Boon Edam competitors are selected that are relevant to the scope of this graduation project. They are displayed within a framework to show the differences.

As can be seen in the framework the competitors and Boon Edam are really alike. Most competitors offer similar products and have maintenance as a service. Only PERCo differentiates itself by offering the possibility to lease a variety of entrances/security gates. This means that there are a lot of opportunities to provide services for security entrances, as it is an undeveloped market.

The question can be asked why there is just one competitor that offers more than just maintenance to the client. The answer to this question is that the security sector has just begon servitizing their products. As there is little research on the demands of the clients, there are no services developed yet. The chapter Business Triads explains why servitization is beneficial to both Boon Edam and their clients and why they should shift their business to this part of the matrix.

Figure 3. Competitors matrix

Stakeholders

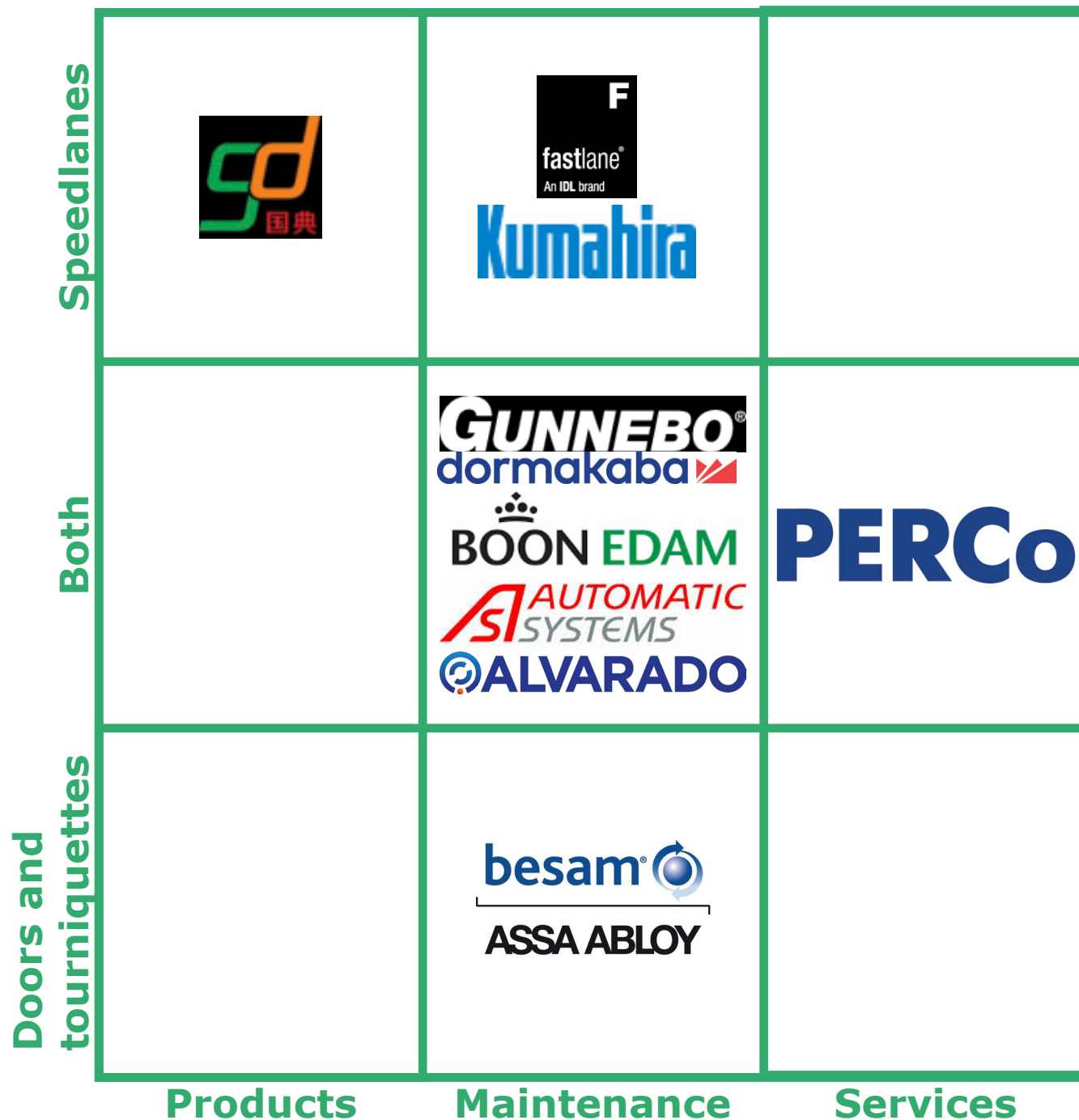There are a lot of stakeholders involved with security entrances. Providing an overview of them generates insights in who might be intereseting parties to involve in the service. This stakeholder map will be used to help define the target group(s) of the service. By involving the main stakeholders in the project the service is more likely to be a succes as it fits with their needs and wishes. When those stakeholders are supporting the service it will be easier for Boon Edam to gain resources from them, such as people, time or money.

Identifying the stakeholders in the beginning of the project also makes it easier to get an overview of who to target for interviews during the research. By knowing who the targeted audience is it becomes also easier to focus the interviews on aspects they can provide information on.

Using the Nedap Whitepaper by van Os, J. and te Kaat, K. (n.d.) as a guideline the following stakeholder map is created. The stakeholder map itself is based on assumptions from the author after reading the descriptions of each group in the whitepaper, with the addition of own assesments. An overview of the involved stakeholders:

Facility management
Often controls the budget and is in charge of day to day use of the building. Will probably be the department that initiates the buying process of the gates. Therefore it is important that this department is notified of the possibilities Boon Edam offers.

Security
Has knowledge about the requirements the system has to fulfill. They can have big influence on the picking process, as it is their main job to provide a safe environment. However, they could also be overlooked as they just have to work with the system.

IT
Facilitates the network to which the system is connected. Has a deciding roll in the decision, as the system must fit in with the current network settings.

HR
Decides on the human aspect of the system. With privacy becoming a bigger issue according to nowadays trends, this group might be interesting to take in account while trying to design a service. Is also probably in charge of creating access cards for employees, as well as handling their personal data.

Procurement
The actual buyer of the products. This department must be convinced of the capabilities of Boon Edam, as well as triggered to join in the service. It is important they see the company as the one which can offer the best value.

Communication
Will create awareness of the system towards the employees. Will be the front face towards visitors and has to help them smoothly through the system.

User
The actual person that uses the gates on a day-to-day basis. Has little influence on the buying process, but is taken into account by other parties, as he is the one who will experience the entrance the most.
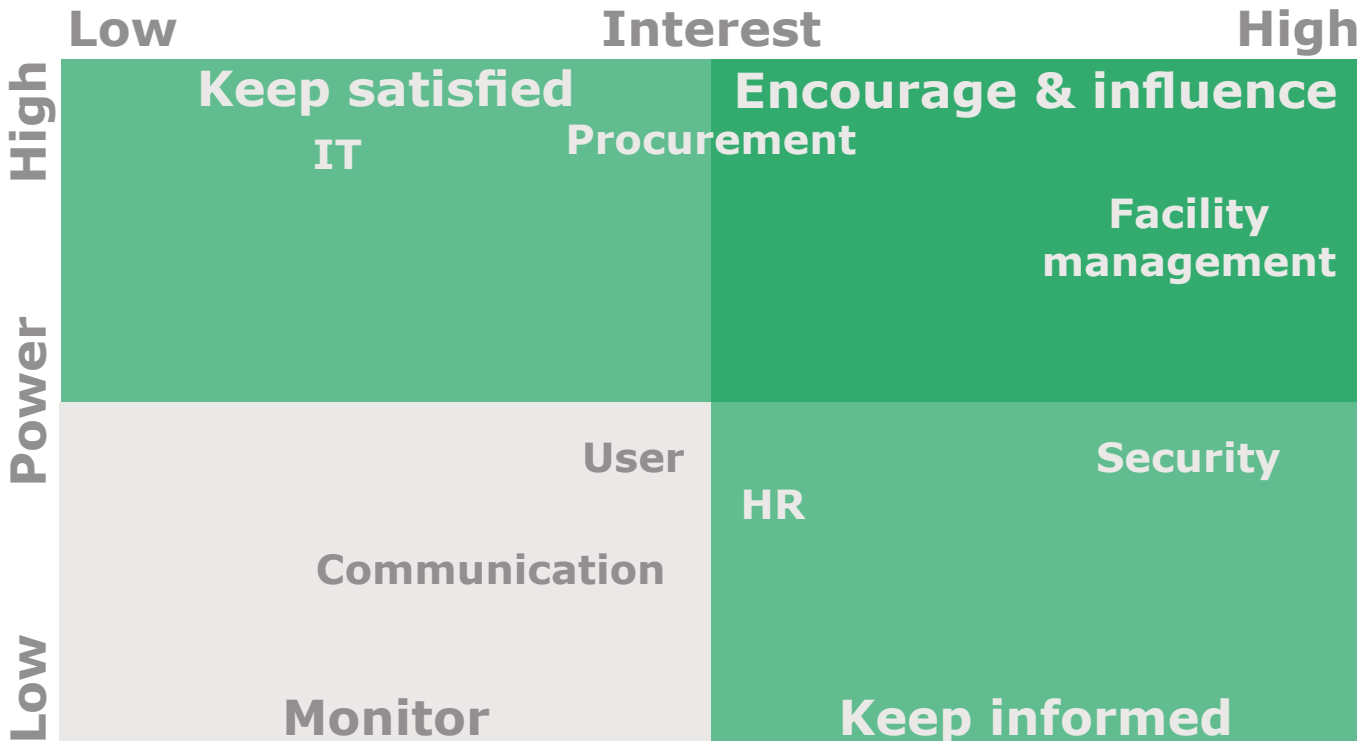
Figure 4. Stakeholder map

Business Triads

Before designing a service for Boon Edam it is good to take a look at what literature states about the environment Boon Edam operates in. Gaining insights about the information flow and interactions between Boon Edam and involved stakeholders provides design opportunities and guidelines for the design of a service.

As explained in the introduction of Research, Boon Edam opperates in a business triad, where supplier, buyer and customer are connected. This chapter provides insights from literature on this topic. Within this chapter Boon Edam will be called the supplier, the client buyer and the user customer, as those are the names used within the literature that has been reviewed.

Service triads

To understand the principle of a triad a look can be taken at a manufacuring triad. In a typical manufacturing triad you can distinguish three stakeholders: supplier, buyer and customer. The interactions between those stakeholders are shown in Figure 5. (Wynstra, Spring and Schoenherr, 2015). It shows that interaction between supplier and buyer is necessary, as well as the interaction between buyer and customer. However, interaction between customer and supplier is not given in every situation.

The triad Boon Edam operates in differs a bit from a manufacturing triad. Their triad is defined as what Zhang, Lawrence and Anderson (2015) call a T2 triad. This means that within their triad Boon Edam doesn't really interact with the customer yet, but that the customer benefits of their products. In this specific case their customer exists of two groups: the user of the security gates and the operator of those gates. A T2 triad is a so called service triad, in which the supplier and customer are interacting through some sort of service.

An important thing to mention is that the service Boon Edam provides to the customer is not a typical service. This is because they deliver a product that has a function resulting in security for both customers and their belongings. When looking at Figure 5.b this can be explained as the necessary operation process interaction. More concrete, Boon Edam provides a sort of opposite of a service, as they will actually keep out non-users of the product. This provides a more complex system as the product they deliver is actually meant for the non-user of the product.

With understanding of this interaction it is good to mention that the product of Boon Edam, security gates, also creates opportunities to become a product that benefits both buyer and customer. Wynstra, Spring and Schoenherr (2015) state that in order to do so, Boon Edam must have high customer contact between supplier and customer. This is part of creating coherence within the triad. It would also mean that the triad shifts from T2 to T3, in which the supplier (Boon Edam) directly interacts with the customer.

This contact between supplier and customer creates a split role for the customer as information provider. Some information will go to the supplier and some information will go to the buyer. As a consequence, the buyer might also have to provide the supplier with information. The question within this scenario is what role is desirable for the buyer: should it obtain all the information and schedule meetings with the supplying party, or should it allocate the customers to the suppliers and let those parties sort out the problem. In short term this is an efficient solution, but in the long term it might threaten the position and addition of value the buyer provides. However, for this specific situation it is irrealistic that Boon Edam can perform as substitute of the buyer. Therefore direct interaction between Boon Edam and the customer is prefered for a service.
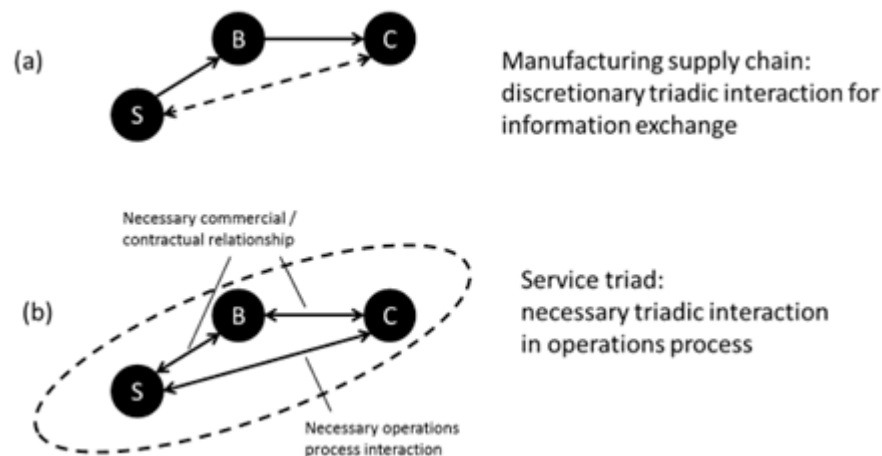

Figure 5. Buyer-supplier-customer relationships in manufacturing and service

Managing interaction

Having explained the interactions between Boon Edam and their stakeholders and how this interactions should look like a look can be taken at how interactions should be managed.

Within triads, buyers are highly dependent on suppliers, as they are in charge of the service delivery. (van der Valk and van Iwaarden, 2011) The buyer has to make agreements with the supplier to monitor the outcome of the service in order to make sure it is up to standard. For example, they set up contracts/service level agreements and check up on results every period of time. Management of all interactions within the triad is key for successful service procurement. Important to know is that the buyer has both contracts with the customer and the supplier, but that the latter two don't have such an agreement.

While designing a service within a service triad it is important to avoid what is called the agency theory. Van der Valk and van Iwaarden describe this theory to build on specific assumption regarding whether suppliers can be expected to act in the best interest of their (customers') customers. They state that due to human nature people are always looking for the best self-interest, as well as having different risk preferences than their customer. This leads to asymmetrical information in favor of the supplier. To avoid opportunistic behavior from the supplier, it is important that there is goal congruence between the parties.

To see what kind of contract is needed to achieve this, all parties must determine what they find most important. In that way they can create an appropriate contract or service level agreement. After this it is even more important that the outcomes are monitored. This can be done by actively managing relationships. More specific for Boon Edam this means that they must actively search for the needs and desires of the buyer and customer. Only then they can compare their own needs with the needs of the other two parties and create a service that benefits all.

Van der Valk and van Iwaarden suggest that the contracts between all parties should be on the same level. They specifically argue that it is important that the buyer reflects the needs of the customer and that the customer is mainly interested in the outcome, not so much in the process. They also suggest that this can be better achieved by maintaining social contracts instead of legal arrangements. To do so Boon Edam must again actively interact with buyer and customer to maintain a strong social contract.

Focussing on core business

Now that there is a basic understanding of the prefered interaction between parties within a service triad, the question arises why a service triad is prefered for the buyer within the triad. As explained earlier interaction between the customer, buyer and supplier leads to opportunities for product improvements. However, there is a bigger benefit of a service triad, coming from the buyer perspective.

In the current world a trend arises where companies only want to focus on their core business. When outsourcing activities to a company as Boon Edam they are able to do so. An explanation of this trend comes forth out of multiple articles. Narayanan, Narasimhan and Schoenherr (2015) claim that outsourcing tasks that are not part of your core business is a way to gain agility performance. As customers expect great service as well as groundbreaking technology and products it is necessary to focus all resources on delivering as is demanded. While a company has limited resources this results in them outsourcing everything that is not core business. Since a security entrance often is not part of the core business it is logical to outsource this. It then becomes a triadic system.

Narayanan, Narasimhan and Schoenherr state in their article that the earned agility is the key to sustainable growth. They use transaction cost economics (TCE) as a method to prove their hypotheses. Within TCE they state that there are three important factors to create a good working outsourcing: asset specificity, uncertainty and transaction frequency. Asset specificity can be seen as the degree to which transaction specific assets are invested in the relationship. The more specific assets are towards the relationship, the lower value they have outside of this relationship. In an ideal situation this means that the outsourcing of the security entrance should cost the buyer little effort, as he wants to use his time differently. As a result Boon Edam should provide a service which requires low investment of the client.

The second important factor, uncertainty, is a disturbance source to which the buyer-supplier relationship must adapt. With a higher uncertainty, both supplier and buyer will have problems to make choices. A way to improve on both factors is by increasing the transaction frequency to a point where collaboration is optimal. This provides both companies with trust in each other, which on its own contributes to successful product development and customer responsiveness. Boon Edam therefore must invest in finding balance between the demand of information from stakeholders and their willingness to invest resources in the relationship with Boon Edam.

Service setup

Now that is explained why companies are in need for a service triad and how interaction is prefered more detailed information can be given on how the service should look like to perform in an optimal way. As Boon Edam adds a service to their product portfolio it is interesting to look at what servitization actually means. Kreye (2017) defines it as *either guaranteeing or improving the operation of a product.* While implementing such a change Boon Edam should also seek for: higher profit margins, stable cash flows, increased customer demands and lock-in situations. As advised earlier, this can be done by maintaining close customer relationships.

With this clear definition of servitization a theoretical look at performance is provided by Karatzas, Johnson & Bastl (2017). They try to determine the role of the manufacturer-supplier relationship in the supplier's service performance toward the manufacturer's customers. Their article explains that within a triad there is interdependence between the dyadic relationships of the involved parties. In the context of servitization this means that the effective provision of the offering, customer satisfaction and loyalty of the manufacturer depend on the performance of the supplier responsible for the delivery of the services.

Translated to Boon Edam this means that the relationship between the user and the client is influenced by the performance of Boon Edam. A good relationship between Boon Edam and the client improves the customer focus of Boon Edam and thus the performance of its products. To provide a good relationship it is important to have trust, an adaptable relationship, aligned incentives, operational integration, risk-sharing agreements and intense and diverse information sharing between Boon Edam and their client.

To elaborate more on this they use Cannon and Perreault's (1999) framework of relationship connectors to explain how much relationship connectors between supplier and buyer influence the performance of the buyer. The research consists of three test cases and proposes the effects service site size (measured by the number of individuals employed) and the proportion of the site's revenues that come from fixed-cost contracts and warranty activity influence (product=service penetration; PS penetration) on the performance. Out of their propositions a few interesting things arise for Boon Edam:

When the service site has a high PS penetration, the operational integration between the site and the manufacturer is high (1). As Boon Edam currently has low PS penetration they have low operational integration which means any proposed service must be easy to implement in the organization of the client. Due to a low PS penetration, there should be a high the level of perceived over-formalization of its relationship with the manufacturer (2). As clients see their entrance solution as just a small part of their company they are not willing to invest a lot of time and money in Boon Edam. As a result they might interpret the amount of work they have to do to come to a deal as too much. Reducing this pressure on the client will result in a better relationship.

A client with a large service site will have a more cooperative relationship (3) with a higher operational integration (4). This is due to the possibility to diversify tasks within the company. As a result, from a service perspective, it is more interesting for Boon Edam to work with large clients. However small companies offer an opportunity as Boon Edam can take up tasks in which they can't invest time or money.

With a high cooperative relationship and high operational integration Boon Edam will have better information exchange (5) and a better service performance (6, 7). This is important as it is part of a vicious circle: A more cooperative relationship leads to less formalization, which leads to a better performance (8). A better performance will lead to higher relationship-specific adaptions and thus operational integration and a better cooperative relationship (9, 10). As a conclusion investing in a cooperative relationship and operational integration is highly profitable for Boon Edam.

Earlier, Karatzas, Johnson & Bastl (2016) adopt the same framework to identify four configurations of buyer-supplier relationships that lead to superior service performance of a supplier toward the provider's customer base. Those four configurations are quite different but show some similarities:

From a buyer perspective it also is important to strive toward building closely integrated relationships with their service suppliers. This is because it will lead to an effective service exchange. In other words: if the client of Boon Edam invests in a good relationship with Boon Edam, the service that is provided to them will perform optimal. This is because the willingness to invest resources beyond legal bonds increases when there is a positive relationship between companies.

Improved service performance also happens when the buyer is willing to adapt systems, procedures and routines to the needs of the supplier. For Boon Edam, this means they get whatever information they need from stakeholders and have the possibility to implement systems that will improve the performance of the security entrance towards the needs of the customer.

Conclusion

Based on the literature conclusions can be drawn on some features a future service of Boon Edam must contain:

Boon Edam will operate in a service triad. This means they will interact with both buyer and customer. Essential is that Boon Edam gets a good understanding of the needs en demands of both stakeholders. Therefore they must obtain information directly from their stakeholders.

While managing interaction it is important to clearly state what results are desired and how those results are tested. Only then it is possible to measure if the outcome of a project is as promised. Boon Edam should provide their clients with a clear overview of what their service consists of and how this is measured.

To assure an entrance solution is fitting with all involved stakeholders it is not only important that Boon Edam obtains information directly from their stakeholders, but also invests in relationships with those stakeholders. Those social investments will result in a better understanding of the needs.

The main goal of the service must be to help the client to focus on his core business. This way they will see the service as valuable to their company. To do so the service must take over some of the tasks of the client, so that he can allocate his resources otherwise.

The service Boon Edam provides should either improve or guarantee the operation of their products. This way the buyer and customer will benefit of the outcome of the service. As a result the service must support the current product portfolio and processes of Boon Edam.

Buyers must experience the service to be a low cost service. This way they do not have to invest a lot of resources to make the service work, which increases their willingness to provide quality information on the topics Boon Edam is interested in.

The service must adress companies that are willing to adapt towards the advise of Boon Edam. Therefore it must be possible to implement the service only if companies are willing to cooperate.

Trends within service design

To provide some insights in how the security sector relates to servitization it a look is taken at what stages exist within servitization. Combined with the competitor matrix something can be said about the development of the security branche in service design.

Servitization

An insight on how servitization works is provided by Baines et al. (2017). The article explains that there are three levels of service:

- Base services – goods and spare parts
- Intermediates services – product repairs, maintenance, overhauls, helpdesks, training, condition monitoring
- Advanced services – customer support agreements, outcome contracts

As a result of servitization they see that companies find a lot of benefits in while providing a service to their customers:

- Growth in revenue and profit
- Improved responses to customer needs
- Improved product innovation
- The building of new revenue streams
- Increasing customer loyalty
- Setting higher barriers to competition

Looking at the security branche we see that most of the companies offer intermediate services to their clients. However, as described by Kemps & Vos (2016), clients have different demands in the current world.

They describe that the manufracturing branche is ready for servitization. This is because companies are focussing on their core business. As a result of this they start outsourcing their in-house activities such as security

This provides a major opportunity for Boon Edam to be the first to servitize a security entrance solution. The best way to do so is to provide the client with a service that relieves the amount of time and resources they have to put into selecting, installing and maintaining their security entrance. Providing them with advise and keeping their installations up to standard will be experienced as a good way of outsourcing the security.

Customers

As explained earlier one of the key elements of servitization is the understanding of the customer. To get insights in their way of thinking the Nedap Whitepaper by van Os, J. and te Kaat, K. (n.d.) is used as an inspiration to develop a customer journey (Figure 6.). It provides insights in the journey of the client of Boon Edam during the entire lifespan of the product. The customer journey can be used to spot gaps or opportunities where a service can be a benefit to the client. It is also used to set up the interview template as it provides a chronological overview of the buying and usage process of the client.

In the customer journey the stages are ordened on the amount of involvement of the supplier. As described in the problem introduction a service of Boon Edam must result in a stable customer relationship. The scale of involvement can therefore be used to show where Boon Edam already has a lot of interaction, which makes it easy to improve the customer relationship, and where it is lacking, which might provide and opportunity to gain new meeting points with the client.

As a result of the customer journey there can be concluded that it will be hard for Boon Edam to provide a service in the early stages of the clients journey, because they are not yet involved with the client. Better opportunities arise from the moment a potential client starts searching for a supplier. After this moment there is a period of high customer contact. A service of Boon Edam could aim on maintaining this high customer contact, which results in a good customer relationship.

Involvement supplier

Analysis

After the decision is made to buy a security entrance the responsible employee will conduct an analysis to find out the needs for the system. The following topics will be discussed:

Risk analysis

What needs to be secured?
What processes cost the most when interrupted?
What do you want to prevent?
How to gain damage control?

Long term investment

How do our company and our employees work now?
How will this be in the future?
Which rules and demands do we have to live up to?

Opportunities

How can we use the system to:
- be more efficient?
- optimize company processes?
- be more hospitable?
- ease things for our employees?

Need for a security entrance

At some point while designing or owning a building a decision is made to place a security entrance in the building. This decision is often made by the management of a company and then passed on to either security or facility management.

List of requirements

After determining what needs the company has a list of requirements will be made. This list contains concrete demands on the performance of the entrance solution system. The list will be used to evaluate options and choose the best solution for the company.
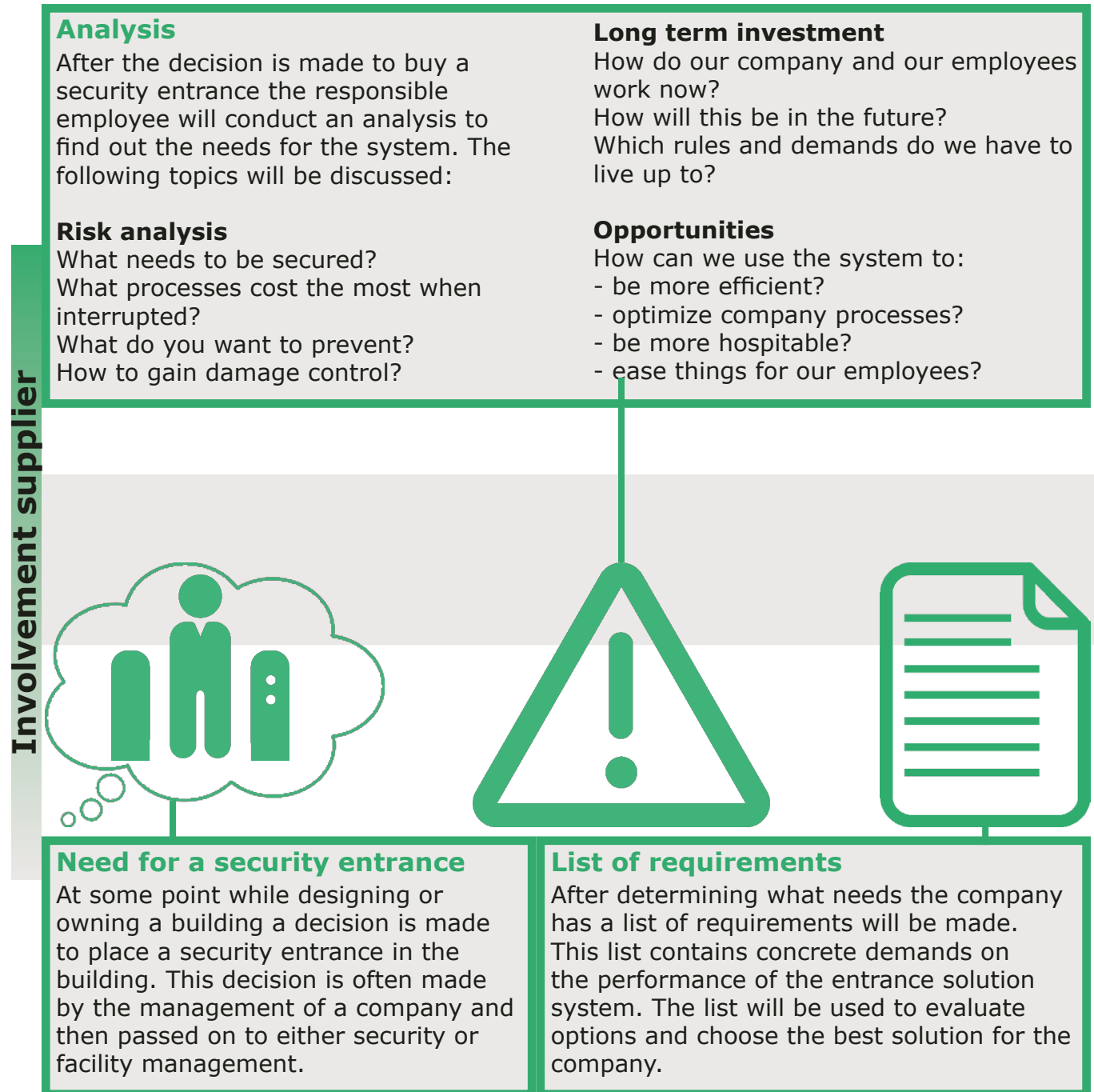
Figure 6. Customer journey

Discuss the demands

Now that the suppliers are selected there will be an initial conversation with them to see what they can actually do. After those initial conversations one of the suppliers will be chosen to build the solution. Together with this supplier the company will discuss their specific demands and negotiate a price and other terms.

Installation

The supplier will now produce and install the entrance solution at the company building. This will take some time, as the physical objects need to be produced and placed in the building. After this the operating system must be installed and linked with other systems active in the company building.
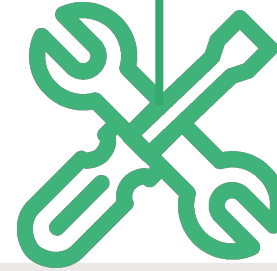
Search a supplier

With a clear understanding of what kind of solution is needed the search for a supplier starts. By googling and going to business exchanges the responsible employee gets a feeling for the opportunities. He then selects a few suppliers which he thinks can deliver a solution that meets the demands.

Buy the system

After all terms are discussed the responsible employee will propose the outcome to the management, which will agree or decline on buying the system. When an agreement is made the supplier can start constructing.

Use and maintenance

When the security entrance solution is completly installed the company will start using it on a daily basis. At this point the involvement of the supplier becomes minimal. They will only be involved when maintenance has to be done.

Interview guide

The final step of the research part of this graduation project is a qualitative research on what kind of interaction clients prefer in a service of Boon Edam. This will be done in the form of interviews, which will be recorded, transcribed and coded. The codes will then be used to generate directions or statements which will help designing the service.

The goal of the interviews is to get information on all levels of client needs: explicit, observable, tacit and latent. By gaining information on all levels it is possible to design a service that truly fits with the client. To structure such an interview a general interview template is made, which is then adapted to the function of the interviewed person.

Six people will be interviewed during this qualitative research, each with a different background. This way the most diverse information can be obtained for the project. To make sure the information is the most insightful, all participants are main stakeholders. A description of the participants:
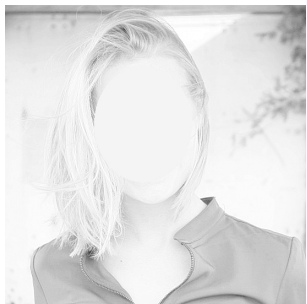
Strategic assistant of the CEO of B. Amsterdam
B. Amsterdam is a multi-tenant building with multiple locations in Amsterdam. The strategic assistant is in charge of facility management and security.

Security manager Benelux of Unilever
Unilever is a transnational consumer goods company with establishments all over the world. Their security manager Benelux writes and executes plans for the security of all buildings. He cooperates with facility management when selecting entrance solutions.

Security expert of K.I.C+S
K.I.C+S is a one man business that consults in security matters. With over 40 years of experience the security expert has been involved in securing many buildings and writes innovating articles on security development.
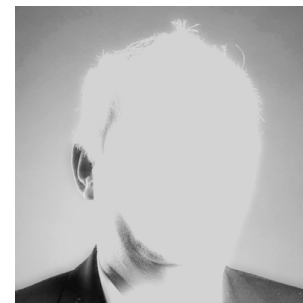
Head of security of VDL Groep
VDL Groep is an international industrial and manufacturing company involved in the car industry. Their head of security emphasizes the security of the owning family, but advises all offices on security.

CEO of Nsecure
Nsecure is a company that offers security as a service on a macro-level. They are partners of Boon Edam in some projects and sells security as a package to their clients. The CEO is involved almost from the start and most of their ideas come forth out of his vision.

CEO of Ensura
Ensure is a seller of systems that can read and code biometrics of people. They build solution to demand using camera systems. Their founder and CEO can be seen as an expert on trends for the security business.

On the next page the interview template is shown. The interview consists of three major parts and three small assignments. Assignment one asks the participant to provide a timeline of interaction with Boon Edam. This timeline will be used to validate the customer journey. Assignment 2 will provide a stakeholder map which can than be compared to the assumed one made during the research phase. This stakeholder map will be made by the participant by wr During the last assignment participants were proposed a future opportunity to see if how they would react to this.

Research topic:
Interaction between Boon Edam and customers

Main research question:
What kind of interaction is prefered between Boon Edam and their customers?

Introductory script
Hello [participants name], thanks for participating in this interview. Before we start I would like to ask if you have any problems with me using the outcomes of this interview, as well as quotes, audio and/or video examples to display to my chair, mentor and Boon Edam?

Could you please introduce yourself?

Subtopic 1
Need for security

Opening question:
First of all, why did you decide this building needs security entrances?

Follow ups/probes:
- Could you show/explain me what kind of entrance you have right now?
- What is your experience with security entrances? Can you give some examples?
- How did you plan to organize your security?

[Assignment 1]

- Do you outsource your security, or do you employ your own staff?
- What other measures do you have for your security?

Subtopic 2
Process of picking a company for security entrances

Opening question:
How did you search for a company that could fulfill your need for a security gate?

Follow ups/probes:
- What would be the key elements for deciding what kind of security entrance your company needs?
- Which members of your company were involved while making the decision what kind of security gates were needed?

[Assignment 2]

- How big and what was the influence of each of those members?
- After buying the system, who was still involved in the interaction with Boon Edam?
- How long do you plan on maintaining your current system?
- How often adaption of the system is needed?

Subtopic 3
Relationship between Boon Edam and customer

Opening question:
How did you find companies that could deliver this system to you?

Follow ups/probes:
- What made you choose for Boon Edam?
- Could you explain about your interactions with Boon Edam while choosing the product?
- How often do you speak with Boon Edam? What are your findings on this?
- How do you like your system as it is now? What could be improved?
- Do you think Boon Edam should be more involved with your company?

[Assignment 3]

Closing question:
Is there anything unmentioned in this interview that you would like to say about Boon Edam and/or the service?

This interview is semi-structured, which means that it exists of opening questions and follow ups. By not strictly defining the questions the interviewer has the possibility to adapt the interview to the answers of the participant. This way more depth can be given to the interview. It still is important to provide some sort of structure so the interviewer will have guidance through the interview. This guidance prevents the interviewer from forgetting certain topics.

The interview contains open questions to encourage the participants to talk freely. Key to this is digging deeper when answers are not clear or need more explanation.

ANALYSIS
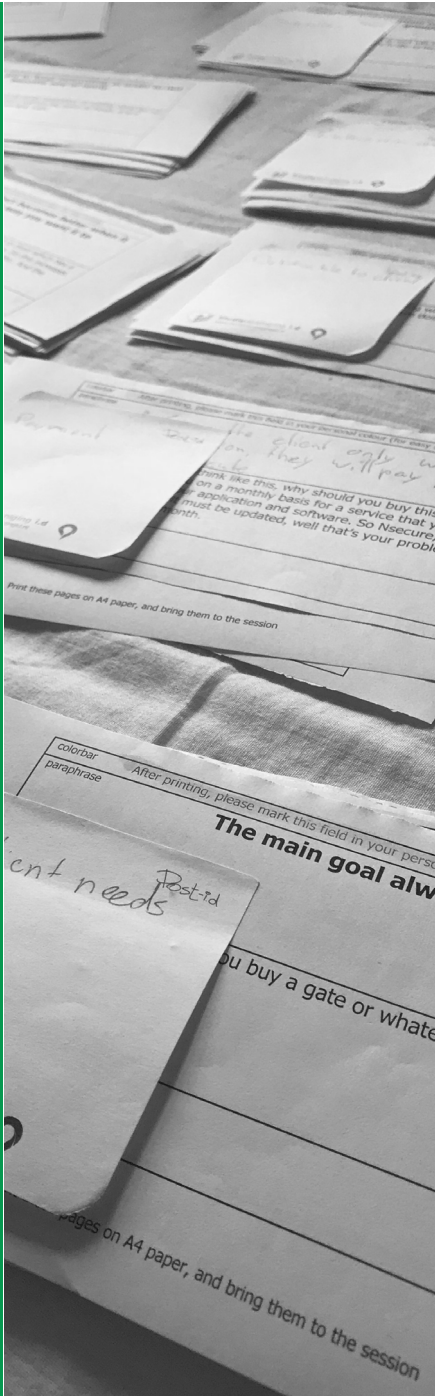
*I*n the Research-section of this report a lot of assumptions are made based on information derived from different sources. In the Analysis-section those assumptions are tested by interviewing the six stakeholders. Those interviews will be transcribed and then used as verification for the assumptions and to update relevant figures from the Research-section. The codes that come forth from the interviews will provide statements that can be used to design the service in the next part of the graduation project.

Research execution

In this chapter an overview of the execution of the qualitative research is given. This provides insights in the way the research is done. It also gives more detailed insights in what methodology is used for the analysis of those interviews.

Interviews

As described in the Research-section six semi-structured interviews were executed with different stakeholders of security entrances. Each interview lasted approximatly one hour. four out of six interviews were held at the company the stakeholder was working. One interview was performed in a neutral place and the last interview was held via Skype. This last interview could not be finished in time and therefore the last assignment of this interview was delivered at a later time.

The interview template with the CEOs of Nsecure and Ensura were somewhat different from the standard interview template. The templates of those interviews can be found in Appendix A. To summarize: the interview with the CEO of Nsecure was focused on the history of the company, the service model they created, their vision on security as a service and their advise for the future of Boon Edam and Nsecure. The goal of this interview was to get a real-life example of how security can become a service.
The CEO of Ensura was asked questions about

his relationship with Boon Edam and the users of their system, what important trends he sees and what strategy Ensura has for the nearby and far away future.

Data analysis

After an interview was finished the recorded audiofile was transcribed word for word. This includes all ehhs.., gaps and rephrasing by the participant. This is important for the transcripts, as it gives insights in the thinking process of the participant. From this the deeper needs (tacit and latent needs) can be extracted, as it becomes clear that participants sometimes can't express their emotion.

To get tangible results out of those transcripts statement cards were made. Appendix B shows an example of a statement card. Each statement card consist of a paraphrase and a quote. The quote states the literal words of the participant, followed by a time stamp so that the quote can be relistened if there is any doubt of the meaning. The paraphrase shows the underlying meaning of the quote. This is the important part of the card as it provides directions for design, opinions of the client or other important information.

With some interviews containing over one hour of information it was important to limit the amount of statement cards to prevent an

information overload. Therefore a maximum of 30 statements per interview was chosen. In the end only one interview had the maximum amount of statements.

After all statement cards were made they were printed and marked with a color that corresponded to the interview they came from. They were then grouped based on the initial meaning of the statements. This provided 16 initial groups of statements. Those 16 groups were then reviewed again and 4 of the groups could be divided between the others. As a result 11 groups and one pile of outliers remained from which general statements could be made. The groups and conclusions on the statements can be found in figure 10.

Stakeholder map

The results of Assignment 1 of the interviews are used to make a reviewed stakeholder map. A new stakeholder appears in this reviewed stakeholder map: according to the participants the user group consists of two smaller groups: employees and visitors of the company.

This updated stakeholder map differs a lot from the initial map made in the research phase. First of all procurement is seen as the most important stakeholder. It has both the most power and the most interest in selecting a security entrance. A sidenote to this is that they have the most interest as they are the once deciding that a new entrance soluton must be bought, but they are not always in charge of the selecting process.

Second the employee and security manager are the most important stakeholder. As the employee is the one who is involved with the entrance on a day to day basis he has a lot of influence on the decision making process. As an expert on the security aspects, the security manager often advises procurement of what solution

is best. Important to know is that all of their influence is considered by procurement, but that procurement makes the eventual decision.

One rank down the visitor influences the employee in the same way he influences procurement. Like procurement wants the employees to have a smooth entrance to the building, the employees want the visitors to experience the same. Therefore they are indirectly influencing procurement.

Something similiar happens from IT and facility management. As they have to set up and integrate the solution within the existing systems that are operating in the company they have influence on the security manager. For example, the operating system of the security entrance must be able to be integrate with the access cards the company uses. From those two

stakeholders facility management is the most important as he is often the one who is in charge of the overal layout of the building. As IT is just responsible for making the back-end work they influence the security manager, but will have a small voice in the decision making process.

The final interesting stakeholder is communication. They do not directly influence the buying decision, but still offer opportunities for a service of Boon Edam. From the interviews can be derived that a lot of misuse of the entrance solutions comes forth out of a bad communication within the company. For example, the exit gate is opened continuously to make it easier for employees to get in. By improving communication about the risk of this, Boon can prevent this misuse from happening.
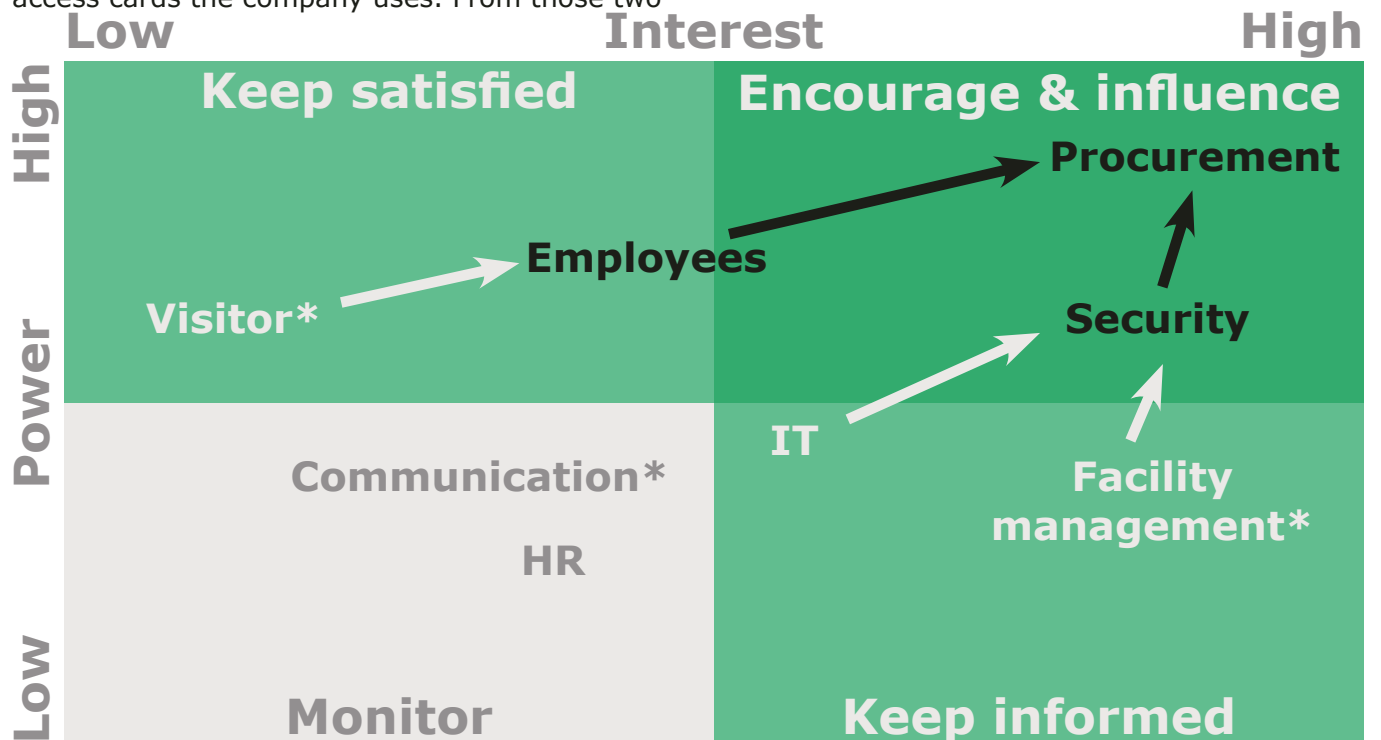

Figure 7. Stakeholder map - reviewed

Customer journey

With the results of the interviews a reviewed version of the customer journey is made. Some of the earlier made assumptions turn out to be untrue or different. Figure 8. displays the results of the interview for every step in the buying journey of the client.

Besides explaining the difference between the assumed buying journey and the actual buying journey, the reviewed customer journey also shows opportunities for Boon Edam to provide the customer with extra service.

As can be seen in figure 8., the amount of involvement of the supplier stays the same. Opportunities rise in the part where Boon Edam becomes involved with the client. Multiple interviewees state that Boon Edam becomes less involved immediatly after installing the entrance solution. They also argue that they prefer a lot of involvement of Boon Edam during the decision making and design of the solution. It would also be prefered that Boon Edam keeps up the contact to improve the entrance solution within the company.

".. in the total package. If Boon Edam comes with that I would say, well let me grab the drawings, what would you want, what are your wishes, but also, even when the wishes are not there yet. If Boon Edam would offer us that, I would think: Hey, I never thought about that, but it would be nice in our building."

Involvement supplier

Analysis & list of requirements

Companies are mostly unaware of the possibilities of security entrances. During the buying process they figure out what they need for their company. Only experienced buyers know what the market has to offer. As a result there is no clear list of requirements in advance.

Need for a secure entrance

The need for a secure entrance is triggered by different needs for every company. However it often has a correlation with the size and level of security of a company.

Figure 8. Customer journey - reviewed

Discuss and buy

There is also a difference between experienced and unexperienced companies in discussing and buying terms. Unexperienced companies look beyond the portfolio of the supplier, while more experienced (and often bigger!) companies just select one of the solutions the supplier has to offer. This is probably due to the fact that the more experienced buyers see the entrance as something to tick off their list, while new buyers still have interest in the possibilities.
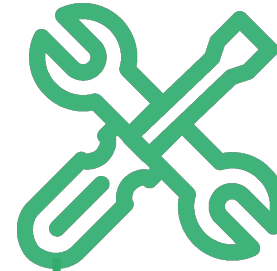
Search a supplier

The way companies search for a supplier also depends on the experience of the company with security entrances. Companies that don't have an existing solution yet are unaware of where to search for suppliers. This results in finding them in accidental encounters and by randomly searching. Experienced companies often pick their current supplier and compare them to big competitors.

Install, use and maintenance

The final part of a project is quite similar for all clients of Boon Edam. After installing the entrance solution there is little contact in the form of maintenance. Only after a period of time when the initial entrance is experienced as being outdated, or if an entrance solution is needed on different sites of the company, clients will start contacting Boon Edam.

First iteration FOFSS model

Using the information of the research and analysis an iteration can be made on the FOFSS model. As explained by the CEO of K.I.C+S a traditional security company acknowledges three types of risks: Physical, organizational and mental risks. Those risks provide directions for opportunities as they define topics to design a solution to.

Physical risk contains all tangible aspects of an entrance solution. An example would be that an employee loses his entrance pass. This is dangerous for the company since someone may have stolen it to get access to the building. The problem provides an opportunity: How can the employee identify himself with something he can't lose.

Organizational risk provides opportunities on a more abstract level. For example, a company requires their suppliers to physically identify themselves before entering the company area. This costs a lot of time, which makes the delivery process inefficient. An opportunity would be: how can the supplier be identified without him having to step out of the vehicle.

Mental risks are the deepest layer of risks and provide the most abstract opportunities. An illustration of a mental risk would be an employee holding the door for another person to enter the building. The second person in this case might not be permitted access to this building. The opportunity in this case would be: How can the entrance prevent such a form of piggybacking.

Opportunities do not necessarily come forth from problem solving. The levels of opportunity that are derived from risks can also be used as search directions for improvement in general. They can form a starting point for process analysis that

might show gaps within a current solution. For example, a new tracking technology allows to accurately spot a person in a building. This technology can be used to open the front door for an employee of a company. Whenever he passes the actual entrance the system confirms he is allowed to enter. Otherwise an alarm will be triggered and the person can be alerted that he doesn't have access.

In this first iteration the three levels of opportunity are added to the model. By analyzing the five factors on those three different levels gaps can be found. This way Boon Edam can tailor their service to the entrance solution of every individual client. Whenever they find an opportunity within this model and provide a solution to it, they can then implement it at all their clients.
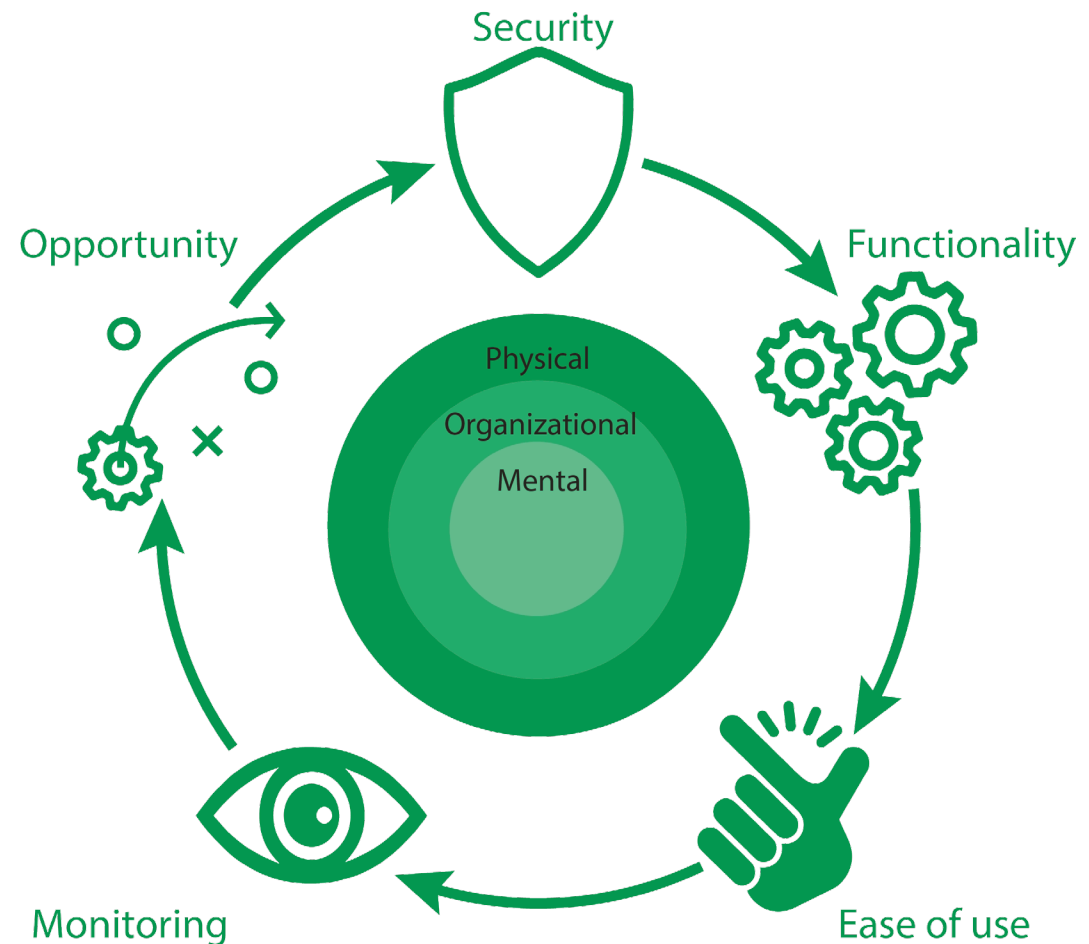

Figure 9. First iteration FOFSS model

Defining the opportunity

With all the information provided in the Analysis and Research-section a direction for the service design can be made.

First of all, looking at the customer journey, a starting point for the service of Boon Edam is the moment the client starts searching for supplier. From this moment Boon Edam and competitors take a part in the decision making process and this seems to be the right moment to show that Boon Edam stands out in the market.

From the interviews can be derived that clients often don't really have an idea how to select a fitting solution. One of the things that can provide a competitive advantage is providing them with outstanding advise. To do so it is important that Boon Edam has clear knowledge of when the client wants interaction and when they prefer to rely on the expertise of Boon Edam.

As can be seen in the competitor matrix level of service that is provided by companies like Boon Edam is what Baines et al. (2017) call intermediate. To create a USP it is thus important that Boon Edam provides the client with an advanced service. The targeted audience for this service should be procurement (which is often management) and security managers. Procurement will take the eventual decision which entrance solution is chosen, while the security manager will introduce the options to them.

The service should focus on providing a solution that seems tailored to every company. Therefore the focus of the service must also adress the users of the entrance, as they will influence the situation the solution operates in. It is essential that the entrance solution provided by Boon Edam is seen as an addition to the company, not as a barrier. To do so all stakeholders must be involved while consulting a client.

Finally, the interviews state that clients would like there entrance to develop with their needs. This way their entrance doesn't get outdated. As a result they can focus on their core business, as they don't have to invest a lot of time in researching and selecting an entrance solution.

To conclude:

Boon Edam should provide a service to the customer that consults them on what entrance solution is best for their company. After this Boon Edam should perform a periodic check to see if the entrance solution is still fitting with the client. Whenever it turns out that the solution can be improved they should alert the client and propose said improvement. This way the client will have relatively low investment costs while Boon Edam will have a regular flow income. The customer relationship that is built during this process provides Boon Edam with an advantage in the market. The fact that they are the first company to implement an advanced service, based on customer needs will provide them a superior position.

STATEMENTS

The statement to design to are a conclusion of the interviews that were performed during this graduation project. Together they provide a guideline for the design of the service of Boon Edam.

BOON EDAM

Why Boon Edam?

Think of a way to be found, where do people look and why do we stand out

Company vision on client

Find out what your client really wants
Provide them with a complete solution

Company strategy

Keep searching to be unique
Give structure to your work (methods)
Focus on what values you will add
Evaluate what is already there and how to improve this
Actively provide to your customer
Stick to what you know
Keep in mind marketing pull and technology push

Values of the product

Talk about the problem and why the solution is beneficial
An entrance is not a product, it is a strategy
Find out about the strategy of your client
Focus on the current trend flow

Knowledge

The client doesn't know how it works, only what the result must be
Boon Edam has expertise on entrance solutions
When you don't know about something, don't do it yourself, ask an expert to do it

Performance

The product should always work
The product should never be outdated
Adding opportunities adds interest (explicit, observable, tacit, latent)
Tailor to each individual
When the entrance is finished, changing it should be easy

Figure 10. Statements to design to

TO DESIGN TO

Client

Deliverable to client

Clearly state your promises and your results

Stakeholders

Know who your stakeholders are
Keep them involved when it's needed, leave them out when it's not

Interaction

Initiate to co-create, innovative clients will join you
Know and show how you can help, this creates the most benefits
Have contact frequently when creating, be on the sideline while not
Proactively go to the client, they won't come to you
Listen to all parties, everyone has their own expertise
Know when to talk to who, otherwise you will only be annoying
Make agreements on how often you speak, this pushes you to do so

Client needs

The client buys because of what it does, not because of what it is
Clients want their problems to be solved, not just a gate
It should work for the client, not for the world
Both problem and solution must be clear
Sometimes needs exist out of nowhere, be ready to adapt to it
Work together to create the best solutions

Payment

Clients will pay according to the value they see
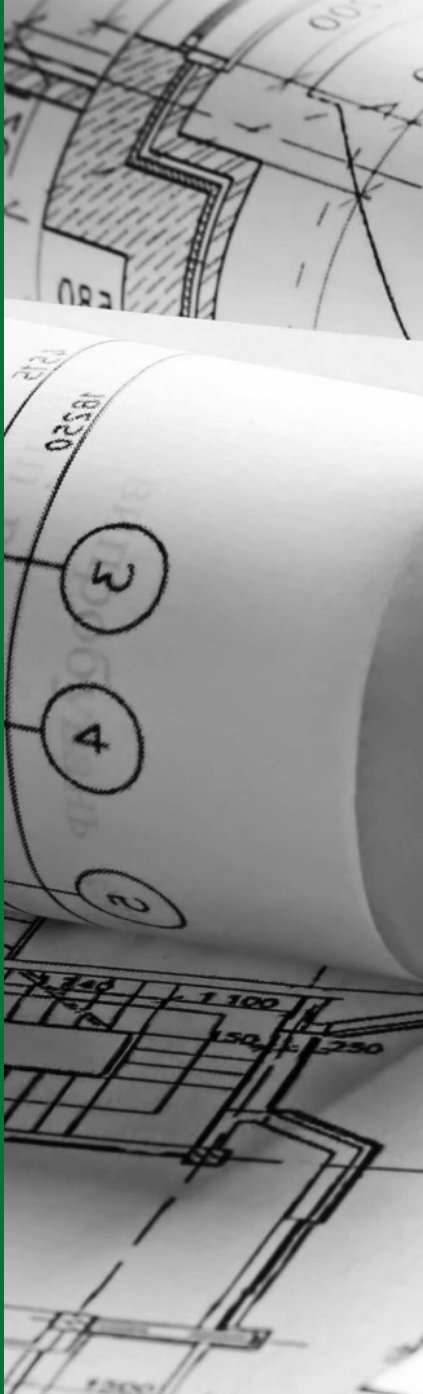
DESIGN

With the analysis being finished it is time to start designing a service which Boon Edam can offer to their (potential) clients. To do so the results of the qualitative research are used as a guideline for the features of the service, hence the statements to design to. As a start a design brief can be formulated for the service:

Problem statement

Companies that are selecting and buying an entrance with access control system don't know what kind of product they need. They also don't want to invest time and energy in selecting a fitting solution. Boon Edam helps them selecting the solution that fits best.

It is however hard to indictate if the solution will fit perfectly with the company's use. Besides, after installing a chosen solution the company and it's employees change. Therefore after some time the entrance might be experienced as wrong or old. Also misuse of the product might occur.

Whenever the entrance of the company is not fitting with its function, users will get a bad experience of the entrance. For companies this can be a problem, as the first blow is half the battle. However, with companies focussing on their core business they often do not pay attention to this problem.

Goals

Boon Edam is a company that sells entrance solutions to many companies in the world. As experts on this topic they can provide the best solutions to their customers. The goal of this service is to make sure the entrance of the client is always up-to-date and fitting with the needs of its users. By doing this the client will never see his entrance as an obstacle in his company.

Secondly, the service strengthens the bond between Boon Edam and the client, providing them better insights in the processes of the client. This will provide opportunities for Boon Edam to help the client with it's core business by providing a better fitting entrance. As a result Boon Edam creates a competitive advantage.

Boon Edam Evolving Entries

To accomplish the goals set in the design brief, the service Boon Edam Evolving Entries is designed. Before explaining the service in detail it is important to know how knowledge is divided within projects of Boon Edam. Therefore the Building Block model is created. The purpose of this model is to show what knowledge Boon Edam can easily access, and what knowledge is more costly to acquire.

After explaining the Building Block model an overall view of the service is given. This can be used to gain an overall understanding of how the service works. Within this overview the FOFSS model is iterated one more time.

Page 37 provides a reading guide for the detailing that starts on page 40. This reading guide provides an overview and legenda of what will be discussed for every phase.

Next, is a task overview is presented. This provide insights in the nature and length of the concrete tasks that have to be performed for this service.

The final part of this section provides the detailing of the service. It discusses every phase based on the aspects that are discussed on page 37.

The Building Block model

To build a security access system a lot of information is needed. For example, information about software is needed to program card readers so that they open a gate. Or information about materials to create the desired look of the client. All the information sources that are needed to build an entrance can be placed within a system. This system of information sources can be seen as a system of building blocks. While selecting a solution for a client Boon Edam looks at what sources of information they can combine to provide the best product. Most of these sources are within the portfolio of Boon Edam: They either own the knowledge or have contacts with a third party they can easily involve.

Sometimes Boon Edam has to acquire new information to make a product fitting to the needs of their customers. They can do this by either developing a new product or by integrating knowledge from third parties within their own product.

This model can be used by Boon Edam to define what information is needed to fit a solution to the customer needs. To illustrate how the model works a small case study of VDL is shown in figure 11.

As can be seen from the case study, most of the knowledge is already accesable by Boon Edam. As a result, developing a new solution doesn't necessarily mean that Boon Edam has to develop a whole new product. Often knowledge can be integrated, which makes it easy to adapt the product portfolio to the wishes of the customer.

Casestudy VDL on building blocks
When VDL started building their new headquarters in Eindhoven their head of security wanted speedlane-like entrances for the employees of the company. He found Boon Edam on the internet and made an appointment to see their products. After he had seen the possibilities he decided that he wanted the gates to work with biometrics. This way he wanted to make sure that the person entering the building is really the person he claims to be

To make this possible he approached another company called Ensura. They are experts on biometrics and sell camera systems that work with facial recognition. His wish was that Boon Edam and Ensura cooperated to create a speedlane that works with facial recognition.
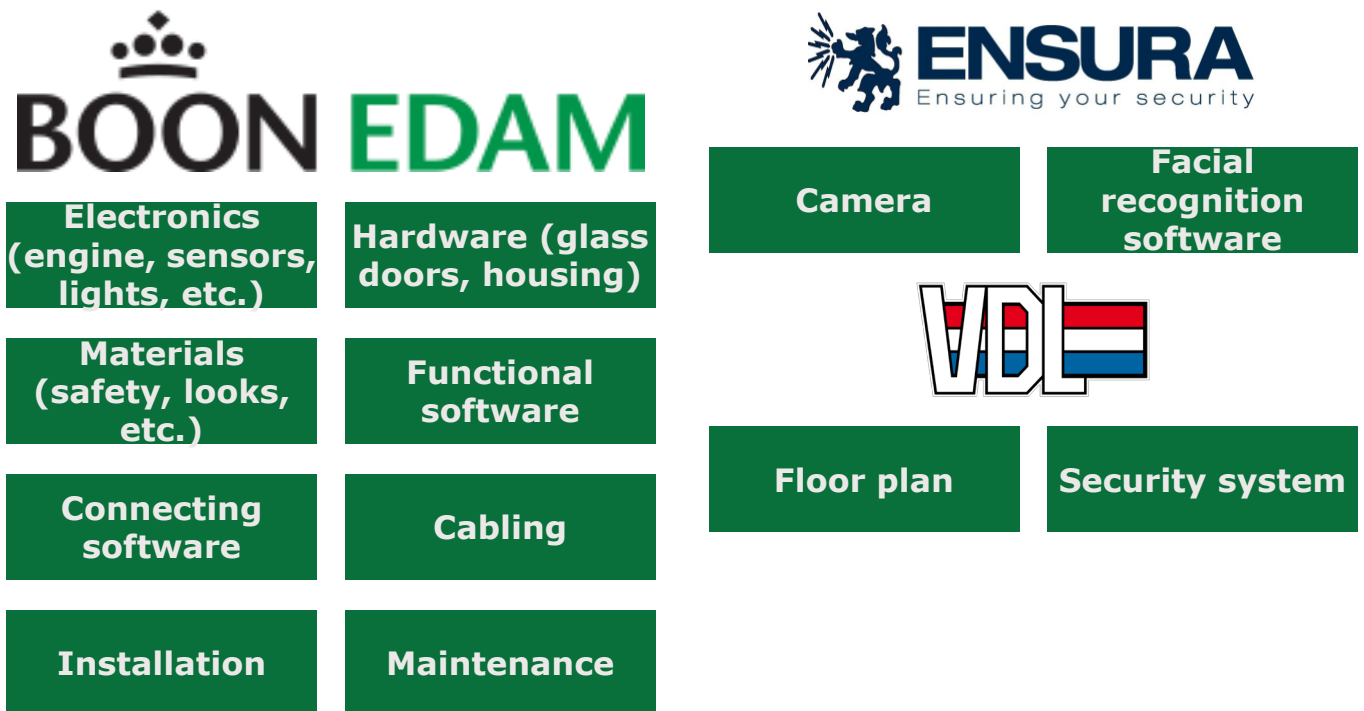

Figure 11. Building Block model

Boon Edam Evolving Entries

*A*s explained in the chapter Defining the opportunity, clients have companies that change over time. However they see their entrance as something static: you place it once and then it will be there until it is old and doesn't fit anymore. They simply don't take the time to see if something can be done better.

*T*his is where Boon Edam Evolving Entries comes in. By actively providing the customer with feedback on their current entrance solution it becomes possible to evolve the entrance along with the client. To do so a service strategy is designed with which Boon Edam can provide tailored solutions to their customer, year after year.

*T*o provide a good overview of the strategy this page shows an overview of the service. Within this strategy the FOFSS model is iterated one last time.

Security   Functionality   Ease of use

Physical

Organizational

Mental

Analyze

The first phase of this service is the initiating phase. During this phase the potential client will be introduced to Boon Evolving Entries and the service will be sold.

When the client agrees on cooperating in a service the defining phase starts. During this phase the baseline measurement will be made. This overview will help providing the best entrance solution to the customer. It will be the starting point of all advise and adaptions.
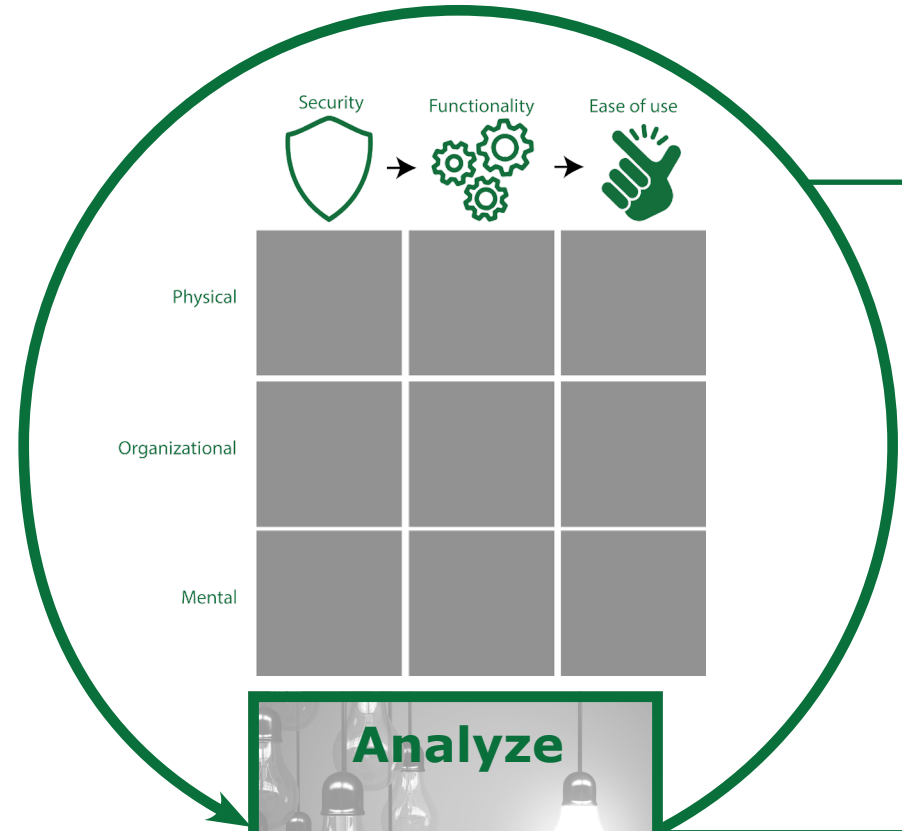
Initiate

Define

Figure 12.   Service overview Boon Edam Evolving Entries

The Analyze-phase is the most important phase of the Boon Edam Evolving Entries. This phase is cyclistic and will be repeated every year. As the backbone of this service it will provide insights on the entrance solution of the client by comparing the current situation to the baseline measurement. This comparison can show that everything is working properly, but it can also show opportunities. Those opportunities will exist within the framework that is shown to the left.
The framework consists of three levels of opportunities: Physical, Organizational and Mental. Within those levels opportunities may occur to improve or maintain the level of security, the functionality and/or the easy of use. This framework is made to help categorize and specify adaptions or innovations Boon Edam can implement at the client.

Whenever a project is finished it is important that it is well documented and communicated to everyone within the Boon Evolving Entries community. By spreading the word new opportunities might arise and new implementations for technologies can be found.

Communicate

ADAPTION

Implement

Determine

Whenever an Analyze-phase concludes that there is an opportunity to implement something new, there will be determined what solution is fitting and how the results of this adaption will be tested. In general there are two paths that can be followed:
The most common is to adapt an entrance solution with known building blocks. This means there is a low risk in the project and that there is no need to develop something new. However, clients still get the feeling that they get a tailored solution.
The other path that can be followed is one of innovation. In that case new knowledge must be gained. It could be that Boon includes technology from a third party or develops a new product. This brings a higher risk and will cost more money and time.

INNOVATION

Develop

Optimize
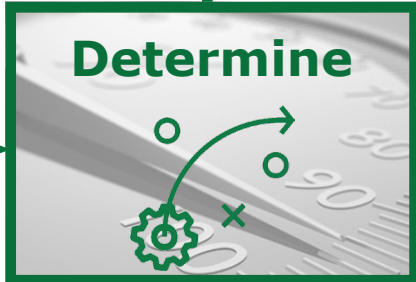
Second iteration FOFSS model

As explained briefly in the chapter Boon Edam Evolving Entries, the FOFSS model is iterated one more time. It is now implemented within Boon Edam Evolving Entries to provide a guideline for them to find opportunities.

The most noticable thing is that the original cycle seems to be disappeared. However, as it is implemented in the service it is just explained in a different way:

The three levels of opportunity (Physical, Organizational and Mental) are put in a matrix with Security, Functionality and Ease of Use on the other axis. This matrix provides a framework in which all opportunities can be placed. Whenever Boon Edam Evolving Entries analyzes an entrance solution they will analyze it based on this matrix. Within this analysis they will search for flaws and gaps within this matrix.

The monitoring as described in the initial FOFSS model has a reviewed meaning in this second iteration. Where it was first based on datapoints provided by software, it now is a bigger source of information. To provide the possibility to monitor data, a baseline measurement is made in the Define-phase. This baseline measurement is then updated every year (Analyze-phase) to provide insights in the opportunities.

As a result the monitoring can be seen as an overarching phenomenon to spot flaws and gaps in an entrance solution.

The final step of the original cycle, spotting the opportunity, will come after the situation is monitored and analyzed. In Boon Edam Evolving Entries the service will continue in adaption or innovation of a solution to the found opportunity.

As a result of this it seem like the FOFSS model is not cyclic anymore. However, this is not the case. Since the model is used for finding opportunities, this is just where the opportunity-finding stops in the service. A new cycle will be started everytime the Analyze-phase is started, which is every year. Since there might be changes in the environment of the entrance solution, or the solution might be changed/improved, the new cycle will again provide insights in opportunities.
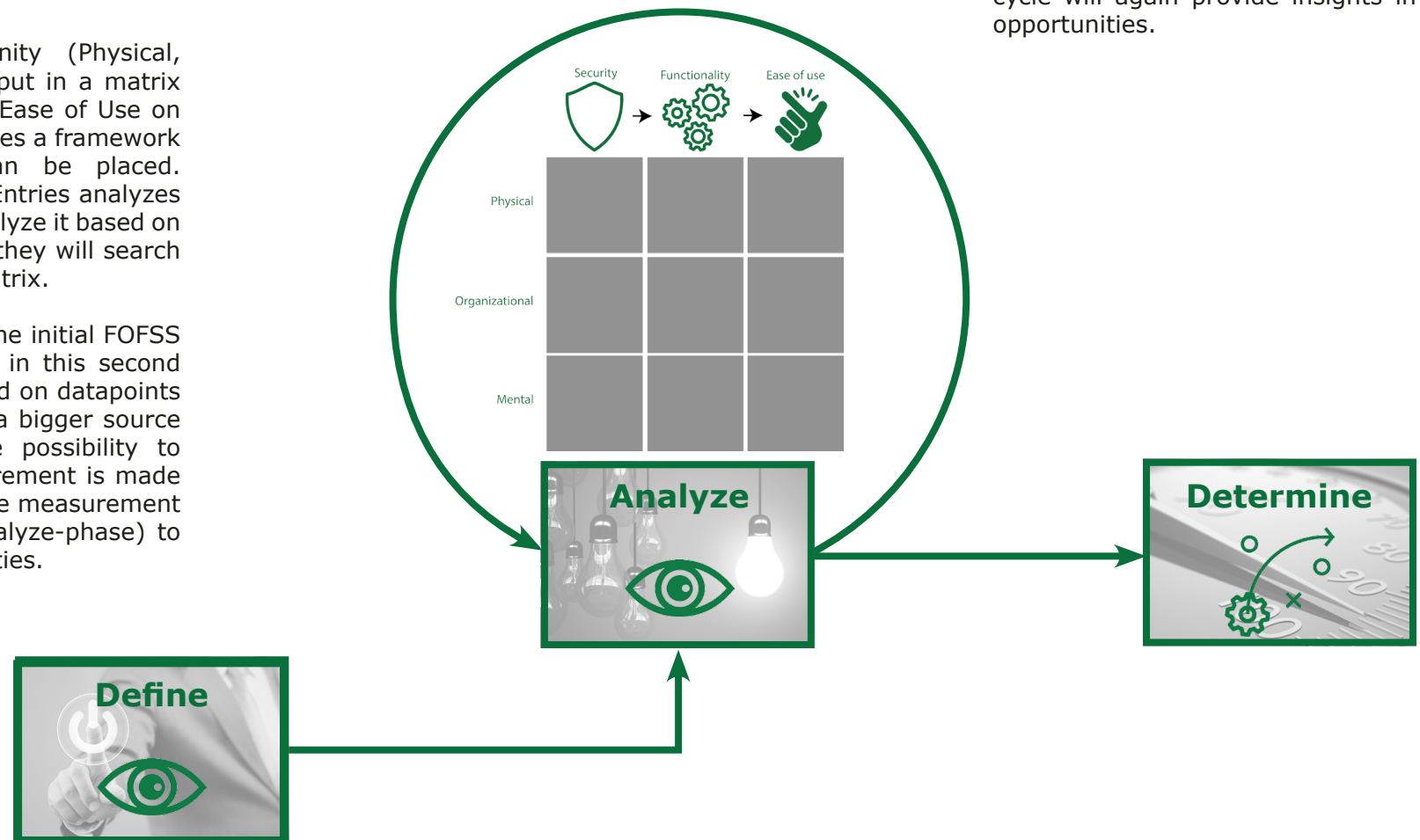

Figure 13. Second iteration FOFSS model

Reading guide for the detailing of the phases

This chapter provides a reading guide for the detailing of the phases later in the Design-section.

Every phase will start with an explanation of the vision and strategy of that phase. This provides information on how the phase should be executed and what are important aspects of the interaction.

On the first page of every phase there is also a quote of one of the interviewees. This quote can be found in the blue box. The quotes are meant to justify the importance of the phase.

The second page of every phase contains information on the stakeholders and knowledge. First it shows what tasks within Boon Edam are involved in the phase and how those tasks must be performed. It then shows what other stakeholders are involved and what knowledge they have about the events in the phase.

The third and fourth page contain a timeline of actions that occur during the phase. To understand this time line a legenda is needed (figure 14.)

Within the detailing there are a few highlighted terms. Those terms represent (parts of) reports that Boon Edam will create to look for opportunities. A template for those (parts of) reports can be found in Appendix D, which will also be explained in the Implementation-section.

Blue lines show a connection between to actions that will always have to happen. The second action is a result of the first one.

Black lines show a connection between to actions that will only happen if all the stakeholders connected to it are involved. In this case the second action is a result of the first one.

Sections between two green dotted lines might occur multiple times within this phase. Sometimes it is necessary to repeat a proces in order to create the optimal result. This only happens within the develop and optimize phase.

Figure 14. Timeline legenda

Task overview

xh **Scouting for new customers**

1h **Deals & contracts**

1h **Blueprint**

3h **First time interview + analysis**

2h **Journey map**

1h **Stakeholder map**

2h **Follow up interview + analysis**

1h **Strategy client**

1h **Opportunity report**

2h **Design proposal**

1h **Updating involved parties**
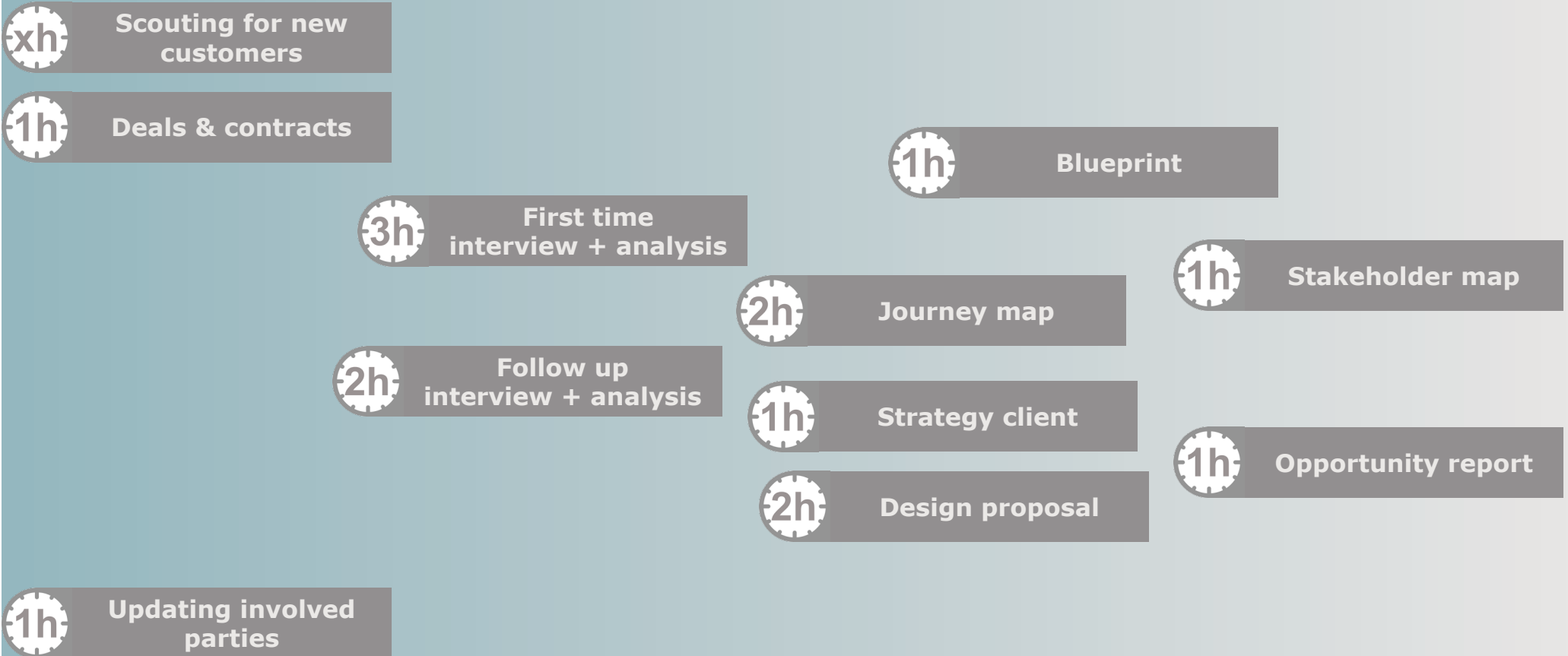
Account management

The main goal of account management is to manage all the parties that are involved in a clients profile. All accounting tasks should be performed by the same person, as he creates a social bond with those involved parties. This social bond provides better understanding and strengthens the relationship.

All accounting tasks must be performed in an active way. Special attention needs to be put at clients as they don't see Boon Edam as an important stakeholder for their core business.

Figure 15. Task overview

2h Assumption map

2h Process map

xh Gather new knowledge

xh Adapt existing solution

xh Develop new solution

xh Test solution

2h Performance report

xh Install solution

Service level management

The service level tasks are the main tasks of Boon Evolving Entries. By performing those tasks the baseline measurement is created and opportunities are found. They often include both front-end and back-end thinking.

The tasks can be divided among different people, which has the benefit that multiple people look towards opportunities. They can also be performed by a single person provided that he seeks advise when making the opportunity report.

Project management

Project management is all about the actual product development and installment. The duration of tasks performent in project management highly differ in duration, as a small implementation takes less time than developing a new product.

Project management tasks should be performed by one person, but this person can differ per project. This means that one client doesn't necessarily has a standard project manager.

BOON EDAM

Initiate

Vision

During the initiating phase the main goal is to make the potential client aware of Boon Edam Evolving Entries. He must be able to find the service as well as be convinced that it fits with his needs.

Clients often don't really know what kind of security entrance they seek. They have demands which must be met. They lack both time and knowledge to design the whole system themselves.

It is important that the marketing of Boon Edam Evolving Entries reflects the way the customers are treated during the service. From the first moment it must be clear that the service is customer centred. The main thing Boon Edam Evolving Entries does is finding and proving a fitting solution to the clients problem.

Ensure the client needs Boon Service

Strategy

To distinguish Boon Edam Evolving Entries from the competitors it must be clear that it offers much more than just the placement of an entrance solution. Since potential clients often have little knowledge of what they seek it must be clear what is offered. Boon Edam takes them by the hand and guides them through the process.

Be open

First it is important that the client gets a feeling of what form of interaction there will be between them and Boon Edam. Wether they find Boon Edam Evolving Entries on the internet, while visiting a fair, or through a reference, personal contact is the first step. The client must come in contact with an account manager as soon as possible. This contact should be intensive and solution driven. The customer must get the feeling that everything is possible and together with Boon Edam he will find a fitting entrance solution.

Provide examples

To convince the customer that he needs Boon Edam Evolving Entries the account manager doesn't only tell what the service is about, but provides examples. Examples are the best way for a potential client to relate to, as they provide something to compare. It is important that that nothing is overdone: Being realistic and talking about about flaws and how they were solved makes the service look realistic.

Focus on goals

The customer doesn't want to know how things are done, they only want their goals to be met so that they can focus on their core business. It is important tot state that Boon Edam Evolving Entries is tailored to their company and will grow along with their company. Boon Edam Evolving Entries doesn't sell gates or doors, but to provides a way people can or cannot access a building, while exploring opportunities to add value for the client.

Contract

When the client seems interested a follow-up talk will be offered to them. They will be invited to Boon Edam headquarters so they can see what Boon has in store. Customers like to see and 'feel' what they can expect. In this first talk it is important to already pinpoint the demands of the client and to give them the feeling that Boon can improve their situation. It will also be the potential start of the second phase. Every conversation must be finished with a new appointment and a clear overview of what it will be about. This ensures progress in the negotiation process.

".. and say to that client: I am here to improve your processes, you will have some cost reduction because of that, I will also make everything more refined and safer for your employees. That's what I'm here to do. Than a client will say: yes, I would like that."

Stakeholders & knowledge

BOON EDAM

Client

Third
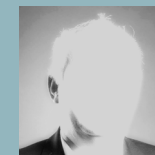
Boon Edam must convince the potential client in this phase. They must be open to everything the client says and push them towards a first talk.

The service process is initiated by a sales person of Boon Edam. Ideally this also is the account manager that will be linked to the client. If not it is important that the client is introduced to the account manager as soon as possible, so he can start investing on social relationships.

The account manager must provide the customer with a comfortable feeling. He must provide information to the client in order to give him the feeling that Boon can provide his needs and that they will think about what is best for the client.

When the first contact happens with a potential client it is important to provide him with enough knowledge to make him advise the management to choose Boon Edam for their entrance solution.

The client is starting his search for a company that can help him. He looks for one that fits with his needs and culture, but is mostly interested in something of quality and low costs on the long range.

The client probably has little knowledge about differences between competitors. He will mainly look for a company that can provide an entrance that fits with his criteria.

It could be that there is a third party that is in charge of the security of the clients company. They will then advise them on what kind of entrance is needed.

When a third party is in charge of the building of the entrance he probably has more detailed knowledge of security details the entrance must conform to. He will probably have a lack of knowledge on other subjects such as aesthetics or ease of use.

Actions

External

First conversation
with Boon

Looking for security entrance

Front-end

Back-end

Meeting at Boon Edam

Signing contract

Talking about project

Organizing terms

Client

Client

BOON EDAM

BOON EDAM
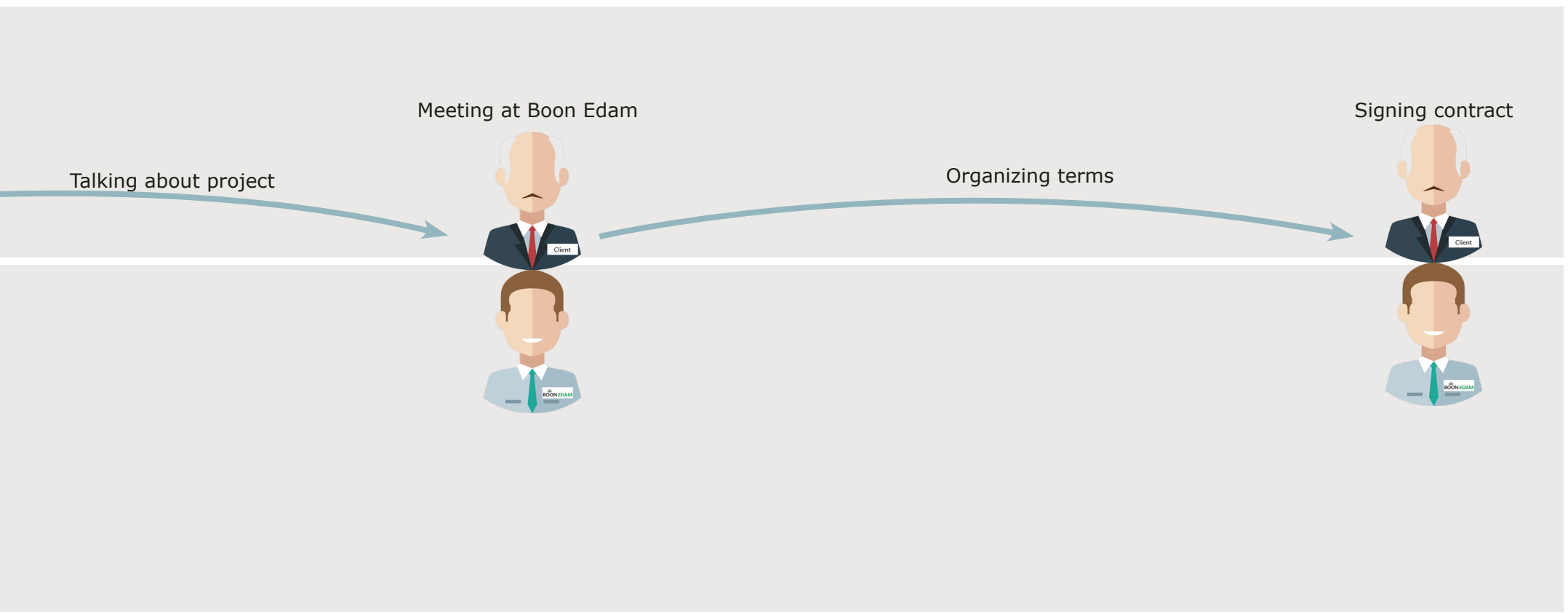
Define

Vision

During the defining phase the main goal is to gain an overview of all factors that are relevant to the entrance. This will provide a baseline measurement from which a fitting solution can be created. The baseline measurement can then be used for comparison. The purpose of this is finding flaws and gaps that provide opportunities for Boon Edam.

Every client is different, which means they all have different systems, different flows and different strategies. Gettng a thorough understanding of their situation will provide a good focus while searching for improvement.

It is important to talk to the client and all involved stakeholders. Assumptions that are made about the situation are a good starting point, but the only way to really understand it is by hearing and understanding what the client says about it.

Strategy

Before this phase starts it is important that the client has agreed on cooperating with Boon Edam. This prevents doing unpaid work and investing in a lose end.

In order to gain a good understanding of the client it is important to create awareness of the situation they're in. To gain this information in a structured way a baseline report is created once in the beginning of the cooperation. This report will provide a starting point for future implemenations. It makes sure Boon Edam knows every important aspect of the client, without the client having to invest a lot of time. The baseline report provides answers on the following questions:

Who are the stakeholders?
First it is important to know who are involved with the security entrance. Who use the entrance. Creating a *stakeholder map* gives an overview of all the important people who can provide you with information about the system.

What does the system looks like?
Create an insight in how entering the building looks like right now. This start at the moment someone has a need to enter the building. Create a *journey map* on what happens from that moment until the moment he/she is back home. Having an overview like this provides a backbone to search for opportunites. It also gives the opportunity to create innovations that are useful in multiple moments.

How is the system experienced?
Find out how user experience the journey. There are always 'yay' and 'nay'- experiences while going through the system. Plotting those moments provides directions for innovation, both to improve and/or maintain the situation.

What does the blueprint look like?
Take a look at the blueprints of the entrance and the rest of the building. Reflect on the decisions of the company so that you know why everything is where. By understanding their choices you can see if they missed something or argue if something can be done better in a different way.

Feedback to client
With all this information a baseline report can be made. This report is important as all development can be compared to this report to see difference. The report itself can be communicated towards the client to show that there is a way of measuring results.

"*The construction coordinator, at least at our company, I don't know how this is in different companies, he has so many things to decide, if you offer him a complete picture of the access control, with this platform and this maintenance, that would be awesome.*"

Stakeholders & knowledge
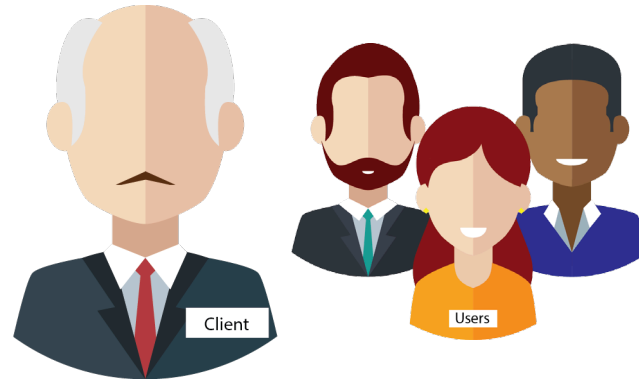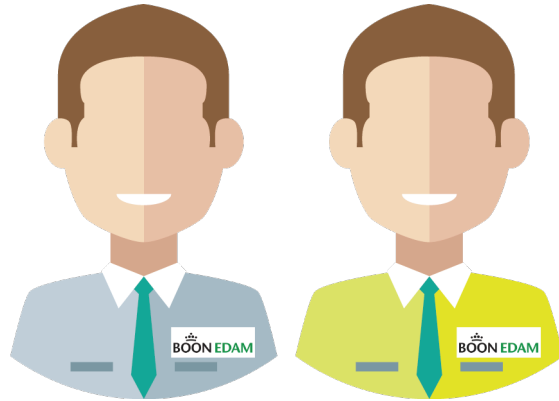
Boon Edam has the initiating role in this phase. They must actively search for information to make sure that they gain the knowledge they want.

While the account manager starts this face, he must involve the service level manager. He will be the one making the zero measurement

At the beginning of this phase Boon Edam still has little knowledge about the situation the client is in. It is important to gather utmost information about all entrance related factors. A good way to start is by making assumptions (*assumption map*). These assumptions can be tested by going to the location, reading related documents and communicating with stakeholders.

The client has a big role in this phase. He is the one that must provide most information about how he would want the system. The users will provide additional information about their preferences

Clients will be actively thinking about the policies they have. Their demands and wishes for the system that come from a less personal perspective and they will provide more information on for example safety demands.

The users will provide information on how they would like the system to work. They are the ones that use the entrance on a day-to-day basis and therefore are a group that will probably create the most opportunities.

There are not necessarily external parties involved in this phase. It could be that there is a third party that executes the security. In this case this party must be treated the same as the users.

The knowledge they can provide is similar to that of the users.

Actions

External

Agreement on cooperation

Interview

Interview

Interview

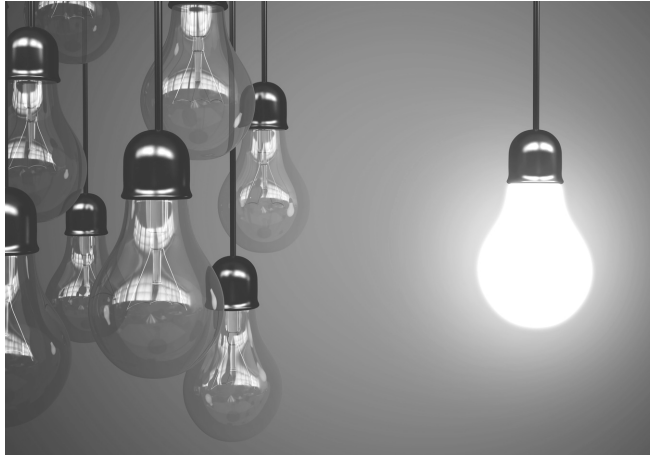**Front-end**

Make stakeholder map

Informing

Back-end

Start making assumptions

Writing baseline report

Analyze
blueprints

Make journey map

Communicate

Writing baseline report

Finish zero
measurement
report

Analyze

Vision

The analyzing phase has the goal to find opportunities from the data that is gathered from the clients. Those opportunities come forth from the baseline measurement and spotting differences in the system of the client.

The client wants their entrance to be fitting with the rest of their company. In general they don't want it to hold up employees or visitors and want it to have a transparant welcoming view. Besides this they have other demands about which Boon Edam has to find out.

To find out what kind of entrance solution fits with the client a look must be taken at the baseline measurement. It is important to analyze the needs of the client, even if they sometimes can't articulate what they want. Use thisinformation to find out what the entrance solution must be able to do or what it should do differently.

Pinpoint opportunities from regular data

Strategy

Using the baseline report as a starting point there can be looked at opportunities to design to. Before a design can be made it is necessary to analyze what is needed. Extract whatever can be found from the data and name the elements the entrance should have.

The analyzing phase should be repeated annualy. This way Boon Edam can ensure the client that their entrance solution is always up to date and will always fit with their needs. This phase can be seen as the backbone of Boon Edam Evolving Entries.

What changes?
The first thing that should be asked is: what is different from before. This helps seeing what requirements the new system needs. If there was nothing before, what do customers now have to do before they can do what they need to do. Adapt the *journey map* to these new insights.

Where do gaps start to appear?
The updated journey map might show that a process is not the same as expected. Problems might occur on either physical, organizational or mental level, or even on a combination of those three. Those gaps provide an opportunity to implement a new solution. Find out what the problem is, where and why it occurs and who is involved. These are all factors that might lead to a solution.

How can it be maintained?
Sometimes it will appear that the system is working properly. However this does not mean nothing can be improved. Besides fixing problems, they can also be prevented. Out of the *journey map* processes can be extracted. Find out what is needed for these processes to stay as they are. There is always an optimization by which a process has less chance to fail. Search for parts that are influenced the easiest, they will provide space to create a lower safe risk.

What do the trends do?
As an external piece of information it is interesting to investigate what happens and will happen in the world of entrances. This way a better long term advise can be given towards the client. Trends can be seen by looking at the development of technology, as well as the change of the demand in the market.

Feedbak to client
After the situation is analyzed it is important to write an *opportunity report*. This report contains information on the current system, the gaps in the system, improvements on maintenance and a view on trends. This report will be dicussed with the client annually to see if the entrance solution must be changed.

"*And if you are looking at people, at their processes, than you can imrove those processes. And if you improve the processes, than you can create a better situation for your customer. You will add to his earnings, or reduce his costs, and than the proposition is different from: Hey I'm here to install a system.***"**
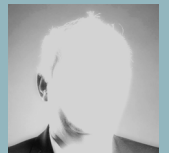
Stakeholders & knowledge
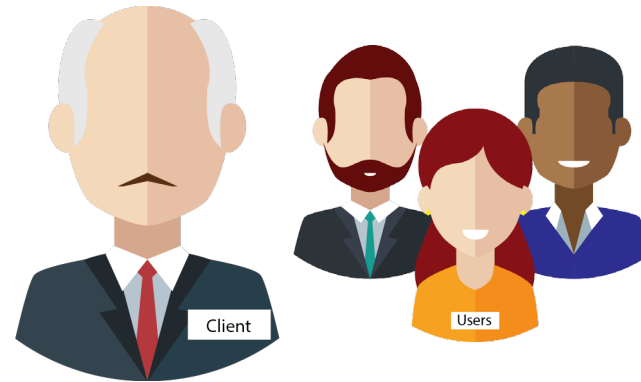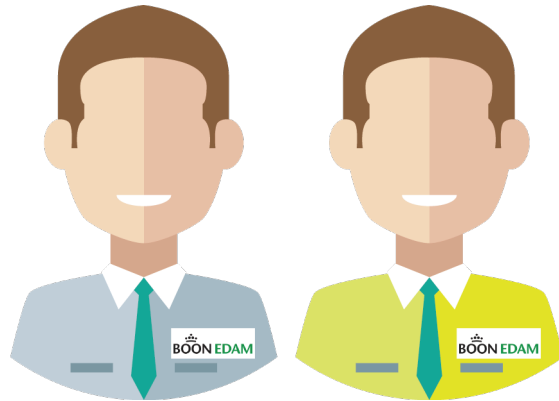
Boon Edam is the most active stakeholder in this phase. Their role is to deeply analyze everything they know about the client.

The service level tasks are key during the analysis. By performing those tasks opportunities might arise to which Boon Edam can respond. To do so the responsible employee must interact with the client and users to see if there are gaps in the system. In the end of this phase there are some acount managing tasks to provide the client with the findings of the analysis.

The goal of Boon Edam is to gain knowledge about the processes of the client and what could be improved in those. If something goes wrong this is easy as a problem will standout easy. Writing down the processes of the client in a *process map* helps find places to improve.

The client and users have a small but important role in this phase. Since they are the ones experiencing the products they can provide the knowledge that Boon Edam needs. They must be placed in an environment where they can talk freely. It is interesting to approach them both individually and as a group.

Especially the users have the most knowledge about what flaws there are in the current situation. They often talk from experience, mostly in the form of stories. Those stories contain problems they see, which can be improved.

Clients often have a different mindset. They will behave more from a business perspective to see if there are profitable improvements.

There are not necessarily external parties involved in this phase. It could be that there is a third party that executes the security. In this case this party must be treated the same as the users.

The knowledge they can provide is similar to that of the users.

Actions

External

Interview   Interview   Interview

Front-end

Back-end

Process analysis

Trend analysis

Annual report

Adapt journey map

Finish opportunity report
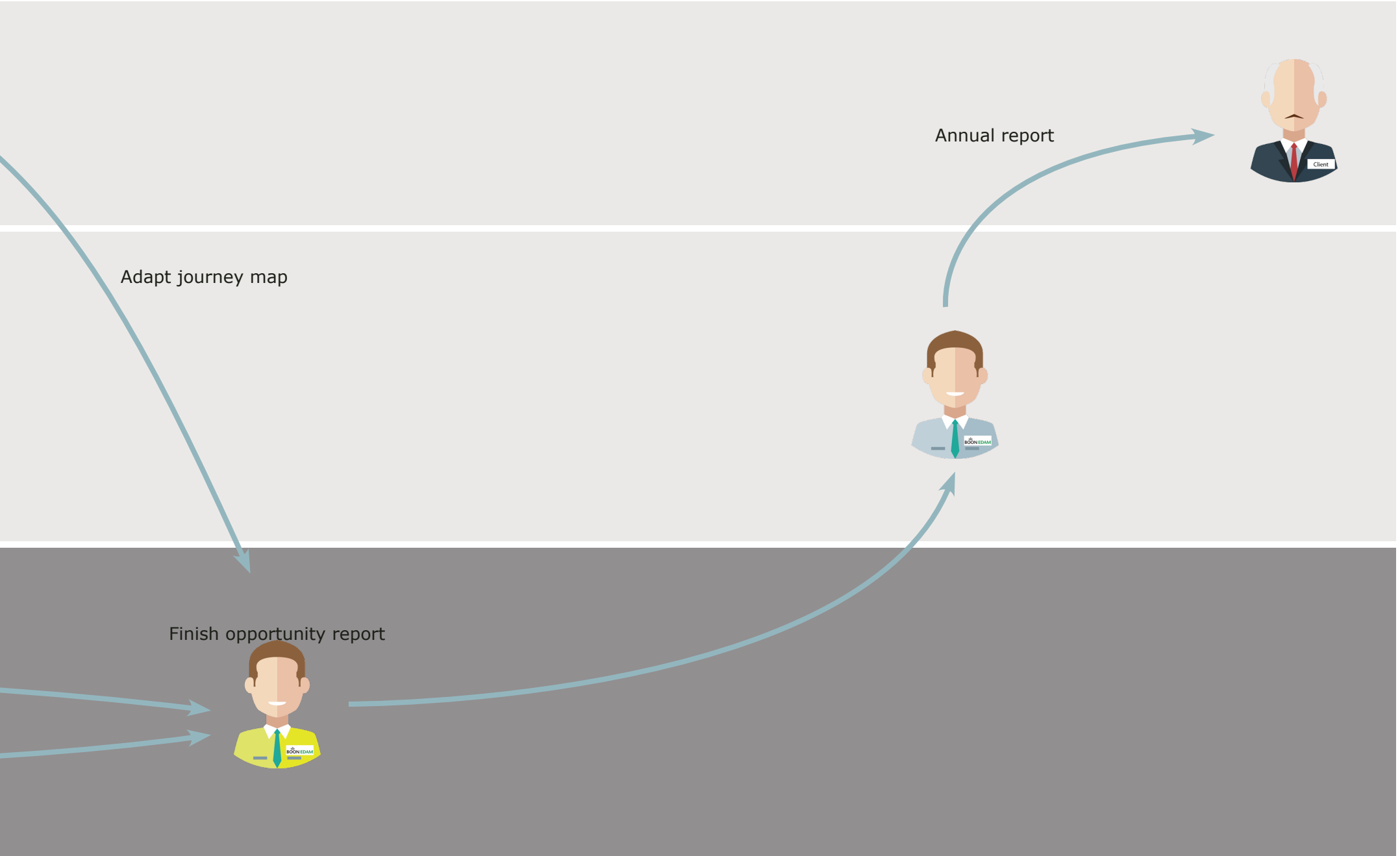
Determine

Vision

In the determination phase one of the opportunities wil be selected and measurable goals will be created to which solutions can be tested. Those measurable goals are KPIs that will be monitored throughout the development and implementation of solutions.

Clients will only invest in projects they suspect to have a profitable outcome. Therefore it is important that the results of a project can be compared on aspects that are meaningful to the client. Putting those up in advance gives the opportunity to objectivly evaluate the project.

Further develop into the most promising opportunity. Figure out what is important to the client and how this can be measured. Build a model around it so that this can be clearly communicated to the client. KPIs can come from a wide range of sources but are mostly focused on performance and profit.

Establish KPIs by understanding the goals

Strategy

It is now time to select an opportunity to which can be designed. To select one of the opportunities understanding of the company is needed. This understanding will also provide KPIs to which solutions can be tested.

The determination phase has two possible results. First, it is possible that the entrance solution of the client only needs to be changed or updated a little bit. In this case the system can be adapted with different building blocks. It means that the determination phase is followed by the implementing phase.

Second it is possible to create a new solution for the client. This means an innovation must be done. To make sure that this innovation fits with the client he will be helping with development and optimization.

Which opportunity is best?

First one of the opportunities must be chosen. The prefered one is the one which provides the biggest benefit to the client, as seen by the client. To find out what opportunity creates the biggest benefit a look must be taken at the strategy of the company. When it is known what they aspire as a company a look at the trends must be taken as they influence the strategy of the client in the future. With those taken into account a direction can be chosen.

What must improve?

When the general desired output of the solution is determined a look can be taken at the opportunity report.

Here can be found what should be improved/ maintained to create this output. There must be determined what stakeholders are involved, on what level the improvements must be (physical, organizational, mental) and why this helps improving the current situation. This can be done by making a *design proposal*.

How is this measured?

To prove that the solution that will actually generate the desired output, goals must be set. The criteria on which the output is measured are called Key Performance Indicators (KPIs). Those KPIs must have a set minimum to which the situation must improve after implementing the solution. By reaching this minimum the client can see if and why a project is succesful. These KPIs and goals must also be included in the *design proposal*.

Feedback to client

The client must be provided with the assumed direction and its KPIs. They must be discussed and perfected before starting a project. When the *design proposal* is finished a set interval of reflection must be chosen. This is a key element to decide as the client cannot be bothered all the time, but needs to get results to see the results of the project. The nature of the project depends how often this feedback is necessary.

"If I can say to my boss: Yes we must really do something about it, look what the numbers say, look what turnover we can make if we do it in this way, than it becomes valuable."

Stakeholders & knowledge

Client

External
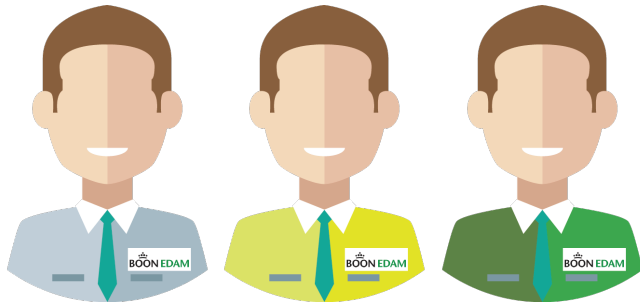
Boon Edam is the major stakeholder in this phase. Their goal is to come to a finished enough proposal to which the client can agree.

Account managing tasks involve looking for the strategy of the client to create insights on which direction to go to. At the same time service level management must select the opportunity that seems the most promising must be selected. Together with the project manager they will brainstorm on possible KPIs are wanted.

The knowledge Boon Edam has to acquire comes mostly from earlier made documents. Brainstorming on potential solutions may help finding KPIs. It is important that there is enough knowledge about the potential project and its chance to succeed before the client is contacted.

The client will have a deciding role in this situation. He will be contacted when the periodic report is send on the opportunities, as well when a **design proposal** is ready. He could also have an initiating role if he sees an opportunity that needs a solution.

The client decides what opportunities he finds important and how those opportunities should be tested. He will share this knowledge during a meeting with the account manager and service level manager.

Third parties might be involved when both Boon Edam and the client have insufficient information about a subject to decide a KPI on it. When searching for a third party it is important to keep the values of Boon Edam and the customer in mind.

In this case the knowledge the third party has is leading for this KPI. It is important that Boon Edam finds a party to cooperate with before they go to the client. This way they can offer him a solution.

Actions

External

Determine strategy

Front-end
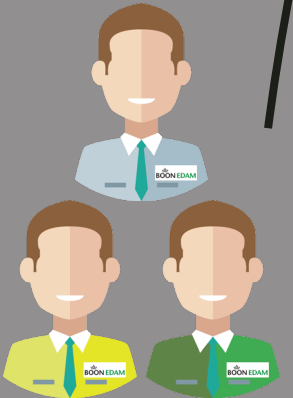
Find external party

Provide strategy client

Discuss KPIs

Back-end

Look at trends

Select opportunity
Write design proposal

Discuss KPI

External

Design proposal

Client

Accept/decline

Report

Communicate

Finish design proposal
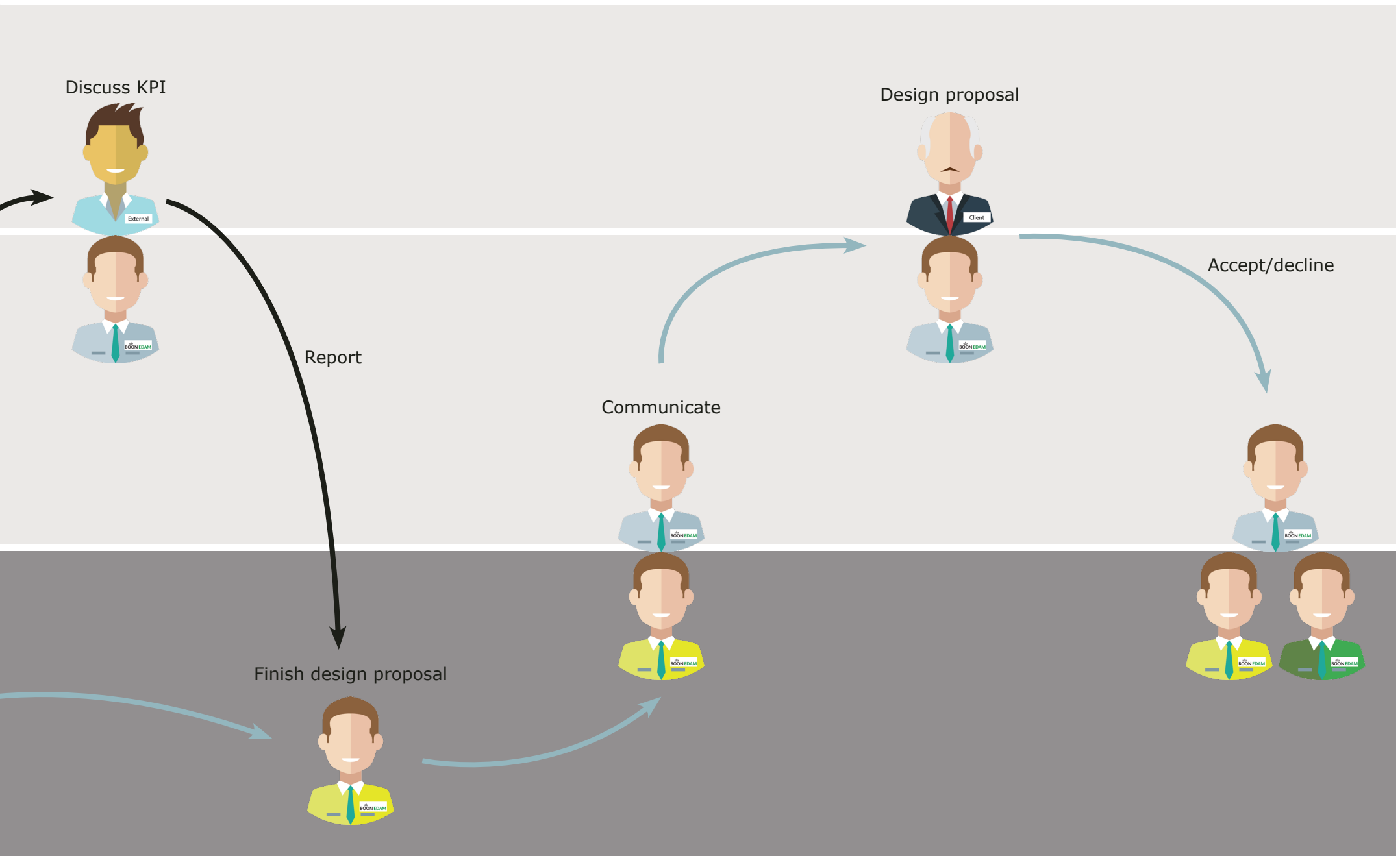
Develop

Vision

During the developing phase a concept of a solution will be developed. At the end of the phase it is possible to implement a prototype. This prototype is a first version of the final product.

Clients want to cooperate in innovation, but they can't take too many risks. Therefore they will only implement solutions that are nearly done. By involving the client in an early stage of a project, it is possible to tailor the solution to them.

Boon Edam doesn't always have all the knowledge. Whenever this occurs it is important to seek an external party as clients prefer expertise.

The goal of this phase is to develop a solution to the point it is ready to implement. Whenever a decision comes up, Boon Edam should look at the KPIs to make a decision. When Boon Edam doesn't have knowledge about a subject, they shouldn't try to reinvent the wheel.

Design and build a fitting solution |

Strategy

If the determing phase results in the need of a new innovation, Boon Edam should start developing this in cocreation with the client, and possibly with external parties. The design of this new solution consists of implementing own knowledge and gaining and implementing new knowledge.

What knowledge is needed?
In the beginning of the design phase it is important to distinguish what knowledge is needed. There are roughly three groups:
- Knowledge Boon Edam has
- Knowledge Boon Edam can acquire
- Knowledge Boon Edam can't acquire

The last group is important as a third party has to be involved.

Cocreating with external parties
When an external party is involved, they have already been found in the determination phase. It is important to make them aware of the process that has already been done. This way they can complement the final design. Take them through the process step by step, both in the past and the future.

While cocreating keep in mind that Boon Edam has its expertise, as well as the other involved stakeholders. Therefore they should ask opinions and frequently update each other about the work. Together they should plan sessions in which work can be combined.

Making decisions
Most of the decisions can be taken by Boon Edam. The client acknowledges that they have expertise and therefore don't want to interfere. However when decisions are influencing a KPI it is important to at least inform both client and third parties of the decision.

Research the user or market
Sometimes it is unknown how the user or market will respond to a part of the design. To find out Boon Edam can simulate the solution. A user test can be designed which simulates the situation of the user. This test can be done with users of the target group to fit the design to their needs.

Feedback to client and third parties
The client will get periodical updates on the progress of the development. These will be in the form of calls or emails of the progress.

When a third party will be involved it will be introduced to the client. This introduction will give both parties the opportunity to speak out their minds. For the rest of the project there won't necessarily be any contact between those parties.

At the end of the design phase the client will be presented a solution-prototype that can be implemented and optimized.

"There are some people who can do that, they already thought of how you could do it. So then the technology is there, you just have to bring it together."

Stakeholders & knowledge

Client

Users

External
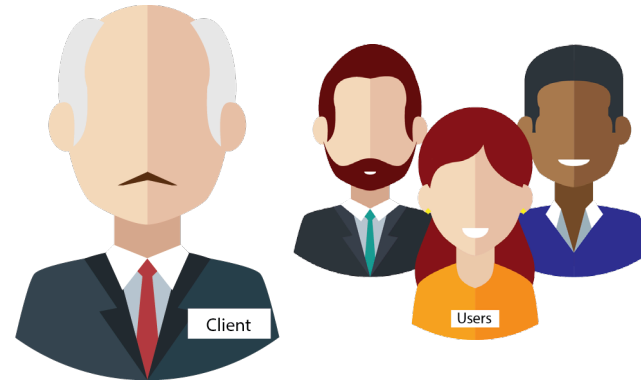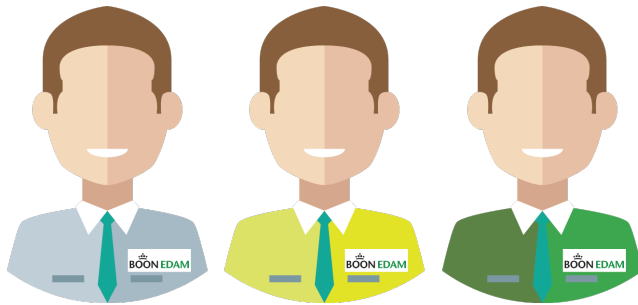
Boon Edam will be the kingpin in the design process. They act as project leader while making sure communication between all parties is up to the standards that are wanted.

The project leader takes the lead on the designing of the solution as well as instructing the development team what to do. Decisions are consulted with the employee responsible for service level management, who will be guarding the goals and KPIs. The account manager is the contact person between Boon Edam and the client. Important decisions will be made by the whole group. This way everyone is satisfied.

Most of the knowledge Boon Edam already has. Whenever specialist technical knowledge is needed they can consult the third party. If knowledge is needed about users the service level manager can set up a research. The results of this research are written down in reports.

The client will play a small role in this phase as he is mainly informed of what is going on. Only if there is a big decision he will be asked for his opinion.

The user will only be contacted when specific information of them is needed.

Both parties don't really care any new knowledge at this point.

An external party may play a big role in this phase, depending on the amount of knowledge they add to the solution. If they are involved, chance is that they will have to adjust their systems to the needs of Boon Edam and its client.

The knowledge of the third party is essential in this situation as he is the expert party. Boon Edam should make clear what it's goals are and how they want to reach them. Also stating what KPIS the result will be tested to will help the third party to develop a solution that is fitting.

Actions

External

Front-end

Back-end

Design

Update and cocreate

Inform and introduce

Inform

Ask external party

What knowledge
is needed?

Design

Develop

Finish development

Decision

Update

Research

Important decision

Present prototype

External

Client

Users

Client

External

External

Client

BOON EDAM

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BOON EDAM

Prepare

Develop

Finish development

BOON EDAM

BOON EDAM
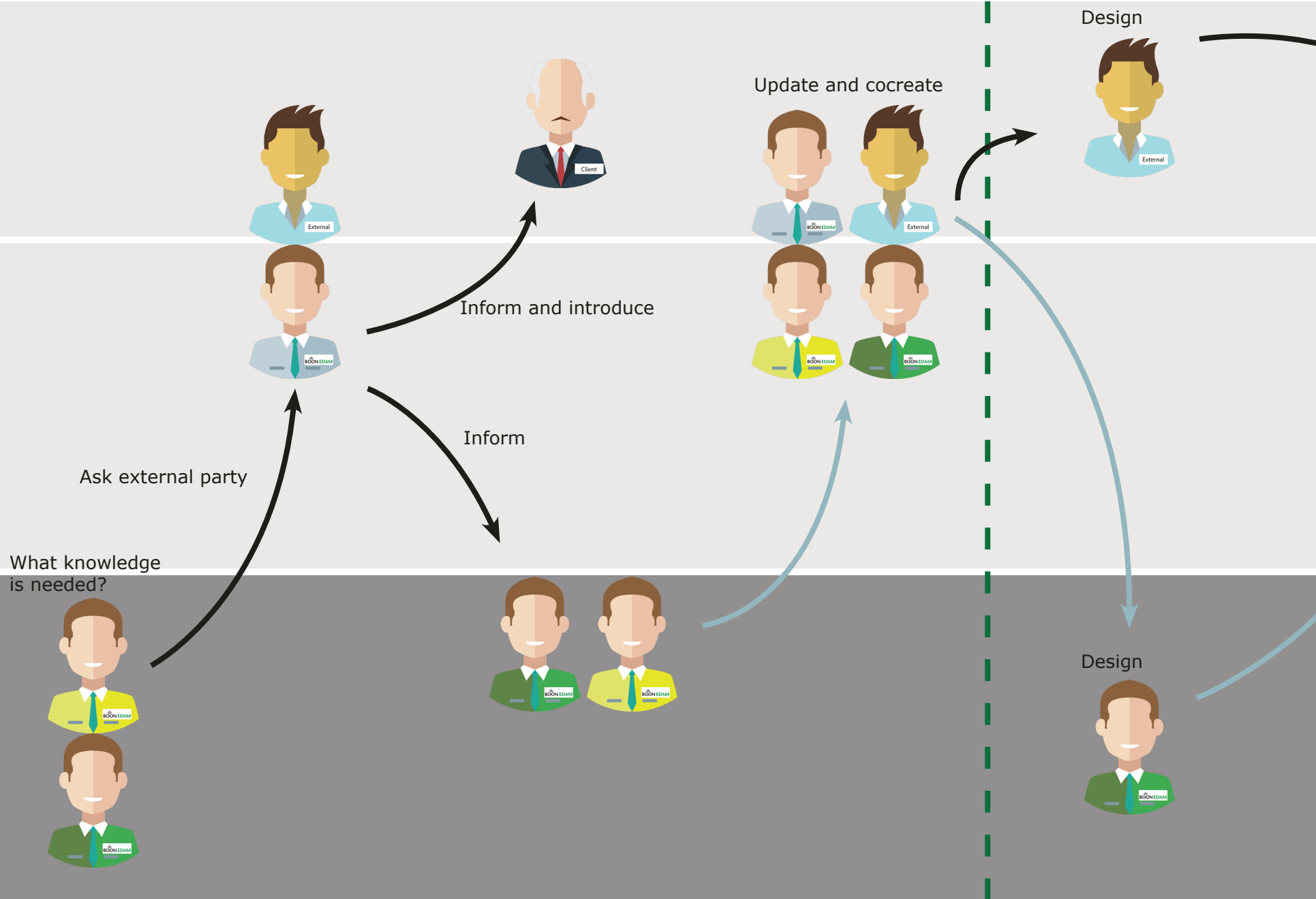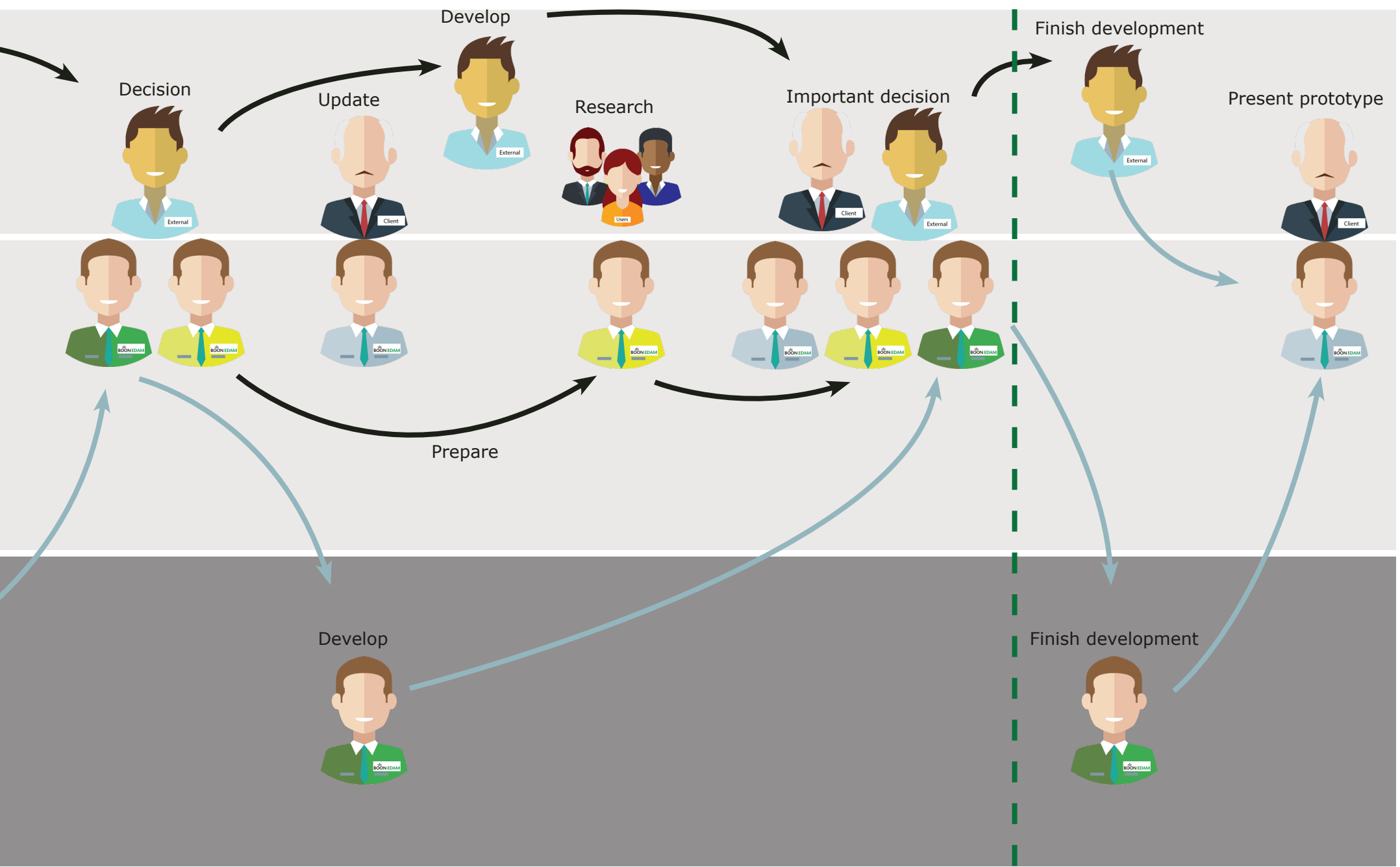
Optimize

Vision

The optimization stage will be about optimizing the solution so it provides more value to the client. It also ensures the developed solution is matured enough to be implemented.

This is where the client will get to experience the solution and can give opinion on how it works. This provides information on what parameters should be changed.

The goal of this phase is to optimize the prototype to the final solution. The client and user are provided with the opportunity to adjust the solution to their needs. During this phase the solution is tested and improved on the KPIs.

Cocreate to make the solution tailored

Strategy

After the prototype has been finished it must be tested to see if it works as predicited. In this phase the user and clients get a first glance at how the solution works and can give their opinions on how it can be better.

Set up a test-environment
In order to test the solution it is important that it is implemented at the clients building. This way it will provide the most accurate information. Set up the prototype in a way that users can be observed and asked questions afterwards. This way it is possible to gather the most information.

Set up a test
When setting up the test the first thing to do is look at the KPIs. Does the solution provide the minimum results that were required? Besides that it is always important to see if the solution doesn't lower the overal quality of the entrance. Map out the KPIs and try to explain why results happen. Use this to find optimizations for the system.

Implement the results
With the optimizations known the test can be updated. Implement the changes and finalize the solution. While doing this, make sure that the results are recorded so that they can be communicated to the client. If needed, keep testing and adjusting until the product is optimized for the KPIs.

Feedback to client and user
The client will be informed of the results of the test and of the changes that are made. This will be done in the form of a presentation that shows the results on the KPIs. The presentations can be based on the *design proposal* since the proposal already defines the KPIs.

The test-users will get feedback on the changes that were made in their favour.

> **"**To say that it's good is really hard. It's something that needs to be repeated and takes attention. There is also a role for the social situation."

Stakeholders & knowledge

Client

Users

External
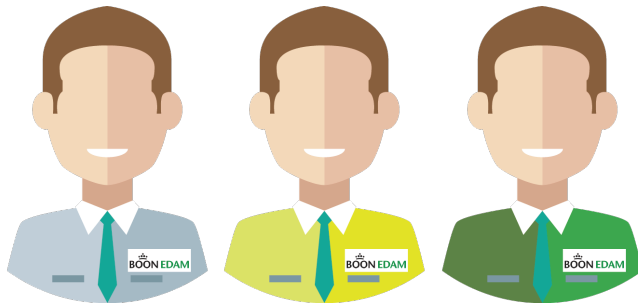
Boon Edam has a supporting role in this phase, as they will adjust the prototype according to the needs of the client and users.

The project manager is in charge of adjustments in the solution. He will inform his team when something needs to change. The service level manager tests the solution on the KPIs and argues why the solution works or not. The account manager will be in contact with the client to update him on the results.

Boon Edam must acquire all knowledge from the user and the solution at this point. This knowledge can be tested to earlier set goals to see if the solution is succesful.
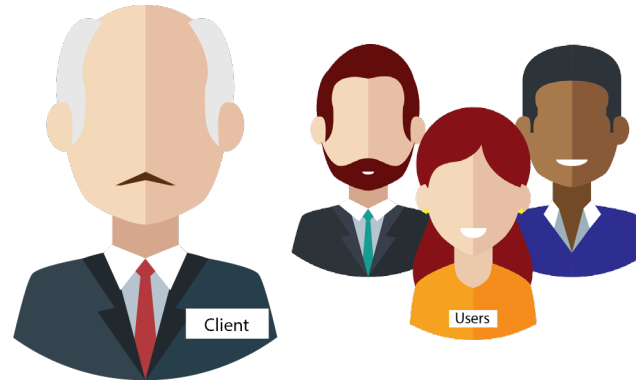
The client has a small role as he will only be informed about results in this phase. The user however plays a major role to optimize the solution.

The user provides most of the knowledge by showing the use of the solution as well as providing feedback on what coulld be done better.

If a third party was involved in the development of the solution they will play a part in this phase as well. They can be seen in the same role as the project manager.

They also are dependent on knowledge that comes from the user to adapt their part of the solution.

Intro | Research | Analysis | **Design**

External

Test

Front-end

Set up test & environment

Communicate

Back-end

Evaluate

Client
Users

Adjust solution

External

Test

Users

Present results

Client

Adjust solution

BOON EDAM

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BOON EDAM

Evaluate

BOON EDAM
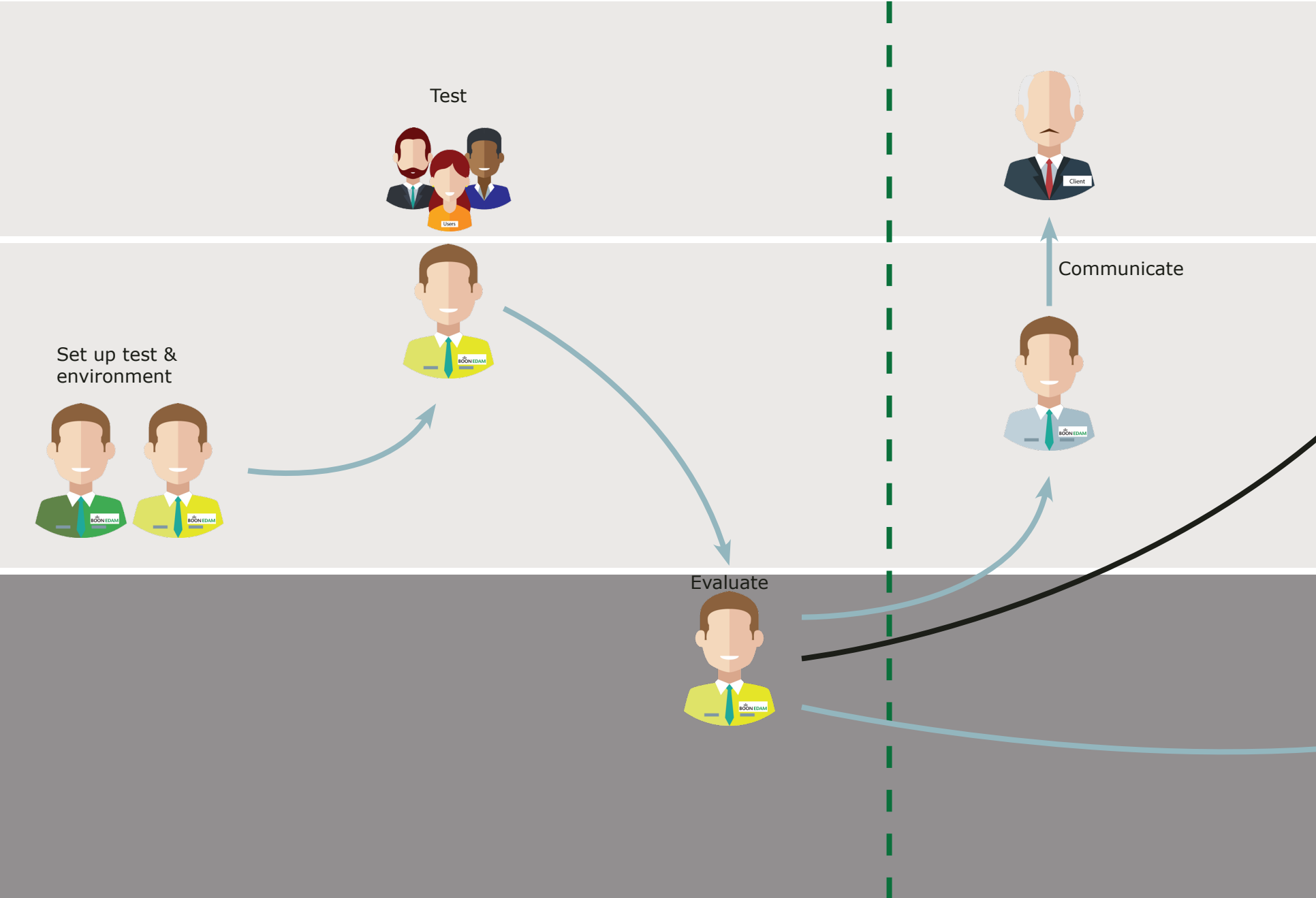
Implement

Vision

The implementation phase finalizes the adaption or innovation of the entrance solution. In this phase the solution will be installed at the client and tested one last time to prove KPIs.

This is the final phase where there is contact with the specific client. He expects the solution to work fluently from now on. This means Boon Edam has to take care that it actually does.

This phase does not only involve the physical implementation of the entrance solution. It also contains the signing of contracts on how the solution will be maintained as well as possible contracts for more advanced services Boon Edam provides. It is important to make agreements on measurepoints for Boon Edam and when the Boon Edam and the client will set a next meeting.

Strategy

Now that is known what will change in the entrance solution of the client it is time to install all parts of the adapted or innovated entrance solution. The solution should then be tested to the KPIs one last time to show that the goals are reached. Besides this both parties have to definethe role Boon Edam will play after the implementation.

Performance

To create a more definite way of testing the performance of the new solution a performance report can be made. This is a more official version of the presentations that are given in the previous phase. The performance report should display information on the KPIs and how they are performing. It should also include actions that are taken that are relevant to the solution.

Maintenance

When the solution is implemented it is important that it keeps doing what it's supposed to. To ensure this there must be agreements on maintenance. The important part is that the solution should always work. Therefore the service level contract should be build up as predcictive maintenance. This way the risk of failure is calculated and solution will be repaired before they are broken.

Datagathering

To make the most out of the solution it is important that there will be a form of datagathering. Since the clients company evolves and changes, the entrance must change along. This is only possible if there is an information flow towards Boon Edam. Every year they should be able to see if and how KPIs have changed and how this effects the solution. If necessary changes can be made to the solution according. To do so the next analysis phase must already be scheduled for the next year.

Feedback to client

At the beginning of this phase the client will be presented with the performance report to prove the solution. After this he will be proposed with a contract in which agreements are made on the future relationship with Boon Edam regarding the created solution.

> "*And even, after you have implemented your project, and it's 5 years later while you only did maintenance, after 5 years you'll have, or at least that's what the client says, an outdated system. But it isn't really outdated, 9 out of 10 times, the organization and it's processes don't fit with what the demand was back then.*"
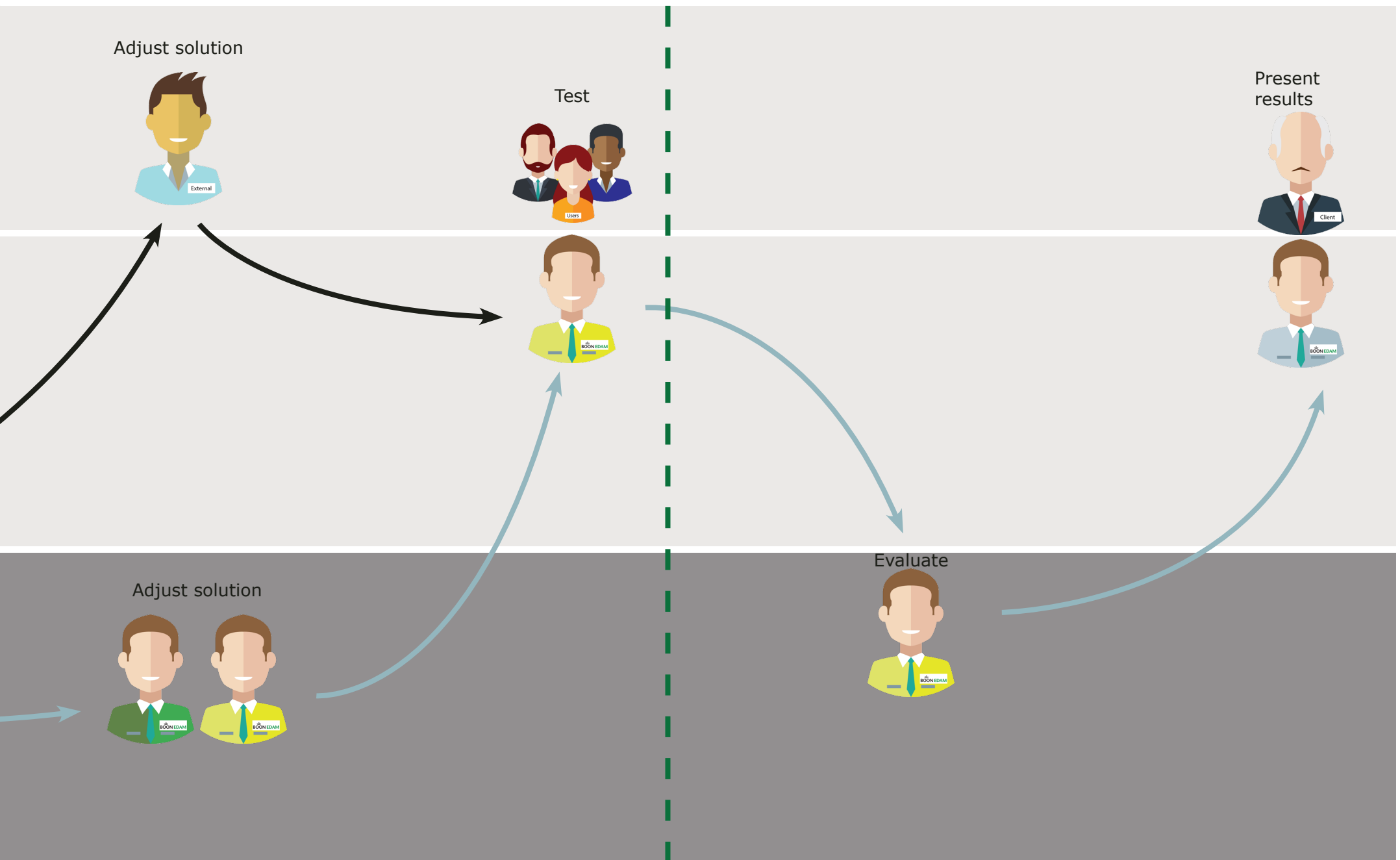
Stakeholders & knowledge
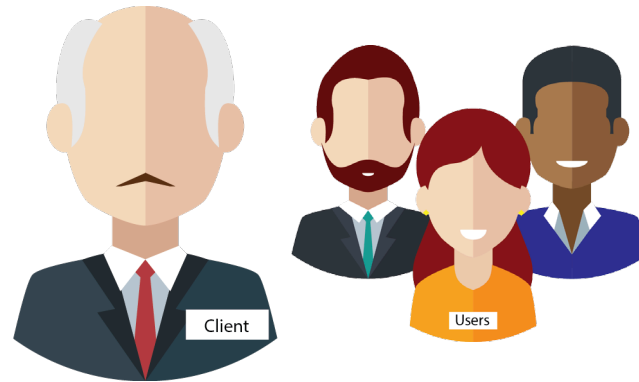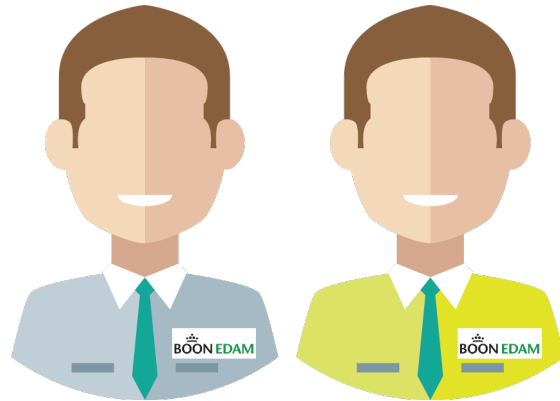
Boon Edam has an initiating role in this phase. They must provide the client with information and propose contracts on the interaction after the solution is implemented.

The service level task involved in this phase is the writing of a performance report. This can be presented to the client as a prove of the developed solution. Together with the account manager he sets up a contract which wthe account manager will discuss with the client.

The knowledge comes from Boon Edam in this stage. They make assumptions on how often the situation needs to be evaluated.

The client has a deciding role in this phase. He will be informed about the results and must accept or alter the contracts that are proposed. The user will be involved for one final test.

The client has knowledge about the set goals and can determine if he is satisfied with the results. He can also determine how often he thinks the solution should be checked.

The knowledge of the user will only be used to determine if the final solution meets his goals.

An external party could be involved if they are the ones to manage the system. If so they can be seen as an extra party to communicate with.

They will have their own specific knowledge and demands, but will be subordinate to the client.

Actions

External

Final test

Front-end
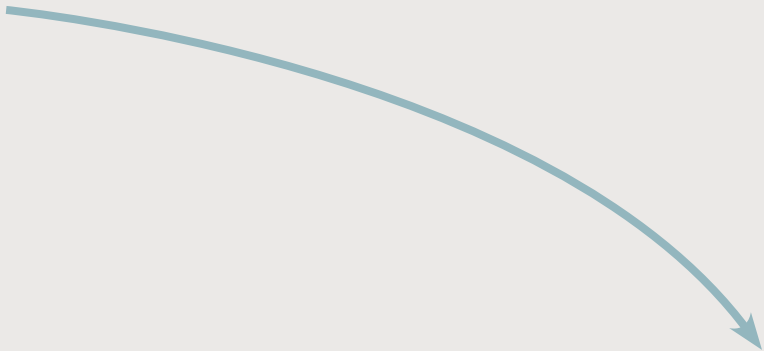
Back-end

Write performance report

Discuss results & contract

Sign contract

External

Client

Client

Write contract
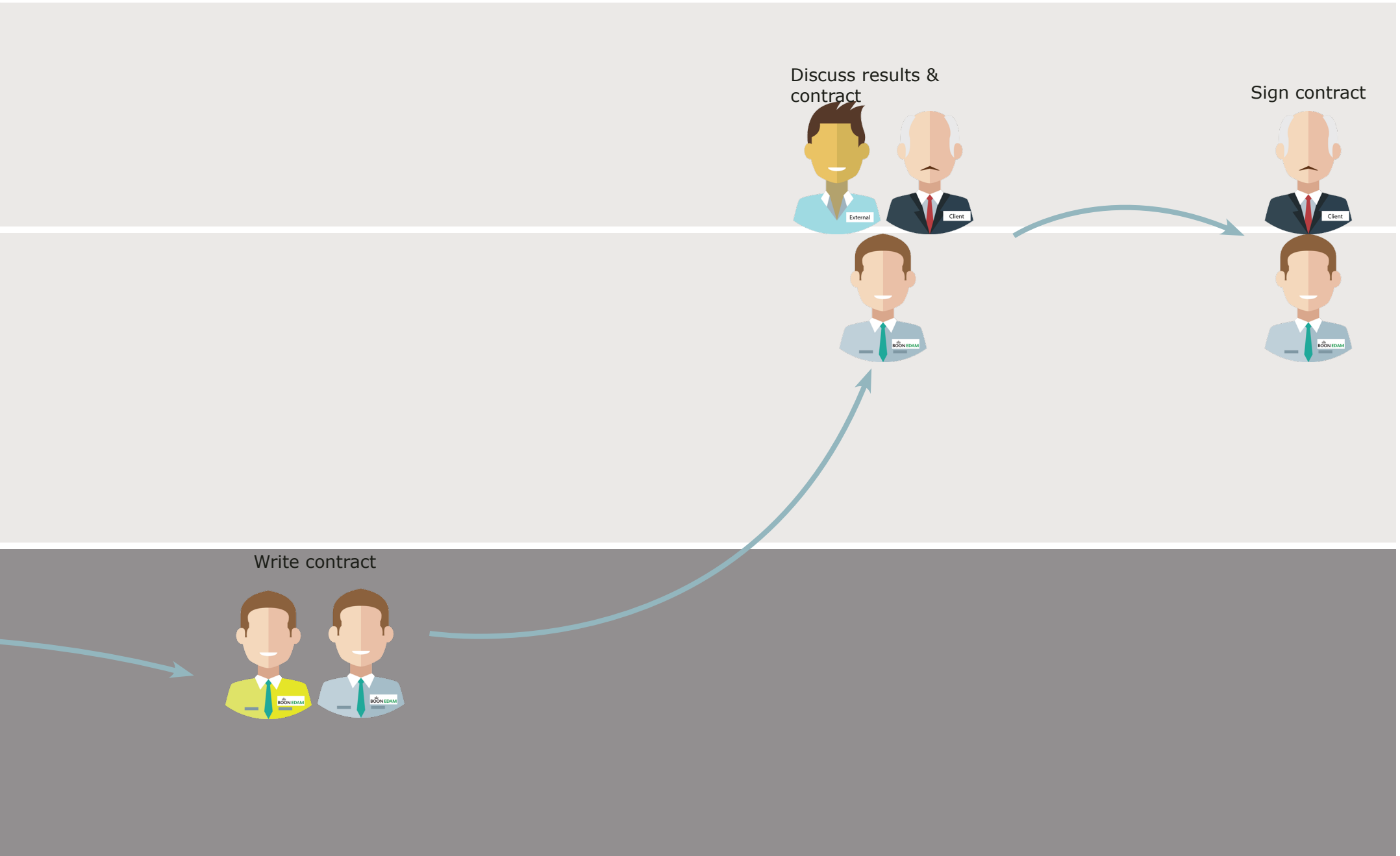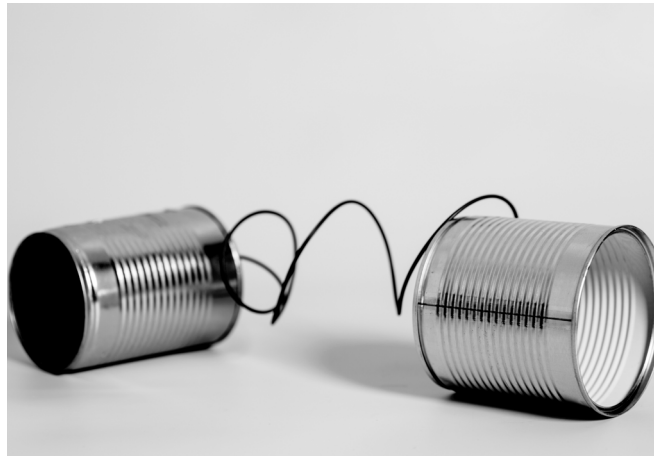
Communicate

Vision

The goal of the communication phase is to promote new solutions to other clients. It also opens up opportunities to implement the system in different ways. By talking about the product it should become more interesting and evolve with its users.

The client will get information on newly developed solutions which it can implement. It will also create demands for new solutions or inspire to create new opportunities.

During this phase new solutions are showcased. Boon Edam will actively approach clients to see if they can apply those solutions in their company.

Strategy

Now that the solution is working at one of the clients it is time to see if it can be implemented in at other clients. To do so Boon Edam must actively promote the solution. It is also important to look if the solution can be used in a different way or extended and to make sure the initial client is keeps up to date.

Communicating to other clients

Now that Boon Edam has a finished solution they can put this in their portfolio. The probability that the solution can be fitted with other clients is high. Clients like to be informed about the development of Boon Edams products. In order to do so it's important to communicate realized solutions to them. This can be part of the *opportunity report* that is presented to the client every year.

Alternate uses for the solution

Sometimes it is possible to use the solution in an alternative situation. It is therefore important that all service level managers are aware of the solutions that Boon Edam creates. This way they can see if they fit with the companies they have in their portfolio. In this alternative situation the solution might need to be tweaked a little. This is a potential project where only optimization and implementation are needed.

Communication to third parties.

Whenever a relationship with a third party is made, Boon Edam should try to benefit the most of this relationship. By actively talking to them on a regular basis they will be informed of opportunities. This can be in the form of a brainstorm session or just a regular meetup.

General communication

To keep all clients informed it is also important to make them aware of all other things that are happening in the market. Only relevant trends and information should be communicated to the client, as he has no time to look through all trends. Therefore information must be filtered before it is presented to the client.

Feedback to client

When a new solution is implemented it is important to provide the client with enoug information to show that it works according to it's KPIs. To do so they must regularly be updated with the *performance report*. During the implementing phase the frequence of this report will be discussed.

To create a good social contract with the client he will be presented with an opportunity report once a year. During this session they will be presented with opportunities that fit with their company as well as an overview of the performance of last year. The initiation of a new project will then be discussed.

"The moment the product is standing and you don't bother about it anymore, that is the moment that I would say they should actively contact us, otherwise they will be put on the back-burner."
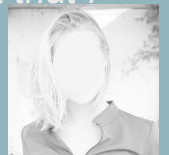
Stakeholders & knowledge
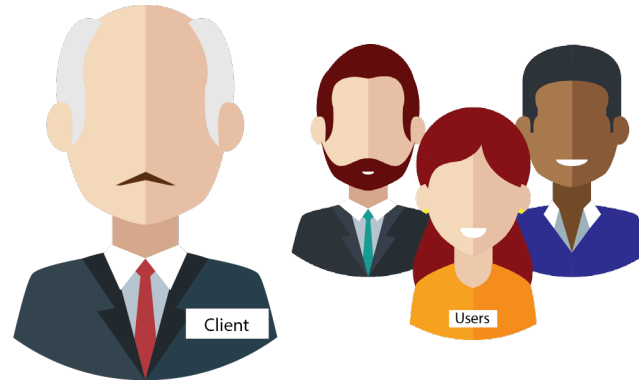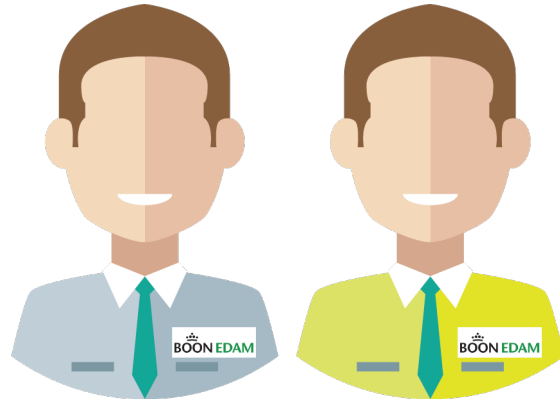
Boon Edam will be the informer in this phase. The main goal is to showcase what has been done. Also important is that they try to start a new project.

The service level manager will provide the needed reports. He will also be in charge of maintenance of the system. The account manager then presents those to the client. In the annual meeting it is important that the account manager gathers all involved stakeholders to discuss what is possible. He should also invest in a relationship with third parties as they can provide a good look into the future.

Boon Edam provides knowledge about their company and results to the customer. At the same time they gather information from their suppliers so that they can better predict the future.

The client will be receiving information during this phase, as well as thinking about opportunities. The user has the same role, but has less contact with Boon Edam.

Both will receive knowledge from Boon Edam and are expected to think along to search for opportunities.

There could be a third party managing the system. They will be treated as client or user, depending on the role they have.

Third parties will inform Boon Edam with new information on technology.

As they are specialists in their field they can provide information about developments and trends in a certain area. Their business is important for Boon Edam as the can use it for future projects.

Actions
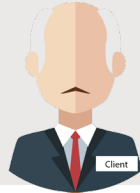
Anual report & opportunity session

Initiating new project

Users

Client

External

Client

BOON EDAM

BOON EDAM

Writing reports

BOON EDAM
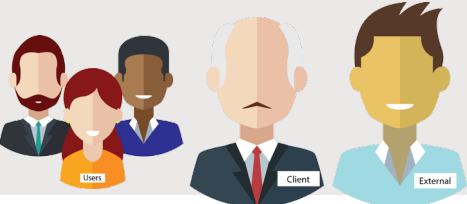
IMPLEMENTATION

In order to realize Boon Evolving Entries as a service it is necessary to think about implementation. To do so an implementation plan is written which covers most of the aspects needed to start of with Boon Evolving Entries. As a guideline to writing this chapter a template for implementation plans from managementmodellensite.nl (2018) is used.

Implementation plan

Background

As explained earlier potential clients of Boon Edam often only have a rough idea about what kind of entrance solution they want. The cause of this is the fact that they don't buy a new entrance solution every year. As a result they don't want to invest too much time in selecting an entrance solution. After a solution is installed it becomes a part of the property and wil be depreciated until a new entrance is needed. This means it is off the priority list of the board for that moment. When a new entrance solution is needed there a comparison between different companies will be made, followed by a selection and the whole process repeats.

Goal

The main goal of Boon Edam Evolving Entries is to create a competitive advantage towards the clients of Boon Edam. In the most concrete way the service provided by Boon Edam prevents the client from having an entrance solution that doesn't get outdated and thus has no need of depreciation. This way the solution will always fit with the company needs. Due to regular contact this service will also result in a social bond between Boon Edam and the customer. This social bond can be seen as one of the main assets of the service, as it results in the client picking Boon Edam over their competitors.

Results

At this moment Boon Edam mostly sells and maintains products. Besides this they also consult clients on which solutions are the best fit for their company. With Boon Edam Evolving Entries this will be a bit different. Since it requires a social investment of Boon Edam to create the baseline measurement, as well as the follow up reports, there will be more contact with the client before and after installing the entrance solution at their company. As shown in the Task Overview in the previous chapter, there are a lot of tasks to be completed. However, most of these tasks are really similar to tasks that are already performed in the current workflow.

As a result of this it is not necessary to employ extra people. It is important though that some extra knowledge is acquired by the current employees of Boon Edam. In the current situation Boon employs both sales managers and project managers, which can be seen at both ends of the spectrum of tasks. They are already skilled in the tasks displayed on those ends of the spectrum. To make this service a success it is important that the skills which are needed for the mid-segment tasks of the spectrum are learned by either of those groups. The easiest way to learn this skills is by practicing. The added report templates can be used as a guideline for the way of working.
It is also possible to study and learn certain methods. For example, PRINCE2 provides a good guideline on how projects can be managed.

With more interaction with the client the processes and culture within Boon Edam wil shift as they become more involved with their company goals. As a result Boon Edam becomes more customer-centered, which provides them a competitive advantage in the market.

Boundaries

It is important to understand that Boon Edam Evolving Entries provides Boon Edam with a framework which to get insights about their clients. This framework can be used to spot opportunities to improve the entrance solution of the client, which can lead to adaption or innovation. Those opportunities however must come forth out of the creativity and experience of the involved employees. Since every company is different it is important to understand that they all have different needs, so input and output of the service will be different. The strength of Boon Edam is that they have a wide range of knowledge which they can apply in all those situations. Therefore it seems to the client as if Boon Edam provides a completely tailored service, while they mostly just combine different pieces of knowledge.

As Boon Edam Evolving Entries is a service which helps explore opportunities it is important to remember that any results of this service will be standalone projects. For example, if the Boon Edam Evolving Entries shows that a client has the need of having a cloud-based database of their employees which Boon can manage, this service will be managed by a different department within Boon Edam. However, the knowledge that this service exists within Boon Edam and that it might be implemented at other clients is part of Boon Evolving Entries.

Framework conditions

The success of Boon Edam Evolving Entries depends on the willingness of the employees to invest time each and every client. It is really important to gain detailed knowledge of the client. The client should also feel as if everything is tailored to them specifically. Lacking interest or not working thoroughly on one of the aspects of the service will lead to a decrease in quality of information.

Another key element is the willingness of the client to invest time in Boon Edam. While interaction with all stakeholders is required at least once a year, the client must invest time (even if it's just the smallest amount) in Boon Edam. Without this involvement it is not possible to create a clear overview of the situation the client is in, which leads to decrease in quality of information.

Finally it is important that employees take enough time to master the skills that are needed for the elements of the report, such as interviewing techniques and journey mapping. Those skills are not really hard to master, but require a certain mindset of curiosity. A thing to remember is that a service is a combination of people and technology working together. Therefore a solution is not working well if it does what it's supposed to, but rather if the people using it experience it as doing what it supposed to.

Approach

Boon Edam Evolving Entries is a service that can be introduced gradually within the strategy of Boon Edam. With this report being a first exploration in the direction of servitization of security entrances the design can be used to do a pilot with one or a few companies. Within this pilot, the report templates can be developed into their final layout. The phases that are described in the design will probably not be as strict as described. As will be discussed in the chapter Discussion they will probably blend to create a more organic process.

With the use of this report Boon Edam can take full responsibility of the development of this service, although the autoher recommends to seek expertise for development of the reports. This knowledge is not yet one of Boon Edam's building blocks and re-inventing the wheel seems like a time-consuming process.

To make sure Boon Evolving Entries leads to successful results the pilot will be assessed as a proof of concept. This assessment can be executed by testing the service to KPIs. Those KPIs are displayed to the right.

The KPIs have different scales of measurement. Some of them be simply counted, while others must be rated to an ordinal scale. The KPIs are divide into three topics: Quality of reports, Adoption within Boon Edam and Satisfaction of the customer.

By using this KPIs to score the results of Boon Edam Evolving Entries the service can be improved to a satisfying level. After this, the KPIs can be used for further improvement.

KPI

Satisfaction of the customer

Is the amount of interaction with the client been experienced as satisfying?
Does the client experience Boon Evolving Entries as succesful?
Does the client experience Boon Evolving Entries as beneficial?
Does the client experience Boon Evolving Entries as problem solving?
Does the client experience Boon Evolving Entries as being tailored to them?
Does the client experience his entrance as fitting with their company?

Adoption within Boon Edam

How much knowledge about methods is acquired by Boon employees?
How much time does it take to write the reports?
How many clients are using Boon Evolving Entries?
How often do opportunities arise?
How many times adaption happens?
How many times innovation happens?

Quality of reports

Does the template of the assumption map provide enough information?
Does the template of the stakeholder map provide enough information?
Does the template of the interviews provide enough information?
Does the template of the journey map provide enough information?
Does the template of the opportunity report provide enough information?
Does the template of the design proposal provide enough information?
Does the template of the performance report provide enough information?

Figure 16. Key Process Indicators Evolving Entries

Roadmap

Launch pilot

Official launch Evolving Entries

	2019			**2020**			**2021**		

Front-end implementation

Search pilot participants		Promote EE		Promote EE

	Search pilot participants	Contract launching client	Search clients

	Client feedback	Year 1 meeting		Year 2 meeting

Back-end implementation

Set up team	Set up database		Set up team		EE in portfolio

	Learn methods	Train skills	Perfecting skills

	Write contracts

Report development

Progress cycle	Progress cycle	Progress cycle	Progress cycle	Progress cycle	Progress cycle	Progress cycle	Progress cycle	Progress cycle	Progress cycle	Progress cycle

Testcase	First baseline		Updated baseline	Year 1	Opportunity report		Year 2 + opportunity

Adapt to Boon standard		Improve templates		Improve templates		Improve templates

Figure 17. Roadmap to launch Evolving Entries

This roadmap provides an indication of how Boon Edam Evolving Entries will be implemented over time. While developing the service it is important to control the progress. To do so a progress update will be given every three months. During the progress update there will be looked at the KPIs to see what challenges remain to improve the service, as well as which KPIs already meet a level of satisfaction. Based on this a plan will be made for the next three months to improve those KPIs. During the annual progress update the decision can be made to cease the project if results are not up to expectation or do not promise to get there.

Budget

The revenue model of Boon Edam Evolving Entries is based on the time that is spend to create the reports for the client. As shown in figure 18. there are 3 different bills that can be send to the client:

The baseline measurement report will be sent to the client once when they start using Boon Edam Evolving Entries. The costs of this report making come forth from the initial research that has to be done for the company. They depend on how many interviews must be done to get a good overview of the needs of the stakeholders.

After the baseline measurement report is made, Boon Edam Evolving Entries will provide the client with an annual measurement report. This annual measurement report provides the client with an update on their entrance solution and gives them opportunities on how it can be improved.

The costs of this report depend again on how many interviews there must be performed.

Whenever the decision is made to adapt or innovate the entrance solution of the client a project bill will be made. The costs of this bill depend on the amount of time that is put into the changes that are made.

It is up to Boon Edam to calculate the costs of a project bill. The author suggests that adaptions of a system will result in a regular bill of the mechanic who installs the system.

When an innovation is done, part of the costs can be payed by the client. However, most of it will be payed by Boon Edam, as they can sell their innovation to other clients as well.

Baseline measurement report:

Assumption map	2h
Stakeholder map	1h
Blueprint	1h
Interview	3h x I
Journey map	2h
Report writing	1h
Interviews	(I)
Total	**7h + 3I**

Annual measurement report:

Interview	2h x I
Process map	2h
Strategy client	1h
Opportunity report	1h
Report writing	1h
Interviews	(I)
Total	**6h + 2I**

Project bill

Design brief	2h
Development/ Adapting	xh
External	xh
Testing	xh
Installment	xh
Total	**2h +x**

Figure 18. Cost-overview in working hours

Quality

As explained in Approach the quality of Boon Evolving Entries will be ensured by testing it on KPIs. The KPIs can roughly be divided into three groups: Quality of reports, Adaption within Boon Edam and Satisfaction of the customer. To improve or maintain quality it is important that Boon Edam Evolving Entries is tested to those KPIs on a frequent basis (every three months). Testing Boon Edam Evolving Entries this often will make sure that the service is agile and can be changed fairly quick.

To assess the service to the KPIs, all employees involved in Evolving Entries will come together for one half day to discuss the KPIs. During this meeting they will discuss their findings per KPI and set goals for the next three months. At the end of the session a report is generated which shows the progress of Evolving Entries.

Once per year a bigger meeting is held together with the CEO of Boon Evolving Entries to provide a go or no-go for the next year. During this meeting the past year will be evaluated, annual goals will be set and major adaptions can be discussed.

Information

To make sure Boon Edam Evolving Entries is up-to-date to all clients it is important to make sure all documentation is the same. Therefore a central database must be made where all the report templates will be saved. This way all new reports will be up to the standard of that moment. All documents shall be coded with a version to make sure the right one is used for report making.

To make sure each document can be found they can be placed within a structure which can be found in Appendix C. This overview shows how files can be saved in an organized way. Whenever a document is finished, it will be saved as a .pdf-file to make sure it is not altered anymore. Whenever a finished document has to be altered a new .pdf-file will be uploaded with an annotation of this altering in the name.

Part of the control of information is the planning Boon Edam has. It is important that clients are contacted on regular basis. Each project must therefore have a planning which schedules the reports and meeting moments. These plannings must be integrated with the agendas of the involved employees of Boon Edam.

Organization

As explained in the Design-section there are three categories of tasks that need to be performed within Boon Edam Evolving Entries. Two of those categories are already fitting within the company structure of Boon Edam: the account manager and the project manager.

To make sure Boon Edam Evolving Entries will be a succesful service it is important to decide who will pick the tasks that are placed in the middle of the Task overview in the Design-section. There are two ways of implementing those tasks within Boon Edam:

First it is possible to create a new manager within Boon Edams company structure. This service level manager will than perform all new tasks. However, it seems more logical to distribute the new tasks.

The most logical way to do so is by adding those tasks to that of the account manager. Since he already knows the client it is easier for him to gain the needed information. When those tasks are given to a project manager it will be very time-inefficient, as he has to start from scratch.

Besides this the account manager already invested time in building a relationship with the client. As this is essential for getting quality information it is suggested that the account manager performs those tasks.

Whenever a Determine-phase leads to the decision to adapt the solution or to innovate the project manager and account manager must work closely together to make sure the new solution fits with the needs of the client. As a result they must maintain regular contact.

Report templates and execution

With Boon Edam Evolving Entries a lot of reports are produced and provided to the client. Those reports can be seen as the tangible results of the service Boon Edam will provide. As explained in the chapter Design, the Analyze-phase is the most important phase of the service, as it returns on an annual basis.

In Appendix D templates for all the reports can be found, together with a description of how to use the template.

To provide more insight in the execution of the service figure 19. provides an example in how a cycle of Boon Edam Evolving Entries might go over time.

In the example Boon Edam has an upcoming annual meeting with a client. This client currently uses 5 Speedlane Swing models at the entrance of it's office. Their employees can enter the building by scanning their security access cards.

In the past year Boon Edam released an update for this type of gates. They can be enhanced with a camera that can recognize the face of an employee and grant him access to the building.

The analysis of the client shows that employees often forget to bring their cards to work. The front desk then opens the doors manually. A system based on facial recognition thus seems to be interesting to the client.

Week 1	Week 2	Week 3	Week 4
- Making appointments for interviewing - Trend analysis - Reviewing blueprint & journey/process map	- Updating performance report - Preparing interviews - Determine client strategy	- Interviews - Transcribing - Updating customer journey	- Updating process map - Writing opportunity report

Week 4	Week 5	Week 6	Week 7
- Annual meeting with client - Choose opportunity - Determine KPIs	- Writing design proposal - Discussing design proposal - Agree to start project	- Contacting external party for facial recognition - Preparing current solution for cameras	- Installing cameras - Testing the solution - Agree on performance updates - Plan new annual meeting

Figure 19. Example cycle Boon Edam Evolving Entries

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The goal of this thesis was to provide a first insight in how Boon Edam could provide a service to their clients. The goal of this service was to provide a competitive advantage for Boon Edam in the market, as they would offer something their competitors don't. This new service would also provide a regular revenue stream for Boon Edam.

By implementing Boon Edam Evolving Entries, Boon Edam will provide their clients exactly with what they want. At this moment they often don't have a clue where to start when they want a security entrance solution. Since a company doesn't buy a security entrance every day it is not part of their core business. As a result it costs them a lot of effort and resources selecting an entrance that fits with their company.

After the entrance solution is installed companies often don't really look into the opportunities anymore. They just see it as something that is part of their building and will become outdated over time.

By providing the client with a structurized way of selecting an entrance solution Boon Edam offers them to pick a solution that fits with their company. Because Boon Edam Evolving Entrie annually updates their clients on the use of their solution they provide a low cost solution for the client to make sure their products are up to date.

The annual updates also helps the client with seeing possibilities to use their entrance in a better way. By providing them with news on the latest innovations and trends they can be triggered to invest in (parts of) new entrance solutions on a regular basis.

As companies want to focus on their core business they tend to outsource a lot of necessities of their company. This provides the opportunity to Boon Edam to offer this service that focusses on giving the customer functionality instead of just a product.

Within Boon Edam this results in some small adaptions of their organitzational structure. However it will provide them with a regular revenue stream as they stay involved with their clients. This involvement also results in a social bond with the clients. This is a valuable asset of Boon Edam Evolving Entries as it makes sure a client will come back to Boon Edam if he needs a new entrance solution for (one of) his office(s).

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Discussion

This thesis provides a first exploration on how Boon Edam can servitize their business. It can be used as a guideline for Boon Edam to set up a customer focused service.

During this graduation project the author set up the FOFSS model. This model was used for structuring the finding of opportunities for Boon Edam. It was then implemented within Boon Edam Evolving Entries to provide a framework for opportunity finding.

The model was iterated twice during the graduation project. The first time a new information stream was added to the model, which gave more structure to the different directions in which opportunities might arise. The second time the sequence of the model was modified as a framework for opportunities was spotted within the model.

To prove the model, this graduation project can be used. First assumptions were made on what clients would miss in their interaction with Boon Edam. The stakeholders were analyzed and interviews were put up. This part can be seen as the Monitoring part of the model. Those interviews resulted in some opportunities which could be placed within the framework as seen in figure 20.

After this the opportunity was defined, as shown in the chapter Defining the opportunity. To this opportunity a design was proposed and developed. At this moment it could be stated that the design phase is almost done and that it's time to start the optimization step.
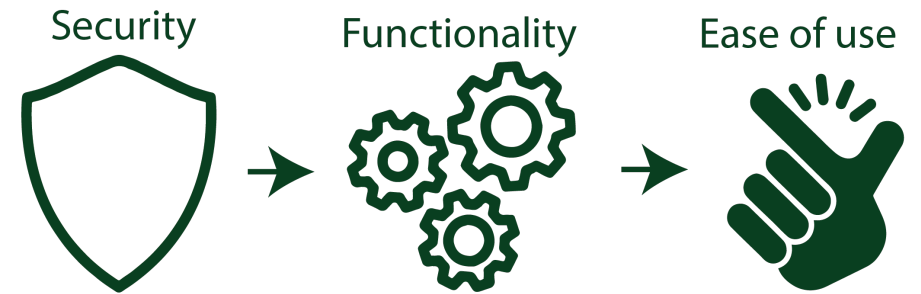
	Security	Functionality	Ease of use
Physical		The clients entrance solution becomes outdated after a period of time.	
Organizational			Clients want to outsource in-house activities
Mental			Clients don't want to invest time or resources into finding a security entrance solution.

Figure 20. Boon Edeam Evolving Entries within FOFSS model

It can be argued that the FOFSS model can be used for other companies within the security sector. To do so a final iteration is made to provide a more general model for the sector:

Within the FOFSS model the user will generate two different datapoints on a situation. Those datapoints measure the same criteria on two different points in time. This is called monitoring.

After monitoring both datapoints they can be compared to look for opportunities. The opportunities arise from gaps, problems and risk that is experienced within the opportunity framework.

The opportunity framework has two axes: a horizontal axis that determines the field of the opportunity. This says something about results of the opportunity. The fields of opportunities are ordered based on the importancy of the field. For the security branche this means that security is the most important field. Securing something leads to providing a product with functionality. This functionality leads to use of the functinolaty, which should be as easy as possible.

The vertical axis displays the levels of opportunity. Those are divided in physical, organizational and mental opportunities. The levels describe the nature of the opportunity and provide a direction on how the opportunity can be adressed.

To go one step further the author argues that this model can be generalized even further to a point where it can be useful for any manufacturer that wants to seek opportunities to servitize their business. If the horizontal axis is specified for the sector the model is used in, any manufacturer can use the model to find opportunities. When they select datapoints that describe the use of their products at their clients they can use the comparison to spot opportunities to improve the products their client is using. As a result they can tailor their products to their client. THis customer support that comes forth from data monitoring will provide them with the same benefits as described for Boon Edam in this thesis.
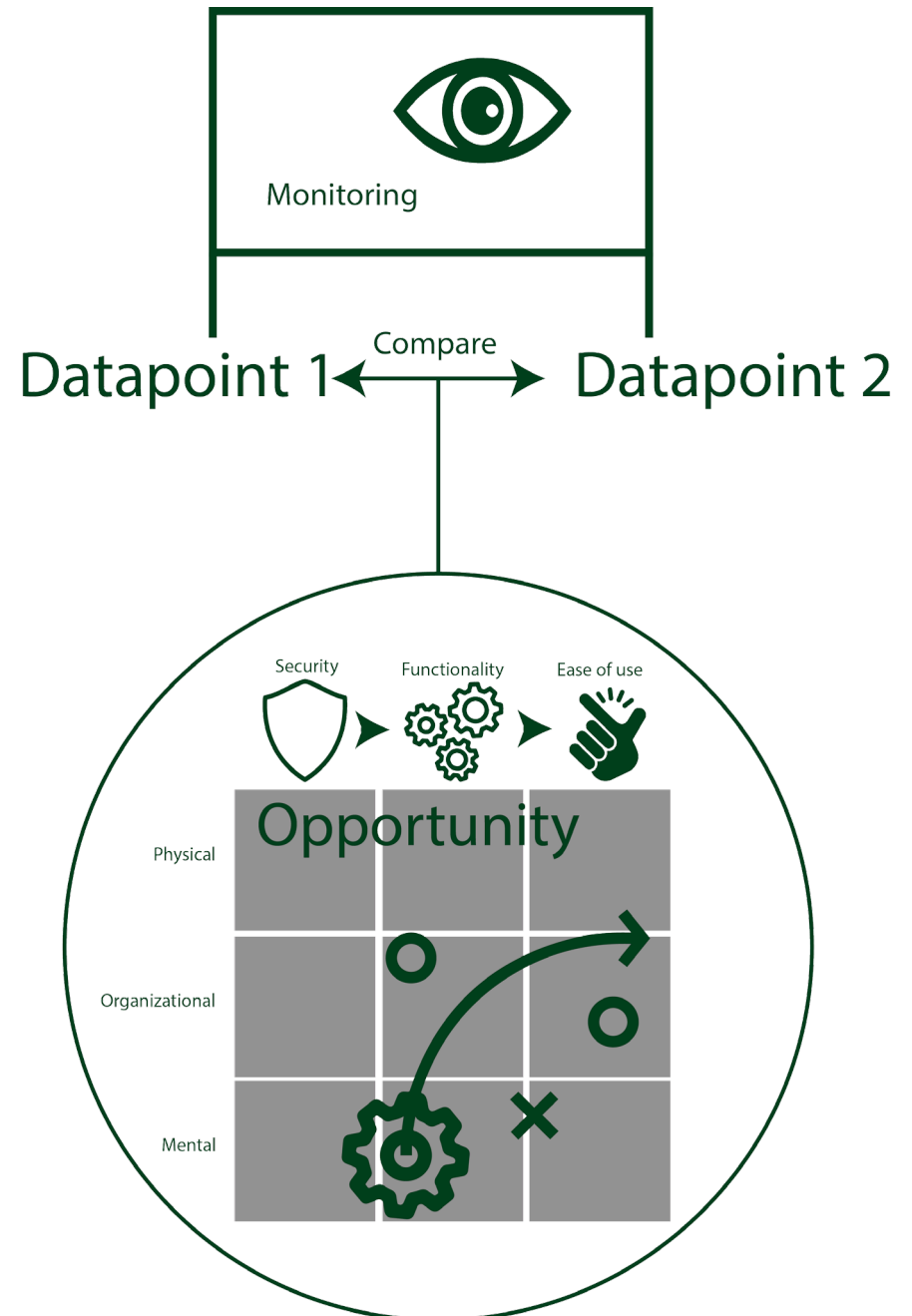

Figure 21. General FOFSS model

Limitations

As this thesis is a first exploration on how Boon Edam can servitize it's business, it acknowledges some limitations:

The author of this thesis had no previous experience in the security sector before this project. Therefore assumptions were made from a more general perspective, and based on information that could be found from different sources.

During the research and analysis phase 6 stakeholders of Boon Edam were interviewed. All those stakeholders are currently involved in a project with Boon Edam. Therefore they are already investing a lot of time and resources in the relationship with Boon Edam. The companies that were interviewed were also innovation driven. As a result of this the information that was derived might be biased. Thus more research is needed to see if the designed service fits with other clients of Boon Edam.

The design of Boon Edam Evolving Entries has not been tested to this point. Therefore it is not sure if the service will provide the same results as is expected by the author.

Within the implementation plan a suggestion is made for a cost structure of the reports of Boon Edam Evolving Entries. However this suggestion only takes in account the costs for the actual report making. All other costs (f.e. overhead costs) are not included in this cost structure.

Recommendations

If Boon Edam decides to implement Boon Edam Evolving Entries it is thus recommended that they should do a small and large scale test with the proposed service. This way they can optimize the steps and reports, which should result in a viable plan. There are some topic the autor argues to be important

First of all it is interesting to look at overlap of the phases within the service. In the proposed design the services seem to have clear boundaries on what should happen. However in the real world it might be that events of the different phases might happen at the same time, or even during the same meeting. Recommended is to find an optimum in time management without letting the different aspects blur into each other.

In the implementation it is chosen to write a really conservative roadmap. This is done due to the nature of large companies to implement things after a lot of paperwork. If Boon Edam wants to implement this service this process could be much shorter as they are already involved in several projects with clients. By structurizing those projects and explaining the goal of this they can quickly set up a test case for Boon Edam Evolving Entries.

Reflection

In the beginning of this project I set some goals for myself to achieve. First of all I wanted to show that I could design a service for Boon Edam through discovering customer needs and how those needs can be used to design. With this graduation project I think I designed a service that is really close to the customer needs. I used a lot of information that I derived from the interview to make sure the service would be tailored to the customer. This resulted in a service that can be used on any of the clients of Boon Edam, as it is tailored to every individual.

Second I wanted to design a service that has a long time implementation. Due to the nature of its design I think this service can be used anytime. As it grows with the trends and the needs of it customer it will never get outdated.

Last I wanted to create a viable business plan for Boon Edam. I think the implementation plan I wrote for this graduation project clearly states the boundaries in which Boon Edam has to operate to make it a succes. It also provides insights in how they can implement it in their company.

However, I don't feel as if have touched upon all the aspects of this part of design yet. Since I didn't have the chance to actually do a test or simulation of implementation, I think I can still learn a lot in this area.

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Appendix A - Interview templates

This appendix contains the interview templates that were used for the interviews with the CEOs of Nsecure and Ensura. The templates of those interviews differs from the standard interview template as the focus of those interviews were different. Both interviews are held in a semi-structured way, with open questions.

Nsecure

Introductory script
Hello [participants name], thanks for participating in this interview. Before we start I would like to ask if you have any problems with me using the outcomes of this interview, as well as quotes, audio and/or video examples to display to my chair, mentor and Boon Edam?

Could you please introduce yourself?

Subtopic 1
History of Nsecure

Opening question:
Could you tell me a little bit about the history of Nsecure

Follow ups/probes:
- Has this company always been like this?
- How did you think of this business model?

[Assignment 1, timeline of Nsecure and development business model]

- What key elements played a role while developing this strategy?
- What were the biggest pitfalls Nsecure encountered?

Research topic:
How does Nsecure work?

Main research question:
What can Boon Edam learn from their motto, vision, start and growth?

Subtopic 2
Service model

Opening question:
On your website I found multiple factors of your model. Could you explain those in your own words?

Follow ups/probes:
Factors:
- Project & system integration
- Workflow and identity
- Performance & maintenance
- Observation & control
- Insourcing

Subtopic 3
Vision & motto

Opening question:
What would be the vision of your company?

Follow ups/probes:
- Why is this your vision?
- How did you come to the phrase control your access?
- Aren't companies afraid of this statement?
- Why did Nsecure switch from Nedap to Unica?
- Are there any third parties involved in the service you provide?

Subtopic 4
Advise & future

Opening question:
What does the future of Nsecure look like?

Follow ups/probes:
- Do you think it is possible for Boon Edam to do something similar?
- What could be limitations for them?
- Are you interested in cooperating with Boon Edam?
- How do you think the future looks like according to market pull and technology push?

Closing question:
Is there anything unmentioned in this interview that you would like to say about Boon Edam and/or the service?

Ensura

Introductory script

Hello [participants name], thanks for participating in this interview. Before we start I would like to ask if you have any problems with me using the outcomes of this interview, as well as quotes, audio and/or video examples to display to my chair, mentor and Boon Edam?

Could you please introduce yourself?

Subtopic 1
Interaction between Boon Edam & Ensura

Opening question:
Could you tell me a little bit about the history of Ensura?

Follow ups/probes:
- How does your company innovate?
- What is your relation to Boon Edam?
- How do you cooperate/cocreate?

Subtopic 2
Important trends

Opening question:
Let's talk about key elements for your system. How do you work with privacy?

Follow ups/probes:
- Are there similar elements to privacy that play an important role in the security sector? Could you explain their role?
- If Boon Edam wants to implement for example:.... Could you give me some advice on how to do this?

Subtopic 3
Horizons

Research topic:
Future of security

Main research question:
What are relevant (future) trends of technology?

Opening question:
Are you familiar with the horizons model?

Follow ups/probes:
- Why is this your vision?
- What would be the horizons on your field of expertise?
- Could you provide more general horizons for trends within security?
- How do we get to those horizons?

Subtopic 4
Strategy

Opening question:
Looking at the horizons, what innovation strategy does you company have?

Follow ups/probes:
- How do you think this strategy will evolve?
- What role do your clients have in this?

Closing question:
Is there anything unmentioned in this interview that you would like to say about Boon Edam and/or the service?

Appendix B - Example of statement cards

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This appendix contains an example of a statement card. All statement cards were printed and grouped to provide insights on different topics. A picture of the groups is showed to the right.

colorbar	After printing, please mark this field in your personal colour (for easy sorting)
paraphrase	**Boon Edam should actively provide improvements to try and test**
quote	This is what we said to Boon Edam: we want to search for solutions together and make them scalable for other companies, not even necessarily B. Amsterdam. So please come to us with innovations, so that we can test them together. [00.42.31.12]
Space for notes during session	
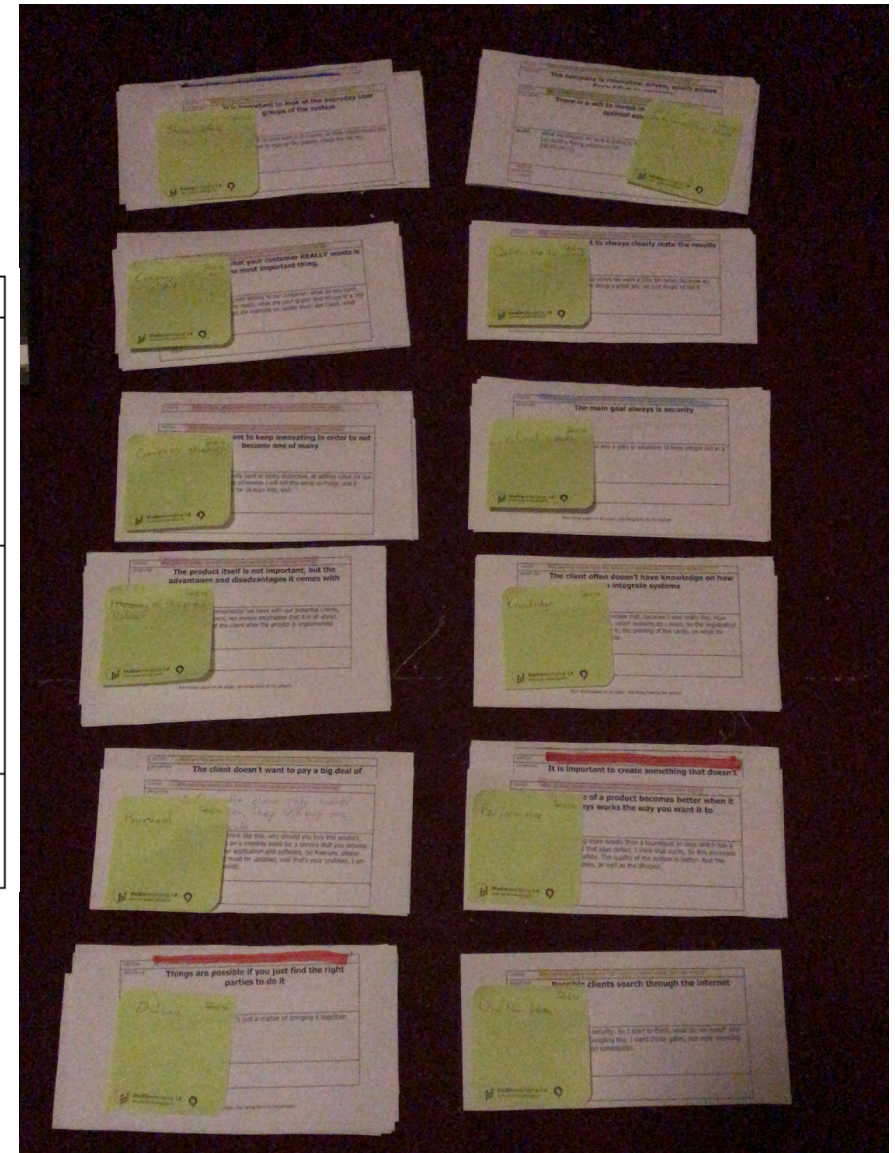
Appendix C - Datasaving structure

This appendix shows a proposed saving structure of all documents that belong to one client. This structure prevents files from disappearing or having different versions. By implementing this structure involved employees of Boon Edam can easily take over clients from their coworkers, as well as retrieve information about those clients.

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Client Name

Evolving Entries

Templates

Assumption Map
Stakeholder Map
Interview
Journey Map

Assumption Map
Baseline Measurement
Year x Measurement
Opportunity Report
Presentation
Process Map

Interviews Stakeholders
Stakeholder Map
Journey Map
Blueprint
Interviews Stakeholders
Process Map
Performance Reports
Design Proposal
Design Proposal

Audio-file
Transcript
Learnings
Audio-file
Transcript
Learnings
Progress report
Progress

Performance Report
Opportunity Report

Appendix D - Report templates

This appendix contains templates for the reports that are part of Boon Edam Evolving Entries. The following templates can be found:

Assumption map

The assumption map is used to write down what is already known about the company. This provides insights that can be used for the interviews. It also provides general directions in what possible entrance solution would fit with the client.

Stakeholder map

The stakeholder map is used to create an overview of the involved stakeholders of the security entrance. It is used to define who are important influencers for the entrance, as well as building customer relationship with representatives of this stakeholder group.

Interviews

The interview template is used to structurize interviews with the stakeholders. By focussing on different topics and giving the interviewee the opportunity to answer freely this provides information on opportunities.

Customer journey

The customer journey is used to show how a stakeholder is involved with the entrance solution. It shows all actions of the stakeholder that are involved in using the entrance. This provides insights in gaps and opportunities.

Process map

The process map comes forth out of the customer journeys. It shows a process that happens when the entrance is used. This also provides insights in gaps and opportunities.

Opportunity report

The opportunity report describes a found opportunity to the client. It shows where the opportunity comes from and how Boon Edam things it can help the client with this opportunity.

Design proposal

The design proposal provides the client with a concrete plan for his new entrance solution. It either describes how Boon Edam will adapt their current system with existing building blocks, or how they will innovate a new solution. It also states which KPIs the solution will be tested to, and when this will be tested.

Assumption map
Version: 1.0

Client name:

Owner:
Date:

Instructions:

This assumption map is used to write down first assumptions on the company named above. The assumptions are used to provide a first glance at the clients company and what entrance solution can be implemented. The assumptions will be tested and results will be displayed in following reports. Assumptions are made on the following topics:

What does the total entrance look like?
Which stakeholders are involved?
How are those stakeholders involved?
What is their desired experience?
What is the desired function of the entrance solution?
What could the entrance solution add?
What could be potential bottlenecks?
What can be done to provide those outcomes?
Why would the system be misused?
How would the system be misused?
How can the misuse be prevented?

The assumptions will be categorized in one of the four quadrants. This helps prioritizing topics for the interviews with the stakeholders.

Important

Known

Unknown

Unimportant
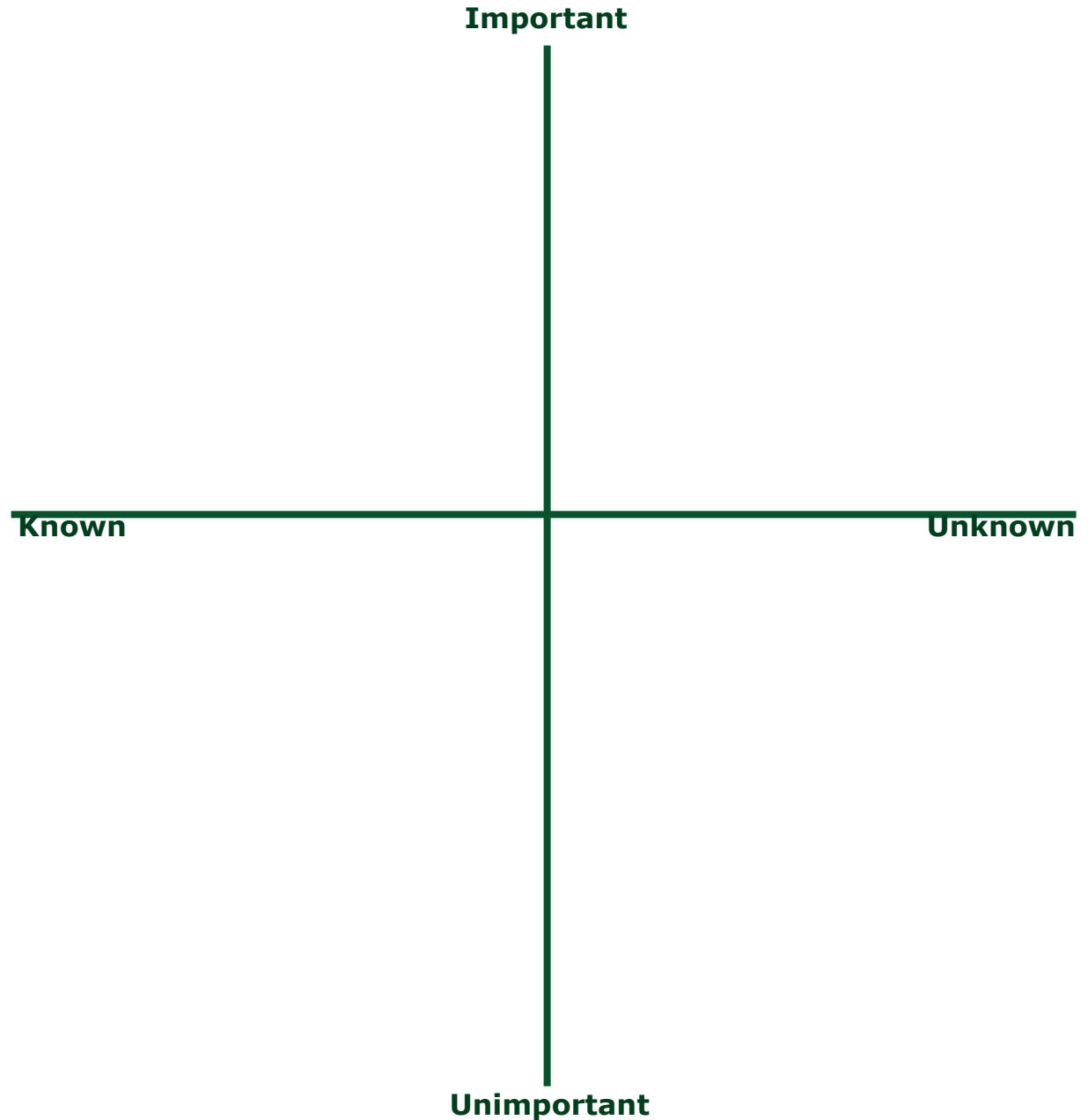
Stakeholder map
Version: 1.0

Client name:

Owner:
Date:

Instructions:
This stakeholder map provides an overview of all stakeholders that are involved with the entrance solution of the above displayed client. Every year this map should be checked to see if updates are necessary. For every stakeholder their use of the entrance solution and ideal experience of the solution must be noted. They will then be placed with the framework to show which stakeholders are most important.

Stakeholder:_____
Contact: _____
Use of the entrance solution:
_____
_____
_____
Desired experience:
_____
_____
_____

Stakeholder:_____
Contact: _____
Use of the entrance solution:

Stakeholder:_____
Contact: _____
Use of the entrance solution:
_____
_____
_____
Desired experience:
_____
_____
_____

Stakeholder:_____
Contact: _____
Use of the entrance solution:
_____
_____
_____
Desired experience:
_____
_____
_____

Stakeholder:_____
Contact: _____
Use of the entrance solution:
_____
_____
_____
Desired experience:
_____
_____
_____

	Low Interest High
High **Power**	**Keep satisfied**	**Encourage & influence**
Low	**Monitor**	**Keep informed**

Interviews

Version: 1.0

Client name:

Owner:

Date:

Instructions:
This interview template can be used to structurize the interviews with the stakeholders. This template provides a general example of how this could look like. Important to know when setting up an interview are the following things:

Structurize the interview in subtopics. Limit the amount of subtopics to four. More subtopics will result in an overload of information which makes it harder for the interviewee to give detailed answers.

Alwas ask open questions to the interviewee. This way he or she is encouraged to provide personal answers, which leads to richer information.

If you think there is more behind a story of a stakeholder, or if you are not sure if you understood what is being said, ask for an elaboration. This way you make sure the information is complete and correct.

Research topic:
Finding opportunities for the security entrance

Main research question:
How do stakeholders use and experience the security entrance?

Introductory script
Hello [participants name], thanks for participating in this interview. Could you please introduce yourself?

Subtopic 1
Use of the security entrance

Opening question:
Could you start by explaining what you do when preparing for work?

Follow ups/probes:
- What happens when you arrive at the office?
- How do you use the entrance?
- How often do you use it?
- What happens after you have left the building?

Subtopic 2
Misuse of the security entrance

Opening question:
Do you ever encounter any problems?

Follow ups/probes:
- Do you have to wait for use?
- Do you ever lose your access card?
- etc.

Subtopic 3
Experience of the security entrance
Opening question:
- What do you think of the securiy entrance as it is now?
- Do you think it should be different?
- What do you dislike about the system right now?
- Do you think there are improvements?

Closing question:
Is there anything unmentioned in this interview that you would like to say about the security entrance?

Customer journey
Version: 1.0

Client name:

Owner:
Date:

Instructions:
The customer journey is used to provide an overview of how the entrance solution is used and experienced. It shows how the stakeholder uses the product, how he feels on doing this, what his needs are while doing this and if there are any opportunities to improve or maintain this experience.

To illustrate the feeling the stakeholder has about the activity he is doing it can be ranked withone or multiple happy, neutral or unhappy faces. This way the reader has a good overview of good and bad experiences within the customer journey.

Stakeholder name:

Stage of journey				
Activities				
Feeling				
Needs				
Opportunity				

Process map
Version: 1.0

Client name:

Owner:
Date:

Intro

Research

Analysis

Design

Implementation

Conclusion

Instructions:
The process map is used to provides insights in gaps and opportunities of the processes involved in the entrance solution.

To map a process it is important to define what you are actually going to describe. An example is the use of the access card. Within the process should be described where the card is kept before during and after use, how it is used to enter, etc.

After describing the process every action can be looked at to see if there is an opportunity to improve or maintain the situation.

Process name:

Action				
Involved stakeholders				
Ways to improve				
Ways to maintain				

Intro
Research
Analysis
Design
Implementation
Conclusion

Opportunity report
Version: 1.0

Client name:

Owner:
Date:

Instructions:
In the opportunity report an opportunity to innovate or adapt is explained to the client. It is used to describe where the opportunity comes from, why it should improve there system and how Boon Edam thinks the opportunity can be adressed. It is possible to include multiple opportunities within the same report.

Current system description:
_____
_____
_____

Experienced gaps in the system:
_____
_____
_____
_____
_____

Opportunity:
_____
_____
_____

Sort opportunity:
Adaption/Innovation

Background:
_____
_____
_____
_____
_____
_____

Involved stakeholders:
_____
_____
_____

Expected solution:
_____
_____
_____
_____

Opportunity:
_____
_____
_____

Sort opportunity:
Adaption/Innovation

Background:
_____
_____
_____
_____
_____
_____

Involved stakeholders:
_____
_____
_____

Expected solution:
_____
_____
_____
_____

Design proposal
Version: 1.0

Client name:

Owner:
Date:

Instructions:
The design proposal is used to provide the client with a plan on how to design the innovation. It provides details on the work of Boon Edam and what the result of this will be. It starts with the proposed opportunity of the opportunity report. After this it provides a time schedule and the key performance indicators on which will be evaluated.

Besides this form every project will have project specific files which provide more detailed information to the client.

Opportunity:
————————————————————
————————————————————
————————————————————

Sort opportunity:
Adaption/Innovation

Background:
————————————————————
————————————————————
————————————————————
————————————————————
————————————————————
————————————————————

Involved stakeholders:
————————————————————
————————————————————
————————————————————

Solution:
————————————————————
————————————————————
————————————————————
————————————————————

Time management:

Week 1	Week 2	Week 3	Week 4	Week 5

Week 6	Week 7	Week 8	Week 9	Week 10

Key performance indicators: