Digital Business Process Management

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Analysing the business processes of Basic-Fit

Improving the business process of checking the busyness of a gym

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Management Summary

This paper presents a research study conducted on the business of Basic-Fit, a multinational chain of gyms founded by René Moos in 1984. With 1264 gyms across The Netherlands, Belgium, Germany, Luxembourg, France and Spain, from which 240 are located in The Netherlands. Being Europe's largest and fastest growing fitness chain, it already counts 3.5 million members and has an annual revenue of 795 million.
The reason that the research project was undertaken, is due to a problem that customers of Basic-Fit encounter. When a customer of Basic-Fit plans to go to one of their gyms they have no way of knowing if the gym they plan on visiting is busy or not. Hence, this project was done to improve the current business process of checking the busyness of a Basic-Fit gym and using this information to reduce resource consumption(i.e. less waiting time, more profits).

For this business process to be improved, it was key to thoroughly investigate Basic-Fit and understand their overall strategy, their mission and vision. Basic-Fit strives to make fitness accessible for everyone, they do so by offering affordable memberships. Furthermore, Basic-Fit envisions a future for healthy people, planet and community. To achieve their mission and vision they have divided their strategies into two parts, growth and sustainability. This report focuses mainly on the growth strategy, relating to an increased revenue.
To assess and analyse these parts, an Ansoff matrix as well as a value discipline model was created. After these key segments were established, a market and stakeholder analysis was conducted. Within the market analysis, our focus company (Basic-Fit) was compared to a competitor (market challenger) and the differences were highlighted. The stakeholder analysis contains a power-interest grid to map all of the stakeholders in terms of power and interest. Also, the requirements and expectations of each of these stakeholders were listed to be analysed. Additionally, to analyse the business of Basic-Fit a balanced scorecard and a strategy map was created and implemented. To conclude this analysis the critical business process has been selected, and has been found to be: Checking how crowded the gym is and using this information to reduce resource consumption.
After selecting the critical business process of Basic-Fit, the as-is state of said process was assessed. The most involved stakeholders were identified and found to be, first and foremost, the customers as well as central management, local management and staff. A description of the current process was made. To visualize this process, a BPMN model was implemented. In the current state, the only data gathered and used by Basic-Fit is the location of the customers and the time of entry into the gym. The full potential of the data isn't realized and should be addressed in order to improve this process.

In order to develop improvements on the business process of Basic-Fit, a thorough diagnosis has been made. Customer needs have been identified and a SWOT Analysis performed. The issues that came forth were listed and a Root-cause Analysis was Conveyed with a Fish-bone diagram implementing the 5 Why's tool.
To get to the desired process, certain frameworks were used such as, BPR, MoT and Lean methods. The suggested improvements include transforming ICT capabilities of the company, the implementation of IoT-enabled gym equipment and the implementation of algorithms with gathered data in a database to predict the busyness of the gym. Also adjusting the app and website so that it displays this information to the customer. This will increase customer satisfaction and retention and, thus, increase the companies revenue
A Cost-benefit Analysis has been performed to evaluate the costs of the improvements and the projected benefits. Then, in order for Basic-Fit to adapt to the suggested improvements on their current critical business process, an implementation and mitigation plan has been written up to aid in implementing the devised adjustments.

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List of Abbreviations

AI Artificial Intelligence.

BPMN Business Process Modeling Notation.

BPR Business Process Re-engineering.

ICT Information and Communication Technology.

IoT Internet of Things.

MoT Moments of Truth.

SMOT Second Moment Of Truth.

SWOT Strengths, Weaknesses, Opportunities and Threats.

Contents

1 Introduction

The fitness industry has experienced enormous growth between 2001 and 2020. The number of fitness enthusiasts grew by 145% during this period. The number of fitness centers grew by 50% between 2010 and 2020 according to Instituut (2020). The growth of the fitness industry brought with it several problems of scale. To keep up with growth, constant innovation and improvement is necessary, otherwise unbridled growth can lead to problems if the business processes can't keep up. A study was undertaken to see if these problems could be tackled by designing and implementing efficient processes that allow for a large number of participants. The decision was made to examine one of the most well-known chains in the Netherlands - Basic-Fit, a fitness service provider.

Basic-Fit is currently a market leader in the fitness industry, and has ambitious expansion plans for the future. Basic-Fit has been pouring resources into customer acquisition and they have been successful in signing up new members for their gyms (Basic-Fit, 2022a). Unfortunately, they have not opened enough new locations to indulge their new customers, causing overcrowding and waiting times for the equipment inside the gym, reducing the efficiency of work-out routines. Two members from the team undertaking this study have Basic-Fit subscriptions, and from their own experience, this bottleneck is yet to be solved. To solve this problem, an obvious solution is to open more locations, but that costs money. While management acquires funds for that endeavor, a more feasible solution would be to investigate the business process of 'checking the busyness of a gym and using this information to reduce resource consumption(i.e. less waiting time of customers, more profits)' and improving it. This problem is tackled by analysing the company, its strategy, and doing research on how technology can aid in improving their processes.

This report revolves around the business process of 'checking the busyness of a Basic-Fit gym'. Value is added during the process, and the business process can be improved by the use of technology. In this report methods and tools will be used to analyse and improve the business process. Finally a new solution will be designed for Basic-Fit. To come to this solution, first Basic-Fit will be analysed in Chapter 2. The background, mission, vision, corporate strategy, the market, and the involved stakeholders are discussed. The Balanced Scorecard and Strategy map are used to find the firms strategy and select the critical business process. In the Chapter 3, the current process is described. The stakeholders who are involved in the business process are noted and their perceptions are studied, the current process is visualized by Business Process Modeling Notation (BPMN). Chapter 4 contains a diagnosis of the problems in the current process. We start by discussing customer needs. A SWOT analysis of the process is carried out to understand how well the process responds to customer needs. A root-cause analysis of Basic-Fits problems are carried out to check for conflicts with customer needs. Once the problems are diagnosed, the improvements are explored in chapter 5. From all the information gathered, and additional reading and research, a new process is designed that addresses the identified issues. The methods used to design the to-be process are discussed. In 5.3 the suggested improvements of the current process are stated. Chapter 6 focuses on the future process, what it will look like once the improvements suggested in chapter 5 have been implemented. Section 6.1 gives a description of the future process and a BPMN visualisation. In 6.2 the verification and validation of the model is described. In chapter 7, the implementation of the newly designed process is discussed. For this, a cost-benefit analysis and time evaluation is performed in 7.1, with a implementation plan and mitigation plan following in 7.2 and 7.3. Lastly, in chapter 8 conclusions are made about the project.

Figure 1: The logo of Basic-Fit

2 Basic-Fit

This chapter represents an analysis of the business and the market of Basic-Fit. The analysis consists of looking into the market developments, the mission, vision and strategy of Basic-Fit, as well as the Balanced Scorecard combined with the Strategy Map. By doing so the critical process can eventually be selected.

2.1 Background

Basic-Fit started with the dream of founder René Moos who wanted to make fitness accessible for everyone. His idea was to make a fitness club without extra facilities to keep the memberships affordable. In 1984, the first fitness clubs in The Netherlands opened and this was the start of giving people access to fitness with high value delivered at low cost. The core values of Basic-Fit are: 'BE, ACCESSIBLE, SMART, INCLUSIVE, COMMITTED' and form the name 'Basic'.

Currently, Basic-Fit is Europe's largest and fastest-growing fitness chain. They are located in six countries, with 1264 clubs and 3.5 million members, creating a revenue of 795 million yearly. The three membership options: Basic, Premium and All-In make fitness affordable for anyone. 240 Of the 1264 clubs are located in The Netherlands and some clubs are open 24/7, making fitness accessible at all times. To keep record of your own progress and provide high-value (group) training, Basic-Fit has developed an app with all this information that is accessible by all members. (Basic-Fit, 2023a).

2.2 Mission, Vision and Strategy

The mission of Basic-Fit is to make fitness accessible for everyone. This mission started at the founder and it is still carried out throughout the company. Next to making fitness accessible, they want people to love fitness. To achieve this, Basic-Fit collaborates with organizations that help children, young adults and adults to join and enjoy fitness enhancing activities. This co-operation helps all generations build a healthier lifestyle (Basic-Fit, 2023a).
The vision of Basic-Fit in the future is divided into three parts (Basic-Fit, 2022a):

1. Healthy people, to improve the health of the world's population.
2. Healthy planet, to reduce the environmental footprint of Basic-Fit by being carbon neutral in 2030.
3. Healthy community, to support people towards a healthier lifestyle.

The two most important strategies Basic-Fit uses are the growth strategy and the sustainability strategy (Basic-Fit, 2022b). The growth strategy depends on keeping the value of Basic-Fit high while growing the number of memberships and locations.

- Maintaining a high value, achieved by investing in state-of-the art technology to keep products affordable, scalable and personal. This makes Basic-Fit flexible and future proof.
- The growth strategy regarding membership is focused on the recovery of memberships after Covid and increasing the uptake of premium memberships. The strategy is to increase the gap between basic and premium membership, while offering flexible and future proof service.
- To grow, new clubs are opened. The locations of the new clubs are decided by the use of clusters. Within a cluster, the amount of inhabitants and the total potential memberships are taken into account in the decision to open a club. With these clusters, the total fitness penetration is also watched closely. An optimal penetration gives an operational advantage to regional managers for marketing synergies.
- The financial growth strategy is defined in terms of attracting new members, but also includes other services like day passes, personal trainers and physiotherapists, or other products like vending machines and Yanga water.

Although the main focus of the analysis of this report is on the growth strategy, the sustainability strategy that Basic-Fit described, also offers some insights. The sustainability strategy is closely related to the vision of Basic-Fit.

- With their vision Basic-Fit wants to tackle the problems of living a sedentary life, spending copious amounts of time online, and associated illnesses that come with this lifestyle by increasing the awareness of health and fitness. Basic-Fit sees fitness as part of the solution, thus clubs need to be close to the people, memberships need to be affordable and the club must be open at any time.
- To be environmentally sustainable, the fitness equipment in Basic-Fit is mostly self-powered, and the clubs are equipped with LED lighting. Other strategies are water-saving shower-heads, water-flow and shower-time management, and recycled paper towels.
- The future strategy is to supply all clubs and the Head Quarters with green energy and reducing CO2 emissions while travelling.

After describing Basic-Fit's strategy, the information is used in the Ansoff Matrix and the Value Discipline Model to analyse the strategy (Janssen, 2023). The Ansoff Matrix enables the identification of market opportunities and their associated risks, as depicted in Figure 2. Additionally, it helps us understand the key processes required to support Basic-Fit's market strategy.
The Value Discipline Model is used to ascertain which of the three aspects in Figure 3 Basic-Fit prioritises to deliver value. By conducting both analyses, it becomes clear which process is the most crucial.

Figure 2: Ansoff Matrix, adapted from (Wehr, 2019)

Figure 3: Value Discipline Model, adapted from (Cascade, 2021)

Basic-Fits' primary focus, according to the Ansoff Matrix, is on market penetration, with the aim of increasing their market share of its' existing product in the same market. As a consequence, the priority for Basic-Fit is to improve current business processes. However, Basic-Fit also aims to expand their market share by introducing new products and services, such as a new app and group activities, using product development. Hence, a combination of improving current processes and product/service development is how Basic-Fit tries to grow as a business.
To achieve these goals, it is necessary to determine how Basic-Fit delivers value, which can be accomplished through the Value Discipline Model. The mission of Basic-Fit indicates a focus on operational excellence, characterized by high-quality, low-priced products and services that are easily accessible.
Additionally, Basic-Fit aims to retain memberships and offer personalised products and services, demonstrating a customer intimacy strategy. Hence, Basic-Fit strives for operational excellence and customer intimacy. Thus, the business processes should reflect both types of strategies. Any processes that do not align with these strategies should be improved.

2.3 Market Analysis

In the fitness branch it is clear that low-budget fitness companies are the most attractive; with Basic-Fit as market leader and SportCity as market challenger. Basic-Fit commands 28% of the market, and SportCity 16%.
In Table 1, the differences between Basic-Fit and SportCity are shown. The data is provided by SportscholenCheck (2018).

Table 1: Comparison between Basic-Fit and SportCity

	Basic-Fit	**SportCity**
Amount of locations	198	95
Price 1 year fitness	€19.99 p/m	€19.99 p/m
Paying for extras	Group lessons (€5) Yanga water (4€) Personal trainer (€25)	Group lessons (€5) Yanga water (4€) Personal trainer (€15) Tanning bed (€4.95 per time) Training plan (€0)
Fitness together	Always for €29.99 p/m	2x per month for €24.99 p/m
Opening hours	Week: 07:00-22:30 Weekend: 09:00-16:00 Some gyms: 24/7	Week: 07:00-23:00 Weekend: 09:00-16:00
Free trial lesson	No	Yes
Group lessons	Les Mills Virtual	Les Mills
Fitness app	Yes	Yes
Savings program	No	Yes
Webshop	Sport products	All kind of products (with and without discounts)

The products and services offered by the fitness chains are almost similar, with some small variations in the extras. Prices are also similar, and the services provided at the gym and on the app are comparable, emphasizing the importance of both operational excellence and customer intimacy. The main differences are that Basic-Fit has gyms that are open 24 hours a day and has twice as many locations as SportCity.

2.4 Stakeholder Analysis

An important aspect of business process management are stakeholders. To ensure the success of a business process, it is necessary to identify all the involved stakeholders and understand their roles, requirements, and expectations for the business process of Basic-Fit. As stakeholders may want to change or resist changes in a certain process, the stakeholder analysis is essential. The relevant stakeholders of Basic-Fit and the agents they interact with are:

- Shareholders: The shareholders of Basic-Fit hold equity in the company. By doing so they provide financial resources. As investors, the shareholders invest their money in Basic-Fit with the expectation of receiving some return on their investment. Hence, they also monitor the management of Basic-Fit to ensure their investment yields profits.
- Management: The role of the management in a company is to guarantee that the business' objectives are achieved. Therefore, the management of Basic-Fit has to set the mission, vision and strategy. Afterwards, they have to plan, organize, lead and control the company by allocating resources to reach their goals.
- Staff: The staff of Basic-Fit perform some critical functions in the business, such as building maintenance, cleaning and providing customer services. They are compensated for their services.
- Customers: Customers are a crucial stakeholder group of Basic-Fit, as they are the primary source of revenue. They have a subscription to obtain access to the Basic-Fit facilities and services. They initiate this subscription through registration and payment.
- Government: The government regulates the fitness industry through policy, by establishing rules and regulations. A failure of Basic-Fit to comply with the regulations will result in fines.
- Landlords: Landlords provide the buildings where Basic-Fit places their gyms. They serve an important role as the location and size of the building are import success factors of the gym.
- Equipment suppliers: The equipment suppliers provide gym equipment to Basic-Fit.

Mapping stakeholders into a power-interest grid (Figure 4) can help in getting a better understanding of the power and influence the stakeholders have in the business of Basic-Fit (Janssen, 2023). This information can be used to define how to handle each stakeholder and prioritise resources towards stakeholders with the most influence and impact.

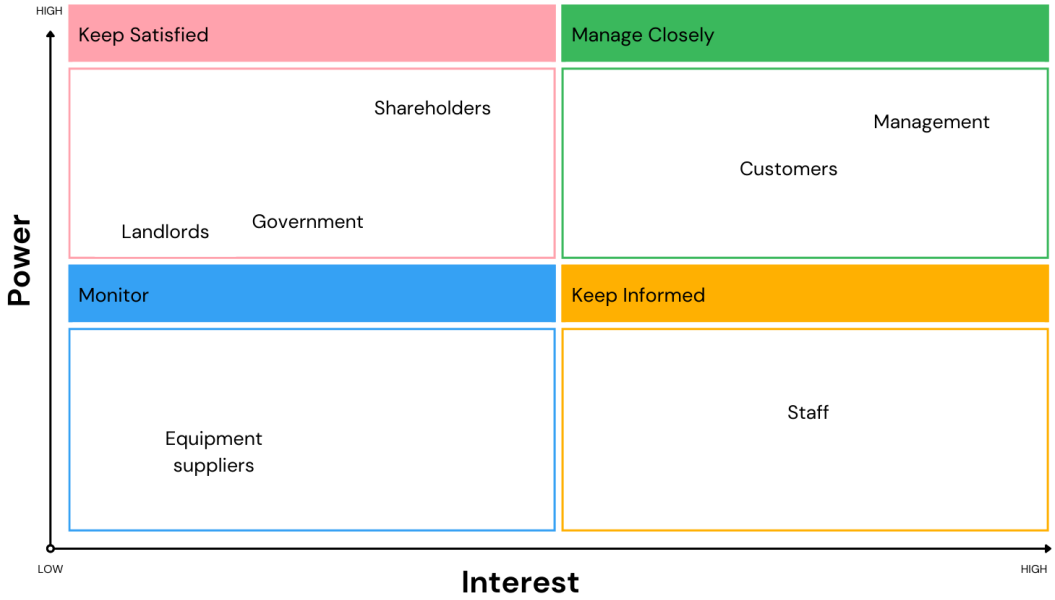


Figure 4: The power-interest grid of stakeholders

In addition, the stakeholders have certain requirements and expectations with regards to Basic-Fit's business process. Requirements refer to the features that stakeholders deem necessary in the process. Expectations indicate the desired outcome of the process. These requirements and expectations are shown in Table 2.

Table 2: Requirements and expectations of stakeholders

Stakeholder	**Requirements**	**Expectations**
Shareholders	Return on investment through profit maximization	Basic-Fit operating with best interest for shareholders, well managed business
Management	Authority to allocate resources, low costs, low risk of failure	All staff do their job properly, everyone uses the chosen strategy
Staff	Getting fair wages, availability of necessary tools, safe environment	Development possibilities through training
Customers	Working facilities, available services, clean, safe	Affordable high quality services and facilities, clean gym, well trained staff
Government	Rules and regulations are followed	Additional measures are taken to improve the well-being of customers and staff, improve economy
Landlords	On-time rent payments, no damages to building	Keeping the building well maintained
Equipment suppliers	On-time payments	Long term business relationship

Based on the power-interest grid and the requirements and expectations of the stakeholders, an analysis can be made. From the power-interest grid, it can be understood that the most important stakeholder in the context of Basic-Fit are the customers, the staff, the shareholders, and the management, due to their high power, high interest, or a combination of both. Therefore, they have a high impact on the success of Basic-Fit. This finding is consistent with the strategy analysis presented earlier, where customer intimacy and operational excellence were identified as key factors.
Table 2 reveals other problems between the stakeholders of Basic-Fit. Customers expect affordable high-quality facilities and services. This expectation translates to increased initial and operating costs for Basic-Fit. On the other hand, the management and shareholders seek to maximize profits, which

may be achieved through cost reductions, such as through lower wages, and increasing the number of memberships. However, this creates tension with the staff, who desire fair wages.
These conflicting demands create tension among shareholders, management, staff, and customers, which needs to be addressed in the selected business process. By resolving these tensions, Basic-Fit can enhance customer satisfaction through the higher perceived value of a membership, reduce costs, increase revenue through an increase in customer retention and new customer acquisition, which in turn will please the shareholders as the company makes more money. By increasing the revenue in this way, the staff will also get fair wages.

2.5 Balanced Scorecard and Strategy Map

The Balanced Scorecard shows many different aspects of the business instead of only financial aspects, as is traditionally used as a performance measure (Kaplan et al., 1992). By taking into account multiple perspectives, tensions in the organization can be balanced. Basic-Fit's Balanced Scorecard considers four key perspectives: financial, customer, internal business processes, and innovation and learning. By doing so it provides answers to four questions:

- Financial perspective: How do we look to shareholders?
- Customer perspective: How do customers see us?
- Internal business process perspective: What must we excel at?
- Innovation and learning perspective: Can we continue to improve and create value?

Using a Balanced Scorecard approach is crucial as improvements in one area may negatively impact another. To address this issue, different types of measures, including short- and long-term, objective and subjective measures, are used to balance the scorecard. The Balanced Scorecard of Basic-Fit can be seen in Figure 5.

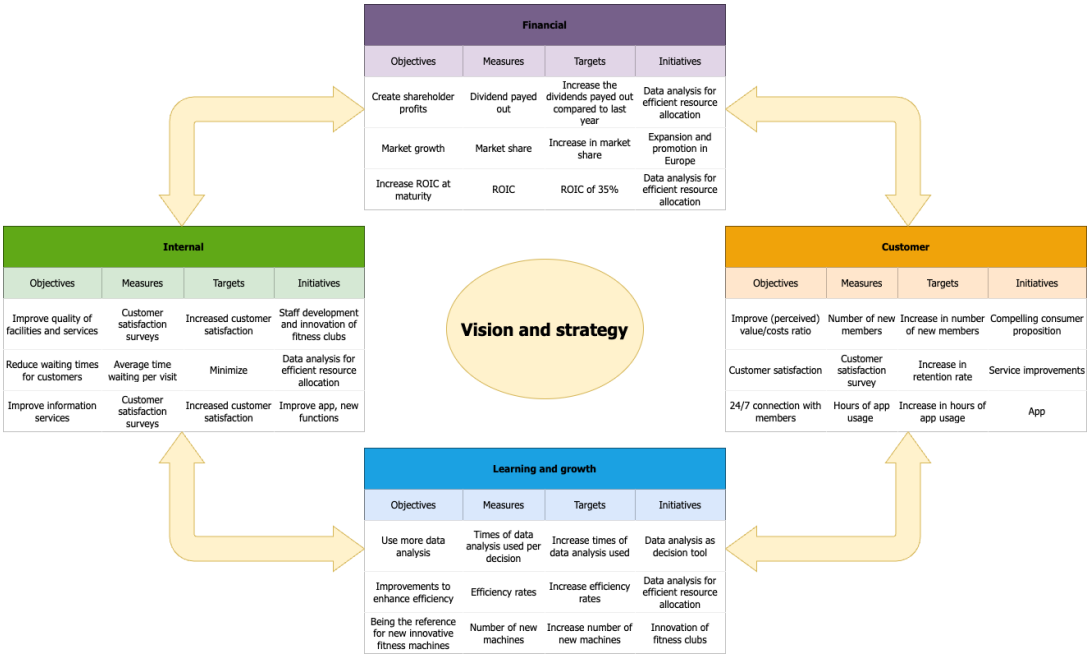


Figure 5: Balanced scorecard of Basic-Fit

The Balanced Scorecard in Figure 5 displays important objectives regarding the management, shareholders, customers and staff. In the scorecard, the objectives of the shareholders (e.g. create shareholder profits) are balanced with the objectives of customers, such as improving customer satisfaction. Customer satisfaction is balanced with market growth. Furthermore, the long-term goal of enhancing customer experience is counterbalanced by the short-term goal of improving facilities and services. To get a better understanding of how the objectives influence each other and create value, a strategy map is made. The strategy map is shown in Figure 6.

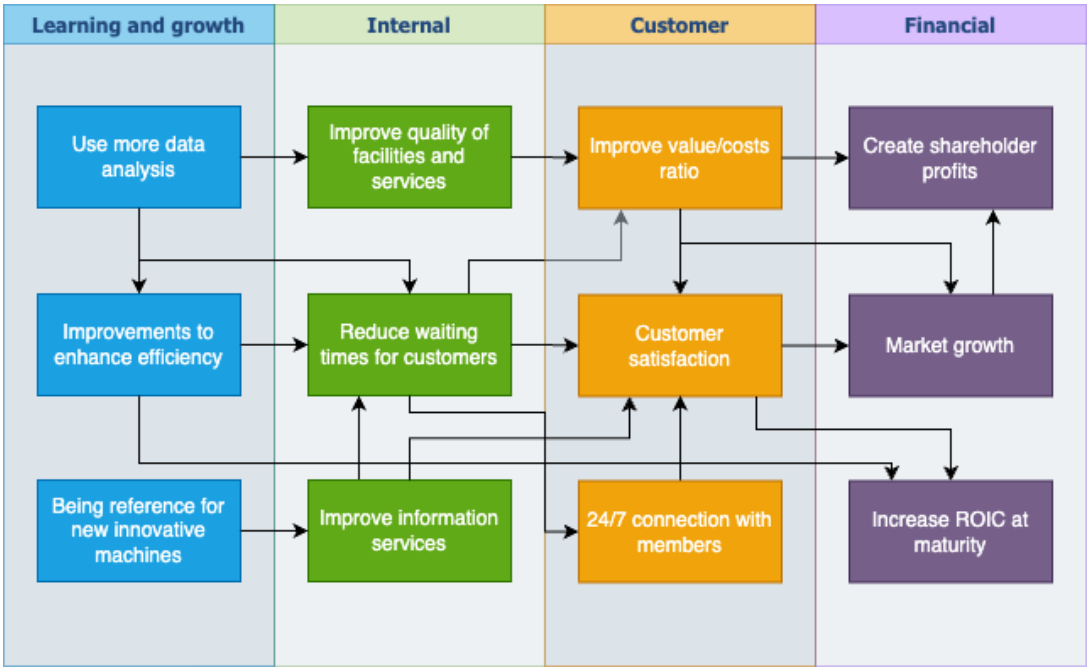


Figure 6: The strategy map of Basic-Fit

2.6 Selection of the critical business process

This chapter has provided a comprehensive analysis of the Basic-Fit business to identify the critical process. Through the use of various tools and frameworks, including the Ansoff matrix, Value Discipline Model, Stakeholder Analysis, Balanced Scorecard, and Strategy Map, important insights were gained regarding the business strategy, key stakeholders, and relevant objectives. The strategy of Basic-Fit consists of a combination of aiming for operational excellence and customer intimacy. By doing so Basic-Fit wants to penetrate the market even more. In order to do so they also look into product and service development. The shareholders, the management, the staff and the customers are identified as important stakeholders. The tensions between these stakeholders are crucial in the business process of Basic-Fit. Therefore, these tensions are also displayed in the balanced scorecard and strategy map. Objectives of different stakeholders are balanced.
Combining all of the aforementioned, the critical business process of Basic-Fit is determined to be: 'checking how crowded the gym is and using this information to reduce resource consumption(i.e. less waiting time of customers, more profits for management)', which is instrumental to the operational excellence and customer intimacy focuses of the business and has significant impact on the objectives of all stakeholders. In the next chapter, this process in its current state will be described and modelled.

3 The current process

This chapter will discuss the current state of the process of 'checking the busyness of the gym and using this information to reduce resource consumption(i.e. less waiting time of customers, more profits)'. This will be done through identifying the involved stakeholders for the selected process, after which the process will be described and modelled with the Business Process Modeling Notation (BPMN). Then, the perception of the stakeholders about the current state of the process will be reviewed.

3.1 Involved Stakeholders

The stakeholders analysis in Chapter 2 has been conducted to get an overview of the main stakeholders of Basic-Fit's business process. In this part of the analysis the focus will only be on the stakeholders which are involved in this process. By doing so, they can be used as pools/swim lanes in the BPMN.
For this process, the management will be divided into central management and local management. The

central management refers to the management of the entire company and the local management points out the management of a specific fitness club. These are separated since central and local management perform different tasks in the process, which will be visualised in the model. The customers will not be divided into subgroups.
Admittedly, it is possible to break down the staff even further. However, this isn't done because in this case the main focus is on the customer and management of Basic-Fit. Even though the tasks might differ per type of staff, this doesn't influence this business process as the local management informs the staff about their duties.
Hence, the involved stakeholders, in the process of checking how crowded the gym is, are:

- Customers: who use this information to decide when to visit the gym.
- Local management: who provide information about the gym's current occupancy and manage the gym's operations.
- Central management who evaluate the data to make strategic decisions about the gym.
- Staff: who execute the tasks given to them by the local management.

3.2 Description and Model

In chapter 2 it was decided that 'checking the busyness of the gym and using this information to reduce resource consumption' is the critical process. When a customer wishes to go to a Basic-Fit gym, the process (for customers) starts. Although customers would like to have information on how crowded a gym is beforehand, in the current process they have to go to a gym themselves to ascertain the level of busyness. Sometimes the gym they decided to go to is too busy in their opinion. This may result in frustration if the gym is perceived as overly crowded, and the customer may opt to go to a different Basic-Fit gym, resulting in a lengthy process. If they choose to stay, the customers might find themselves waiting for gym equipment a lot. Both these scenarios result in a less than optimal customer experience. When the customers decide to actually exercise in a certain gym they go through the steps of checking in, doing the exercise, waiting for equipment in busy gyms and going home. This marks the end of the customers' process.
Basic-Fit's existing process begins when the local management has to make a monthly evaluation report of a gym. To do so the check-in data of customers is used to make the report, which is sent to the central management for analysis. Feedback and suggestions for improvement are then given to the local management team. The feedback plan from central management is read by the local management. By doing so, they can adjust the gym and give the staff tasks accordingly. In the end, the local management will evaluate the tasks of the staff, concluding the end of the evaluation and adjustments, which is the end of this process for Basic-Fit.

To get a better overview and understanding of the process, it is modelled. With the involved stakeholder identified in the previous section, the process can be visualised by using the Business Process Modeling Notation (BPMN). This is a method used to understand processes and facilitates the connection of various sources (Janssen, 2023).
The BPMN of the process in its current state is shown in Figure 7. For a clearer and more legible view of the BPMN, a larger version of the same figure is presented in Appendix A.

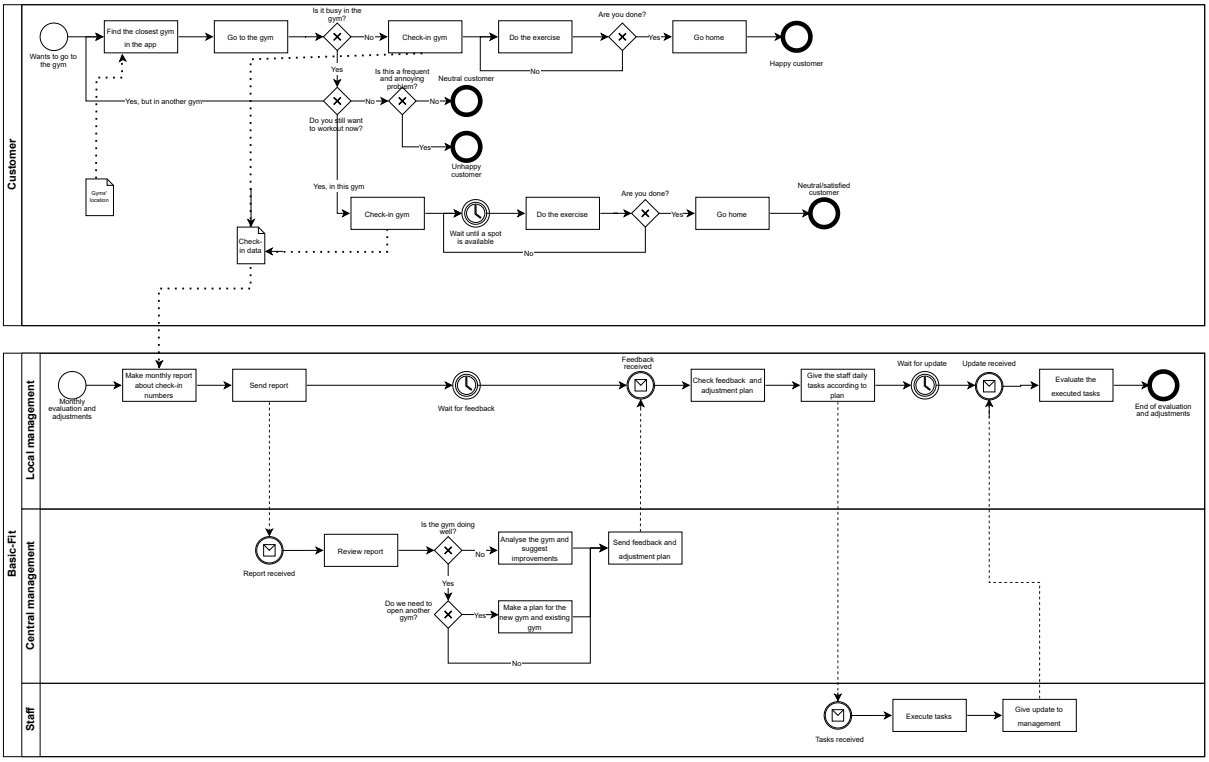


Figure 7: BPMN of the current process

3.2.1 Delivery Channels

Note that the current process lacks delivery channels for any interaction between customers and Basic-Fit. This absence is likely due to the fact that both parties have distinct objectives for the information obtained from the process. Currently, the customers only receive information through the Basic-Fit app. However, to obtain information about how busy a gym is, customers have to go there themselves.
Within Basic-Fit there are some delivery channels. The reports and feedback are exchanged as documents via email. These are accompanied with a follow up message/call to catch up with each other and share some additional information.
Furthermore, the channels between the local management and staff allow them to inform each other about their respective duties and their status. This is done in-person, accompanied with a list of tasks.

3.2.2 Technology and Data

The complete model in Figure 7 shows only two types of technologies that are used in the current process, namely:

- The Basic-Fit app: the app has several features for customers. In the current process, it is a tool to help customers find the closest gym.
- The check-in system: the customer has register their visit with their pass or QR-code, the check-in system generates data, that can be used by the local and central management.

The data that is used in or obtained from these technologies in the process are:

- Gym location: the app uses data about the gyms and the user to locate the closest gym for the customer.
- Check-in data: the customer has to register their visit to a gym. This data is analysed and used to evaluate the functioning of a gym as well as to log the last time a member has visited the gym.

Unfortunately, the data obtained from the check-in is not used to its full potential. It can be analysed meaningfully (counting the number of people at a particular gym) in order to improve the process.

3.3 Stakeholder Perceptions

Understanding the perception of the existing situation of stakeholders is a crucial step in process improvement. Only the perception of the stakeholder involved in this process will be reviewed.

- Customers: the current process doesn't allow customers to effectively check how crowded a club is. As a result, the customer has to go and see the gym for themselves. Sometimes they will end up in a busy gym or have to go to another gym, which is not as crowded. This can lead to frustrations and irritations.
- Local management: the data obtained in the current process helps to evaluate and improve the business. Thus, the process aligns with their strategy. However, more data can be obtained and analysed to get a better understanding of the gym and its users.
- Central management: although certain numbers are passed through to central management, it is a backward-looking analysis that is not used for predictive action. More value can be extracted from this data if it is analyzed and processed further.
- Staff: the staff of Basic-Fit is inefficiently used due to the current subpar process. This can lead to crowded gyms with not enough staff or quiet gyms with too much staff. In the last case, the staff would have to take a pay cut or be let go to reduce costs. Overcrowded gyms can also put a lot of pressure on the staff.

4 Diagnosis

Following the description and modelling of the current process, several problems and issues have already risen. Technologies and data isn't used to their full potential leading to a inefficient process. This chapter aims to comprehensively examine these issues and their root causes. To achieve this, the customers' needs will be given special consideration, following a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis of Basic-Fit. The results of the SWOT analysis will be used to present the main issues of the process. Next, a Root-cause analysis is performed to identify the underlying causes of the issues that were found in the process.

4.1 Customers' Needs

The customer is decisive and a key player in the success of Basic-Fit, as they generate revenue for the company, through their membership subscriptions. Therefore, it is necessary to map out what the needs of the customers are in the context of this process. This way these needs can be used to aid in identifying the problems and improving the business process. Several key needs of customers have been identified:

- Time: customers value their time and do not want to spend excessive time waiting at the gym.
- Cleanliness: customers need a well-maintained and clean gym in order to enjoy their experience.
- Safety: customers of Basic-Fit expect to feel safe in every club. This relates to physical safety and personal safety.
- Information: customers want to be informed and have information available about what is available and how busy the gym is to make informed decisions on when to go.
- Affordability: Basic-Fit advertises low-priced memberships. So, customers expect affordable options to maintain their fitness goals.
- Quality of services and equipment: while the customers expect affordable memberships, they also want high-quality fitness equipment and services.
- Convenience: customers desire improvements that are easy to use, which can increase their perceived value and satisfaction.

4.2 SWOT Analysis

Basic-Fit's core problem starts due to asymmetric information availability for the customer, and the process of deciding to go to the gym as a customer, with inefficiencies resulting in a loss of time and increased frustration in the mind of the gym-goer. There are also invisible costs, such as less membership renewals, associated with this that translate into a loss of revenue and a bad public image. To identify the strengths and weaknesses of the current process, a SWOT analysis has been conveyed. In the analysis

the several needs of customers and the other stakeholders are kept in mind. The SWOT analysis can be seen below in Figure 8.

Figure 8: The SWOT analysis of the current business process

The SWOT analysis reveals that the current process's strengths lie in the convenience for the customer, due to the flexibility and availability of the app. The information provided in the app helps customers make decisions, but there is still room for improvement in terms of providing additional information to alleviate crowded gyms (as shown in Figure 8), which can also address safety and waiting time concerns. The threats indicate that Basic-Fit has to build on their strengths and address their weaknesses to not lose their customers.
The requirements for other stakeholders are also used to make the SWOT analysis. The opportunities display the demand management and crowd tracking, which will help to increase the efficiency of the operations of Basic-Fit. So that the central management and shareholders will be pleased through profit maximisation. Also the local management will have more information available to properly manage the staff. With this in mind, the results of the SWOT analysis will guide the remainder of the chapter.

4.3 The Issues

With the help of the SWOT analysis and the model a list of issues can be made. These issues should be analysed and resolved. The problems of the current process 'checking the busyness of a gym and using this information to reduce resource consumption(i.e. less waiting time of customers, more profits)' are:

- Waiting time: in busy gyms, customers have to wait for gym equipment during their exercise, leading to lower customer satisfaction.
- Lack of information: the only way for customers to know how busy the gym is, is to go there themselves. If it turns out to be too busy for them to have a good workout, they have lost valuable time because they have to find a less busy gym. This can result in a negative customer experience.
- Inefficient gym design: underused equipment taking up space where that could be used for machines that are in high demand. Also, the allocation of resources might be evaluated by Basic-Fit for

optimisation. Both will enhance the customer experience and increase profits due to an increased efficiency.

- Busy gyms: sometimes gyms are just too busy, leading to a negative customer experience. This is the origin of the first two problems, but here might be opportunities to counter this issue.

4.4 Root-cause Analysis

In order to identify the root causes of the problems that Basic-Fit is experiencing, the 5 why's framework and a fishbone diagram were employed for analysis. The 5 why's is an easy method to determine the most probable cause of each problem by asking the question 'Why?' until the underlying cause is revealed. However, there may be more causes for a problem. Therefore, besides the 5 why's, the fishbone diagram is also used, so there is a more exhaustive picture of the issue. All the possible reasons that might have lead to the problem are identified (Janssen, 2023).
The 5 why's are executed. The results can be found in Appendix B. As the fishbone diagram will also display the results of the 5 why's, the outcomes aren't shown in this section.
As mentioned, the fishbone diagram is an analysis of the multiple causes of the problems faced by Basic-Fit in the current process. The diagram is shown in Figure 9.

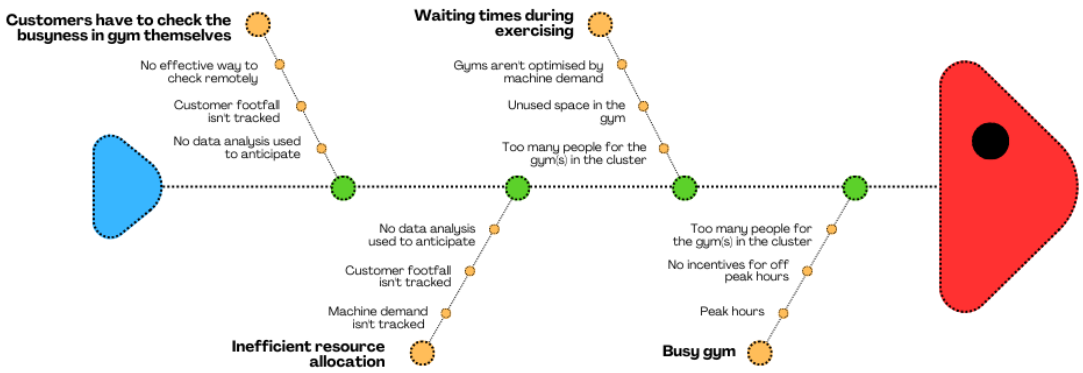


Figure 9: Problems - Fish-bone

Through the conducted analysis, it is revealed that the root causes of all problems point to a lack of proper information availability for all stakeholders (i.e. customers, local management, central management, staff), which stem from inefficient data and processes used by Basic-Fit to get their customers into the gym. Unfortunately, not all the problems can be solved in one go. As a result, the decision has been made to prioritize addressing the problems of lengthy waiting times and the ineffective method of assessing gym crowding for customers.

5 Improvements

In this chapter, the focus will be on identifying the necessary improvements to resolve the identified issues chosen in the previous chapter. To begin with, some requirements for the the desired future process will be discussed. Following that, the methods that were used to come up with improvements are explained. Finally, the suggested improvements are identified.

5.1 Desired Future Process

The core of the resulting desired process focuses on making it easier to gather detailed data on the busyness of a gym and use this to make an informed decision on whether to go or not. Customers' core dissatisfaction lies in the fact that when they visit the gym, it is often overcrowded. Sometimes the machines are not available altogether or they lose time while waiting for a certain machine. All this adds

to negative impressions on the user which affects the possibility of them renewing their memberships for the next cycle. Thus, the resulting desired process should help the customers, local management and central management to make better decisions.

In regards to the strategic goals, happy and satisfied customers are more likely to renew their memberships (Pradeep et al. (2020)). The likelihood of people opting for a premium membership also increases as the value offered to the customers is substantially greater compared to a basic membership. This would lead to higher revenues which in turn contributes to the strategic goal of growth in new markets. Thus, the customers should be able to decide whether or not to visit the gym at a certain time; depending on how busy the gym would be by the time they get to the location. This increases the amount of touch-points the firm has with its customers. Thus, contributing to the goal of improving customer intimacy.

The local and central management of Basic-Fit should be provided with detailed data about the machine usage and footfall in a gym. By doing so they can effectively predict the busyness of a gym. Incorporating Internet of Things (IoT) into the gym facilities such as the equipment would help in providing this data.

5.2 Methods

To improve the business process of 'checking the busyness and using this information to reduce resource consumption', methods have to be used to systematically come up with improvements. As outlined in the previous section, there are certain requirements the future process must meet to achieve the desired outcome. By improving this business process, Basic-Fit can provide a more satisfactory experience for its members, leading to better business results. This, in turn, will satisfy the shareholders, who are also important stakeholders.
Certain methods should be implemented to improve this business process. To choose a well fitting business process improvement method it is important to understand what part that is inside the organization that needs to be adjusted and what will improve due to the renewed business process. The method that is used in this framework is a combination of Business Process Re-engineering (BPR), Moments of Truth (MoT) and Lean.

Business Process Re-engineering (BPR)
BPR focuses on improving overall customer experience by optimizing and utilizing the Information and Communication Technology (ICT) capacities of Basic-Fit. This will result in better performance of the company and in turn will create higher revenue's due to higher customer satisfaction and retention.
With a redesign of a business process like this, Business Process Re-engineering is a good framework to abide by when improving the problem at hand. Because the BPR method focuses on optimization and performance (Janssen, 2023), which is exactly what is addressed. Also, an already existing process is being optimized where the use of ICT is the main driver for this improvement. As well as that the overall performance of Basic-Fit is directly linked to this one process. If members constantly face busy and over-crowded gyms, gym-goers will seek out other gyms to go in stead, resulting in loss of revenue.
In order to implement this method and find solutions the following steps are be considered and elaborated on:

1. Envision:
   For this step a Scrum team has been put together and tasks and roles were divided. The right business and corresponding business process to improve has been decided on. Basic-Fit and its process of 'checking the busyness of the gym and using this information to reduce resource consumption(i.e. less waiting time of customers, more profits)'. Some research on strategy and IT opportunities has been done. The conclusion was reached, especially with an already existing app and how members enter clubs through scanning their membership card. It is more than possible to improve upon this process using IT.

2. Initiate:
   At this stage, further research on Basic-Fit and its goals and strategies were done. Creating a stakeholder mapping as well as learning what customer needs and requirements are of the process.

3. Diagnose:
   Of the current process, issues are assessed and what their causes are. SWOT analysis is performed to identify the issues, as well as a root-cause analysis to determine the causes of the problems.

4. Redesign:
   A new business process is developed, that aligns with Basic-Fits' strategies. Using their IT capabilities amongst other new frameworks to establish a new and improved experience for the members who are planning on going to one of Basic-fits' clubs.

5. Reconstruct:
   The newly designed process has to be implemented in the operations of Basic-Fit. A plan has to be made how this will be done.

6. Evaluate:
   The new business process will be monitored and again assessed. Where needed adjustments will have to be made.

Moments of Truth (MoT)
Moments of Truth is a concept which analyses a company's performance through the sum of countless interactions between the customers and the company (Janssen, 2023). These perception of these interactions by the customers will decide if the company retains their customers or sends them to a competitor. In this case, the MoT of focus is the so called Second Moment Of Truth (SMOT). The SMOT refers to the ongoing relationship, which is beneficial for Basic-Fit if the process they are delivering adds value. The needs of the customers regarding this process are mapped to maximize the value this process adds to the customer. By doing so these values are be used to improve the relationship.

Lean
Lean is a method which focuses on more value for customers through the elimination of waste (Janssen, 2023). Although Lean is seemingly very similar to MoT, Lean is focused on the minimising of value decreasing activities. In this process the problems are closely related to wasting time. Customers have to wait in gyms and have to go to another gym when they find out the gym they went to is perceived too busy. Therefore, this process is improved by eliminating these wastes.

5.3 Suggested Improvements

Since the requirements of the desired process are known as well as the method on how the business process is improved is explained. The suggested improvements will be discussed in this paragraph. These improvements will solve the issues that have arisen, resulting in the desired process.

Many of the problems are caused due to a lack of technologies in place that capture the data necessary to add value to the stakeholder. As well as not fully utilizing the ICT capabilities of the company itself. Therefore, the first recommended improvement is the implementation of gym equipment with Internet of Things (IoT) capabilities to generate (real-time) data on equipment usage.
With this data, local management can analyze it alongside existing check-in data using also Artificial Intelligence (AI) and algorithms to predict gym busyness. This analysis will predict and anticipate the busyness of a gym. To store this and other data, a database is created.
Since the data is now stored in the database, it should be conveniently made visible for the customers. The app can be adjusted to display a gym's busyness information. This implementation can be done via a new interface inside the app or on their website that shows what percentage of capacity the gym is at that moment or expected to be at future times. A similar fashion that Google has implemented for many places such as restaurant, or even gyms as well. But out of experience this information can be inaccurate. This improvement will make sure it is visible to members when their gym is very busy or not, which gives members the chance to head to the gym at another time of day or a different gym in their area. By doing so the customers can check before even going to a gym, eliminating the additional time wasted when travelling to a gym which turns out to be too busy and help them in avoiding waiting times inside the gym. Both will in turn increase customer satisfaction and making sure Basic-Fit keeps their members and attract new customers. As a result, Basic-Fit will increase their revenue.

What makes this system stand out is that the data this software will rely on will be live information from each gym themselves. Every customer who enters a gym needs to scan their membership card and adding the gym equipment with IoT capabilities will automatically generate data. By gathering this data, it is only a relatively small step towards translating the data into visible and usable information for their customers.

6 The future process

In the previous chapter the suggested improvements are described. This chapter will explain how the future process will look like when the improvements are implemented.

6.1 Description and Model

The complete BPMN of the future process is shown in Figure 10. For a clearer and more legible view of the complete BPMN, a larger version of the same figure is displayed in Appendix C. The figures used in this section are part of the complete model and will visualize the improvements in the BPMN.

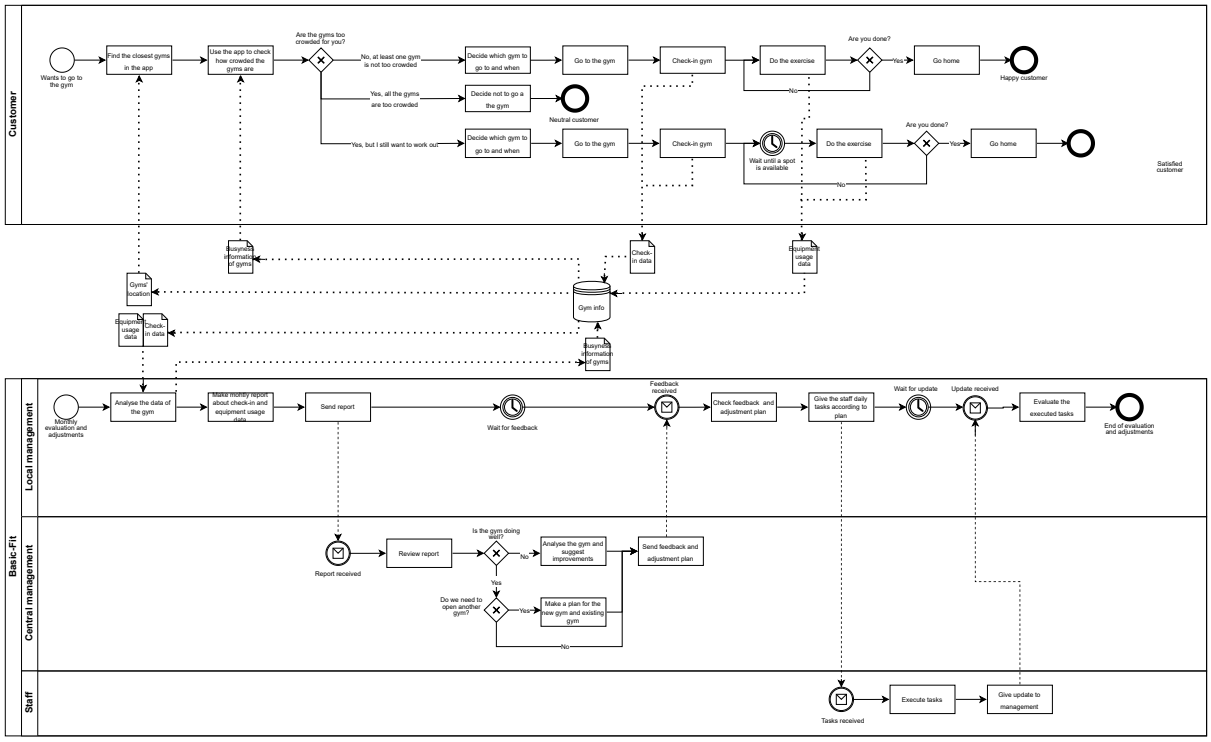


Figure 10: BPMN of the future process

The Root-cause Analysis identified that some problems arise due to the absence of technologies which can capture the necessary data. Therefore, gyms will be fitted with new technology on their equipment. This equipment can track, through its' IoT capabilities, how often and when it is used, referred to in the model as 'equipment usage data' (see Figure 11).

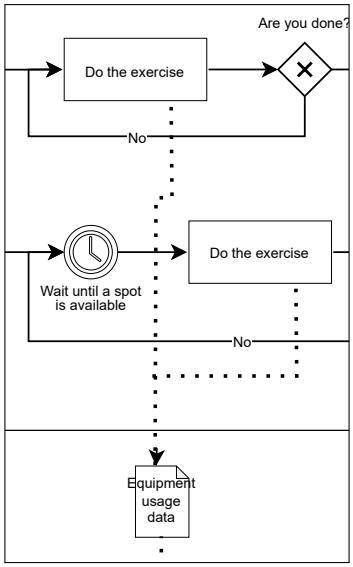


Figure 11: BPMN: the improvement of technology to acquire equipment usage data

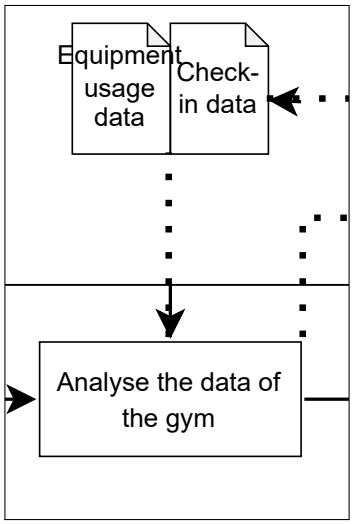


Figure 12: BPMN: the improvement of data analysis

Since this data is now available, the data has to be analysed by local management, supported by AI and algorithms, to be useful for decision-making by customers. Hence, these steps are also implemented in the BPMN and are shown in Figure 12. The figure also visualises that the data (e.g. the busyness of a gym) also is put back into a database in order to be used by the app.

Another big problem mentioned in the Root-cause Analysis was the ineffective way of checking how busy a gym is. With the data now available in a database, the customer can easily be updated on the busyness of a gym through the app and decide on which gym to go to, or to not visit the gym. This is presented in Figure 13.

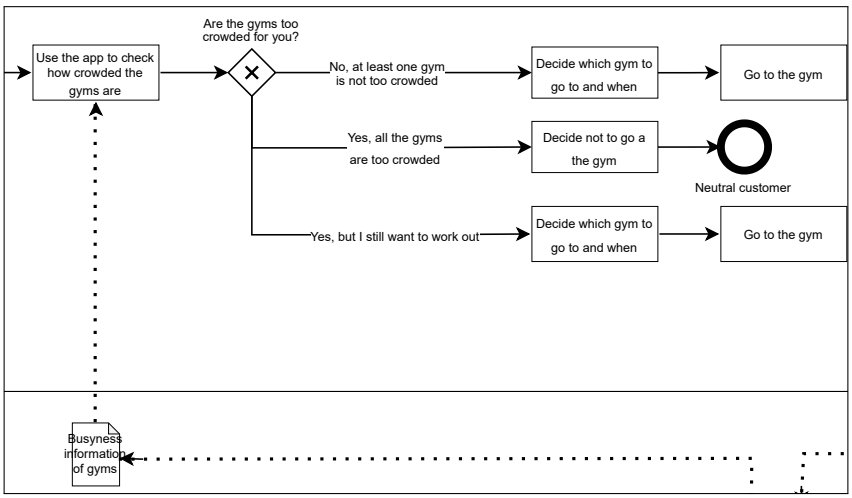


Figure 13: BPMN: the improvement of checking how busy a gym is

All of these improvements are producing and/or using data. To store all the data a database is created named 'Gym info'. Figure 14 shows the database and all the data produced and used.

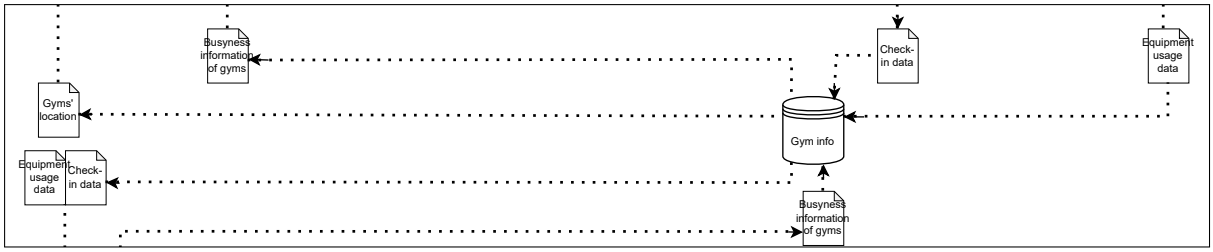


Figure 14: BPMN: the improvement of the database and data

6.2 Verification and Validation

Models are only an abstraction of real-world systems, there is a difference between reality and the model. Hence, verification and validation is crucial to guarantee that the model represents reality (Janssen, 2023). Verification involves checking the correctness of the model and ensuring that it meets the requirements of the BPMN method, as well as checking if the new model satisfies the needs for the customers. The verification process for this model involved critical evaluations and feedback from the instructors on the presentations that were held throughout this project.
Validation of a model is process of ensuring that a model accurately represents reality and actually achieves the desired outcome. The validity can be assessed through three forms of validity:

- Face validity: An expert can validate the process. Unfortunately, an expert hasn't been used to validate the process. Therefore, this would be the next step in further research and implementation.
- Model behavior validation: Validating by means of using information about the real-life system. Although no information from Basic-Fit is describing this specific process, some of the group members are customers of Basic-Fit. Their real-life experiences are used to model the business process.
- Input-output transformations validation: Comparing output from the old model to output from the new model, both using the same input, to evaluate the improvements achieved. To improve the validity of the process the next step in further research should be to perform a case study to assess the input-output transformation validity. By performing a pilot or test-run the new implemented model can be assessed and tested, and where needed adjusted.

6.3 Poke-Yoke

While Poke-yoke originated in manufacturing, its principles can be applied to many different fields, including deploying new features in a mobile application. While adding the new feature into the Basic-Fit mobile application to check the busyness of the gym, the following techniques would be used:

- User Interface Design: User interface design can be used to prevent errors by making it difficult for users to take actions that could lead to errors. For example, buttons that perform critical actions can be made larger and placed in prominent positions to prevent accidental clicks.
- Automated Testing: Automated testing can catch errors before they make it into the app. Automated testing can test the app's functionality and performance, and identify bugs or errors before they become a problem for users.

In conclusion, Poke-Yoke is used to prevent errors that may happen when customers interact with the mobile application. By designing processes and systems that are mistake-proof, app developers can improve the reliability and functionality of the Basic-Fit mobile application. This enhances the user experience which directly contributes to higher customer satisfaction.

7 Implementation

This chapter provides an overview of the implementation of the proposed improvements in the business process. Initially, a Cost-benefit Analysis and a Time Evaluation are conducted to determine the feasibility and potential benefits of the changes. Subsequently, a Project Implementation Plan is discussed,

outlining the steps that will be taken to execute the changes effectively. Finally, a Mitigation Plan is explained to address any potential risks or issues that may arise during the implementation process.

7.1 Cost-Benefit Analysis and Time Evaluation

A suitable method for comparing the costs and benefits of a project is a Cost-benefit Analysis, which facilitates decision-making about various alternatives. The process is 'checking the busyness of the gym and using this information to reduce resource consumption(i.e. less waiting time of customers, more profits)', the main improvement is implementing data to the application to make the knowledge if the gym is busy or not available to the customers. Although the other option isn't extensively explained, the alternative improvement is the discounts during off-peak hours. It should be mentioned that this alternative isn't solving the same cause, it helps to spread the footfall and reduce the irritations and frustrations of customers. During this analysis a lot of the calculations are based on assumptions, because of the absence of actual data or information. Therefore, conservative assumptions are made.

Main improvement: Using the app to check on busyness of a gym
To implement the main improvement the additional costs stem from the application manager who needs to change the data, the local management to write a report and the central management to analyse the report of the local management. The impact of the implementation can be measured in the extra hours to fill the tasks and the costs of the pressure sensors underneath the machines. These sensors generate data which is useful for the data about the availability of the machines.

To identify and calculate the cost of the improvement an assumption is made about the amount of hours, the salary and the price of equipment. For the main improvement, building a function takes two months by one application manager (8 weeks * 40 hours = 320 hours) (Cube, 2023), and to maintain this function it will take 3 hours a week.
The costs of buying pressure sensors is €8 per sensor (Farnell, n.d.) and from our own experience there are on average 150 machines in a Basic-Fit club. The local management needs to write the report which takes 2 hours to write, 2 hours to review and 1 hour to communicate with the central management (each month). The central management takes 2 hours to review the report and 2 hour to communicate with the application manager and local management (each month). The average salary of a application manager is €3500 gross a month (Van Der Avoird, 2020), the salary of a central manager is €4650 gross a month (Beroepengids, 2023) a local managers earns €4050 gross a month (Werkzoeken.nl, n.d.). The benefits arise from the increase in customers (through customer retention and acquisition of new customers), which leads to an increase in revenue. It is assumed that the number of members increase with 5%. At this moment, each gym contains on average 2750 members, with each member generating an average revenue of €22.86 a month (Basic-Fit, 2023b).
This means the improvement has:

- Fixed cost = 2* €3500 + €8* 150 = €8700
- Variable cost per month = 3* (€3500/160) + 5* (€4050/160) + 4* (€4650/160) = €308.44
- Benefits per month = 137* €22.86 = €3131.82

Alternative improvement: incentivisation of off-peak hours
The alternative improvement is to give discounts during off-peak hours. Therefore, the impact is for the application manager to implement the discount in the application and the check-in system. Furthermore, the central management needs to inform the local management about the improvement. For the alternative improvement, the application manager needs to implement the discount in the application which takes two weeks. The central management needs to inform and train the local management, this takes approximately one week. The discount will be 5% of the total cost and assumed is 20% of the members of a club will use the off peak hours. It is assumed that the number of members increase with 2.5%.

- Fixed cost = 80* (€3500/160) + 40* (€4050/160) + 40* (€4650/160) = €3925
- Variable cost per month = (5%* €22.86) *(20%* 2750) = €628.65

- Benefits per month = 68* €22.86 = €1554.48

The Cost-benefit Analysis supports the main improvement 'implementing check-in data to the application to make the busyness of the gym available'. Although the initial cost of this improvement is higher, the benefits of the main improvements are higher and the variable costs are lower. Important to note is that through implementation of the main improvement will lead to the system described in this report. By giving the customer useful live information on the busyness of their gym of choice, customer satisfaction will increase. And so will customer retention. Not to forget, implementing this system will give Basic-Fit a new competitive advantage over their competitors who do not have such a system in place. Making the company more future proof and might give them even more members and rapid growth. Numerical calculations on these benefits is outside of the scope of this project, however one can understand these benefits being of great importance for the future of Basic-Fit and its' revenue.

Time Evaluation
The reduced time evaluation shows the benefits for the customers. The customers of Basic-Fit will always benefit from the improvement because they will get extra information about their gym visits. A training session on average takes 80 minutes (Zummitt, 2021). In the current state of the process it is assumed, based on personal experience, that customers are waiting on average an additional 15% of these 80 minutes, meaning an average waiting time of 12 minutes in a busy gym. Furthermore, it takes around 15 minutes, based on personal experience and Basic-Fit's cluster strategy, to get to a gym. This time is wasted when the gym is perceived to be too crowded.
The improvements will reduce the waiting time to an assumed average of 4 minutes and will eliminate the need to go to another gym.

7.2 Project Implementation Plan

The project implementation plan is instrumental to the implementation of the adjustments. The nine components of planning are used (Kerzner, 2017), which are:

1. Objective:
   The goal of the implementation is to implement the suggested improvements to increase customer satisfaction, which ultimately leads to an increased revenue.

2. Program:
   The implementation will be carried out using Scrum (Agile) development with 3 sprints. A Gantt chart will determine the timeline of the implementation, listing all the important stakeholders and their duties.

3. Schedule:
   The schedule is divided into three schedules: implementation timeline, individual sprint timeline and post go-live timeline. These schedules(i.e. Gantt charts) can be found in Appendix D.

4. Budget:
   The budget of the project is an outcome of the business case and cost-benefit analysis. Since the benefits per year will be 30,000€, the budget for the implementation can be set at 25,000€.

5. Forecast:
   The implementation of the project will benefit Basic-Fit in the following ways (all figures are projected based on conservative estimates):

   - Increase in customer retention by 15%
   - Increase in revenue by 5%
   - Higher rating of customer experience at Basic-Fit (4/5) on surveys

6. Organisation:
   The project implementation plan will require the following teams:

   - Project Management Team - they are responsible for drafting the standard operating procedures, creating the project plan, steering the project to deliver on time and within budget, and sharing deliverables.

- Functional Team - they handle the roles requiring client interaction. They create all the decks, gather requirements, address gaps, maintain quality, and communicate with the developers.
- Tech Development Team - they are responsible for the actual development of the solutions through engineering and realising them. They communicate with the Functional team and occasionally the clients in order to understand requirements and develop them.

7. Policy and Procedure:
   The policies and procedures to be followed during the implementation phase of the project are listed:

   (a) Change Management Policy
   - Policy: Changes to the project scope, schedule, or budget must be approved by the project sponsor before they can be implemented.
   - Procedure to enforce: Any change requests must be submitted in writing and reviewed by the project manager. If approved, the request is then reviewed by the project sponsor for final approval.

   (b) Risk Management Policy
   - Policy: Risks must be identified and assessed at regular intervals throughout the project.
   - Procedure to enforce: Risk assessments must be conducted at key milestones in the project, and any new risks must be added to the project risk register. Mitigation strategies should be developed and implemented for high-priority risks.

   (c) Communication Policy
   - Policy: All project stakeholders must receive regular updates on the status of the project.
   - Procedure to enforce: The project manager will send out regular status reports to stakeholders, either on a weekly or bi-weekly basis. Meetings will also be held with key stakeholders to discuss project progress and any issues or concerns.

   (d) Quality Assurance Policy
   - Policy: All project deliverables must meet a predetermined level of quality.
   - Procedure to enforce: A quality control process will be established, which includes a review and approval process for all project deliverables. The quality control process will be documented and communicated to all stakeholders.

   (e) Resource Management Policy
   - Policy: All project resources must be allocated appropriately and efficiently.
   - Procedure to enforce: The project manager will develop a resource plan that identifies all resources required for the project, including personnel, equipment, and materials. Resource usage should be tracked regularly to ensure that resources are being used efficiently.

   (f) Escalation Policy
   - Policy: Any issues or conflicts that cannot be resolved through normal project management processes must be escalated to the project sponsor.
   - Procedure to enforce: The project manager will maintain a list of all outstanding issues and conflicts and communicate this list regularly to the project sponsor. Any issues or conflicts that cannot be resolved by the project manager will be escalated to the project sponsor for resolution.

   (g) Security Policy
   - Policy: All project data and information must be kept confidential and secure.
   - Procedure to enforce: The project manager will develop a security plan that includes policies for access control, data encryption, and secure storage. All stakeholders will be trained on the security policies and procedures.

8. Standard:
   A standard refers to a common performance level defined for the project. The standards for this project are:

   (a) Project requirements:

- AI algorithm must be able to predict gym demand accurately (>=95%) and provide personalized fitness recommendations to customers.
- App UI/UX must be redesigned to improve customer journey and experience, including features such as real-time class schedules and personalized workout plans.

(b) Stakeholder expectations:

- Customers should get a seamless and personalized experience across all touchpoints, from checking the busyness to tracking their fitness progress.
- Digital transformation to result in increased customer satisfaction, retention rates, and revenue.

7.3 Mitigation Plan

As mentioned in the project implementation plan, risk mitigation strategies should be developed. Hence, the risks associated with the process improvement must also be evaluated. Implementing data to the application to provide customers with information on the gym's busyness can give rise to different types of risks, such as technical, financial, or social risks.

To address these risks, the central management instructs the application manager to analyse, test, implement, check and then release the new feature. The management not only plans for the time it takes to develop but also anticipates for time to repair the errors. Additionally, the local management needs to be trained so they can explain the new features in the app to the customer and to ensure a successful implementation. The customers need to be informed about the new feature in the app by a push notification and an e-mail with an explanation about how the feature works and how it can benefit them.
Furthermore, the risks and their impact must be identified. Then, for each risk the probability of occurrence will be defined. A strategy is developed to act upon each risk accordingly. Finally, the resources needed to implement, monitor, and control the risks must be appropriately allocated. The risks and plans of this Basic-Fit implementation are:

- Risk: Technical problems with the check-in system.
  Impact: Customers cannot get in gym, bad image for Basic-Fit, less trust in the technology.
  Probability: Small probability of occurring, the check-in system is already in use and thus mature.
  Mitigation plan: Regular maintenance and testing of the system, and having a backup system in place in case of a failure.

- Risk: Security breaches.
  Impact: Safety of customers is in danger.
  Probability: Small probability of occurring, the app is already in use and will be extended with anonymous data
  Mitigation plan: Implementing security measures such as two-factor authentication, encryption, and regular security audits to identify vulnerabilities.

- Risk: User adoption issues.
  Impact: Customers are discouraged to use application.
  Probability: High probability of occurring because people don't read instructions and there are customers of all ages in Basic-Fit.
  Mitigation plan: Providing training and support to employees and users, and conducting regular surveys to identify and address any issues or concerns.

- Risk: Poor data quality.
  Impact: Less accurate information about business in the gym, customers have less trust in the innovation.
  Probability: Small probability of occurring because the data is generated by the customers.
  Mitigation plan: Implementing data validation and cleansing processes, and ensuring data accuracy through regular data audits.

- Risk: Budget overruns.
  Impact: Process improvement gets more expensive than expected for Basic-Fit, which leads to longer payback period.
  Probability: High probability of occurring because the implementing time, adoption time and maintenance cost are hard to forecast.
  Mitigation plan: Conducting regular budget reviews and adjustments, and prioritizing project tasks based on their importance and impact.

8 Conclusion

After thorough research into the company, the stakeholders, their interactions, and an analysis of their current business processes to determine the root cause of their problems, improvements were designed to solve this. Solutions that facilitate information availability and reducing time spent waiting to achieve their goal of operational excellence were considered. Since happy, satisfied customers are more likely to renew their memberships, value creation was considered. This would lead to higher revenues which in turn contributes to the strategic goal of growth in new markets. This increases the amount of touch-points the firm has with its customers. Thus, contributing to the goal of improving customer intimacy. The business process was redesigned using Business Process Re-engineering, since this method focuses on optimization and performance. In order to implement this method and find solutions the following steps are to be considered and elaborated on:

1. Envision: For this step a Scrum team has been put together and tasks and roles were divided. The right business and corresponding business process to improve upon has been decided. Basic-Fit and its process of 'checking the busyness of the gym and using this information to reduce resource consumption(i.e. less waiting time of customers, more profits)'. With an existing app, and how members enter clubs through scanning their membership card, it is possible to improve upon this process through IT transformation.
2. Initiate: Involved stakeholder mapping as well as learning what customer needs and requirements are.
3. Diagnose: Finding the root cause of the problem through SWOT and 5 why's.
4. Redesign: Using their IT capabilities and enhancing them to create a better customer journey to use their services.
5. Reconstruct: The newly designed process has to be implemented in the operations of Basic-Fit through a project plan.
6. Evaluate: The new business process will be monitored and assessed, and making adjustments wherever prompted.

Besides BPR, the The Moments of Truth method, specifically the Second Moment Of Truth (SMOT) was used. The SMOT refers to the ongoing relationship, which is beneficial for Basic-Fit if the process they are delivering adds value, which can be used to improve the relationship with the customer. The Lean framework was employed to eliminate any non-value adding activities. Here, the problem of wasting time was addressed by allowing customers to check how busy the gym is without having to go there.
Suggested improvements were centered around the proper usage of data for demand management and analytics. Using IoT to get useful information from the machines at the gym, and using AI algorithms for predictive maintenance and predicting demand were suggested. Since the scope of this project is limited, the improvement under focus was app re-design to let users know the number of users currently at the gym. Keeping this in mind, the future state BPMN was drawn up, and appropriate validity checks were suggested.
Once the process design was complete, the cost-benefit analysis of the project was carried out to support the business case for the implementation. An Agile Scrum implementation plan was created, with a planning phase, 3 sprints, and support after go-live. Policies for the implementation were written down, and procedures to enforce them were suggested. Certain standards were established for the project to help and define the quality of deliverables for the Statement of Purpose.
After the implementation planning was complete, risks in the project were identified, and risk mitigation plans were drawn up to tackle them. This concludes the digital business process transformation project undertaken to improve the processes of Basic-Fit.

References

Basic-Fit. (2022a). *Basic-Fit: Annual report 2022* (Tech. Rep.). Retrieved from https://corporate.basic-fit.com/investors/annual-reports

Basic-Fit. (2022b, April). *Basic-Fit: Investor presentation* (Tech. Rep.). Retrieved from https://corporate.basic-fit.com/investors/investor-presentations

Basic-Fit. (2023a). *About us.* Retrieved 2023-03-14, from https://corporate.basic-fit.com/about-us

Basic-Fit. (2023b, March). *Basic-Fit: Financial Results 2022* (Tech. Rep.). Retrieved from https://corporate.basic-fit.com/investors/financial-results

Beroepengids, N. (2023, February). *Salaris Manager: Hoeveel verdient een Manager?* Retrieved from https://www.nationaleberoepengids.nl/salaris/manager

Cascade. (2021, November 12). *Value Discipline Model Overview.* Retrieved from https://www.cascade.app/blog/value-disciplines

Cube, S. (2023, March). *How Long Does It Take To Develop An App?* Retrieved from https://3sidedcube.com/how-long-does-it-take-to-build-an-app/

Farnell. (n.d.). *PM1/PK - Sensor, Pressure Mat, Stair, 595mm × 170mm.* Retrieved from https://nl.farnell.com/defender-security/pm1-pk/pressure-mat-stair-595x170mm/dp/1146761

Instituut, M. (2020). *De nederlandse fitnessbranche: sterk gegroeid, kansen voor de toekomst.* Retrieved 2023-03-16, from https://www.mulierinstituut.nl/actueel/de-nederlandse-fitnessbranche-sterk-gegroeid-kansen-voor-de-toekomst/#:~:text=Tussen%202001%20en%202020%20heeft,(%2B82%25)%20nam%20toe

Janssen, M. (2023). *Reader digital business process management* (8th ed. ed.). Delft, The Netherlands: MOT1531.

Kaplan, R. S., Norton, D. P., et al. (1992). *The balanced scorecard: measures that drive performance* (Vol. 70). Harvard business review US.

Kerzner, H. (2017). *Project management: a systems approach to planning, scheduling, and controlling.* John Wiley & Sons.

Pradeep, S., Vadakepat, V., & Rajasenan, D. (2020). The effect of service quality on customer satisfaction in fitness firms. *Management Science Letters*, *10*(9), 2011–2020.

SportscholenCheck. (2018). *Basic fit vs fit for free.* Retrieved 2023-03-14, from https://www.sportscholencheck.nl/verschillen-basic-fit-vs-fit-for-free/

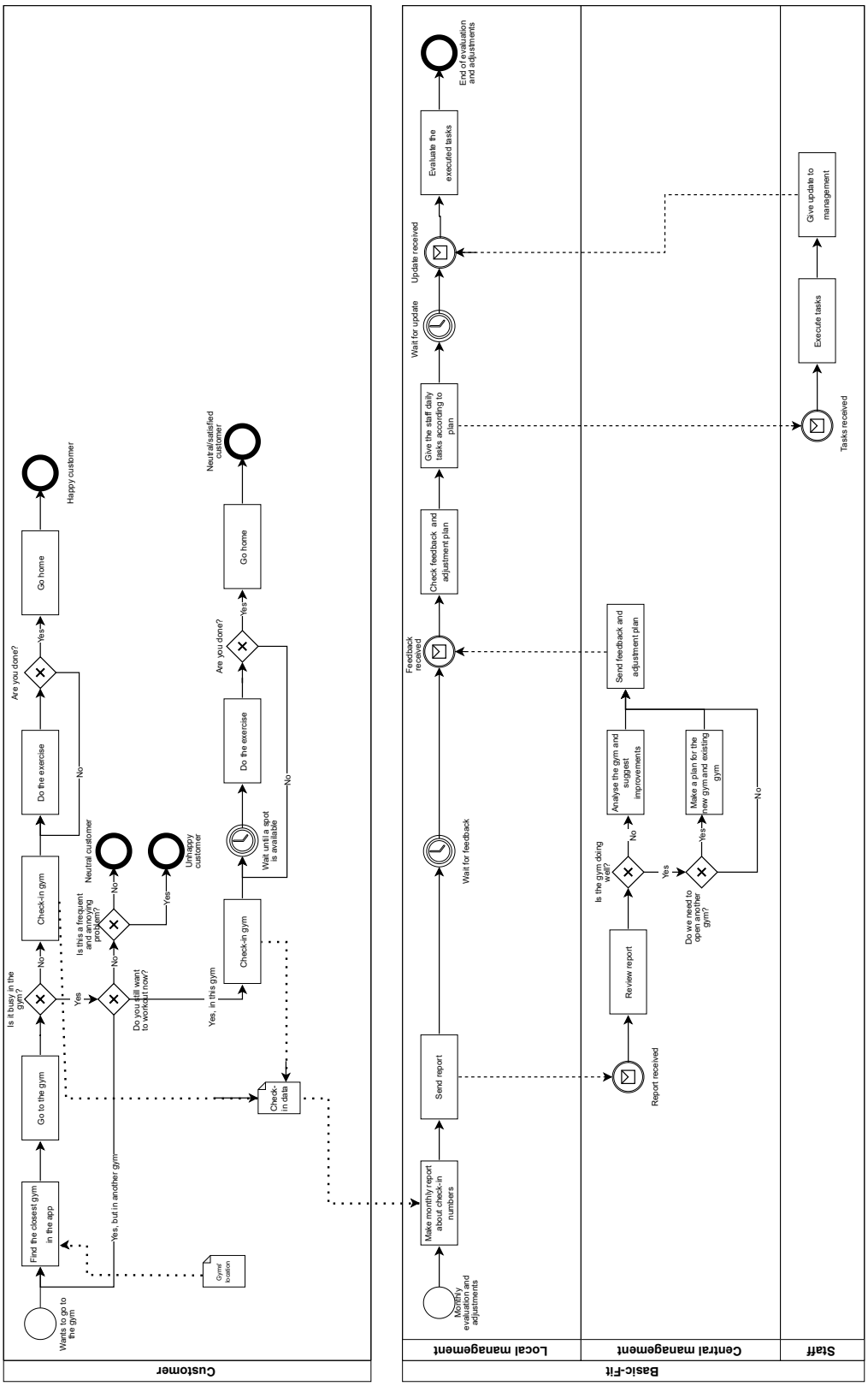
Van Der Avoird, M. (2020, April). *Wat verdient een applicatiebeheerder? Het complete overzicht.* Retrieved from https://www.ictergezocht.nl/blog/74_wat-verdient-een-applicatiebeheerder-het-complete-overzicht/#:~:text=Het%20gemiddelde%20brutosalaris%20van%20applicatiebeheerders,2018%20(%E2%82%AC%203.228%2C%2D).

Wehr, A. (2019, October 22). *Strategic Growth with the Ansoff Matrix.* Retrieved from https://www.cascade.app/blog/value-disciplines

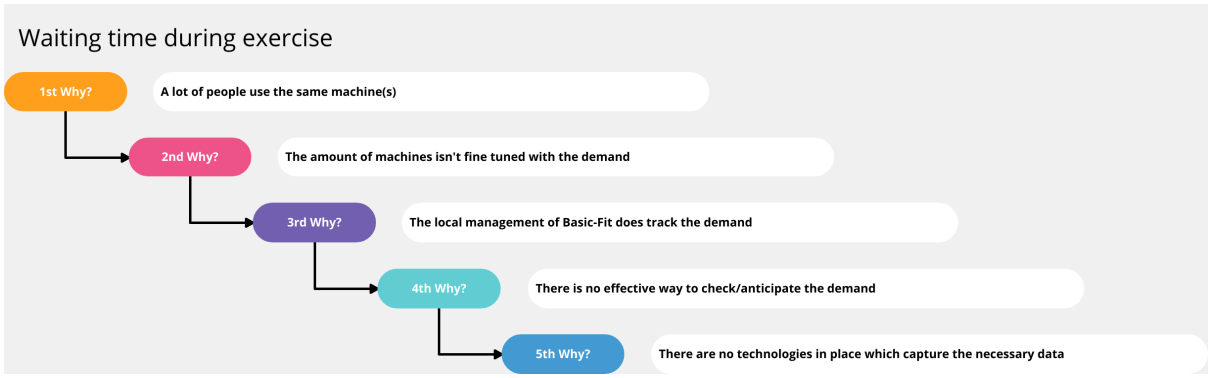
Werkzoeken.nl. (n.d.). *Salaris Locatiemanager - Wat verdient een Locatiemanager?* Retrieved from https://www.werkzoeken.nl/salaris/locatiemanager/

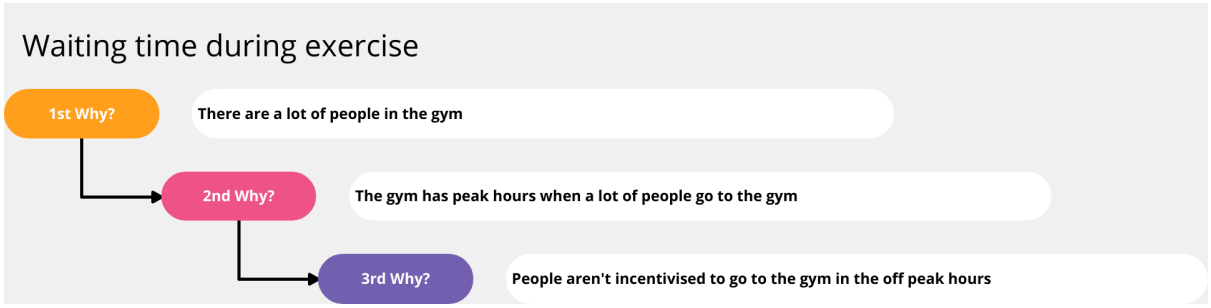
Zummitt. (2021, April). *Hoe vaak moet je trainen?* Retrieved from https://www.zummitt.com/hoe-vaak-moet-je-trainen/

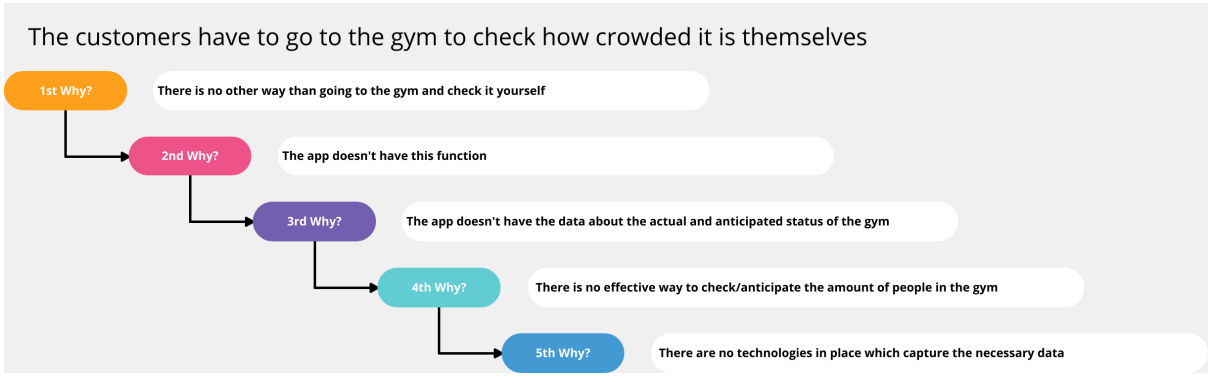
A Appendix: BPMN - current process

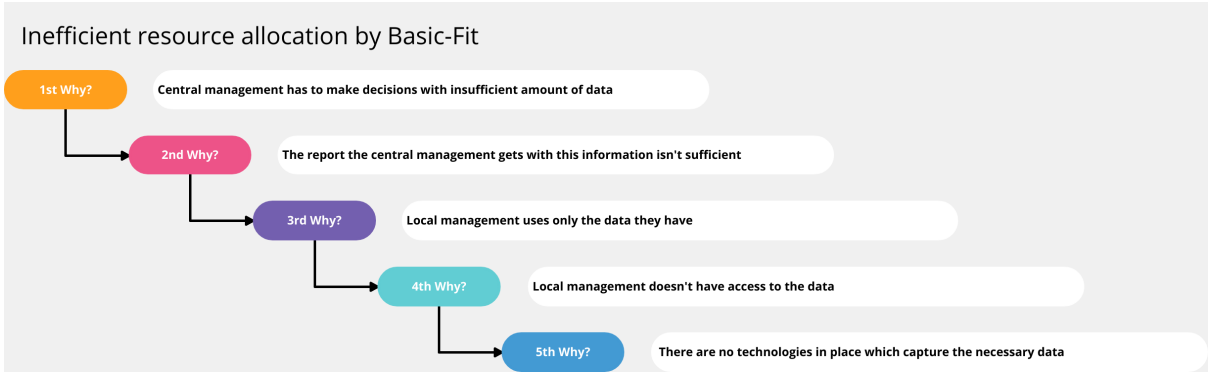


B Appendix: 5 Why's

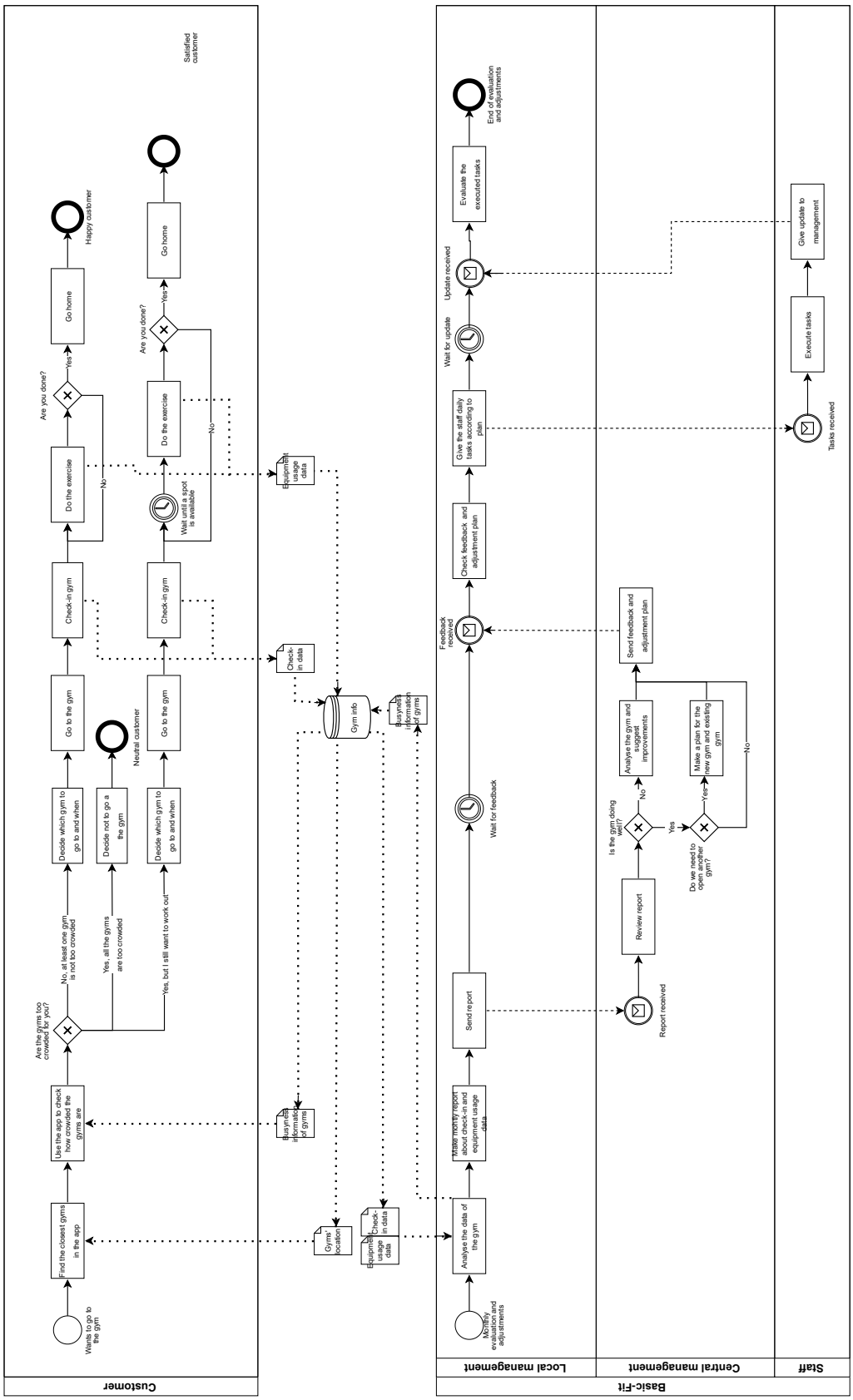






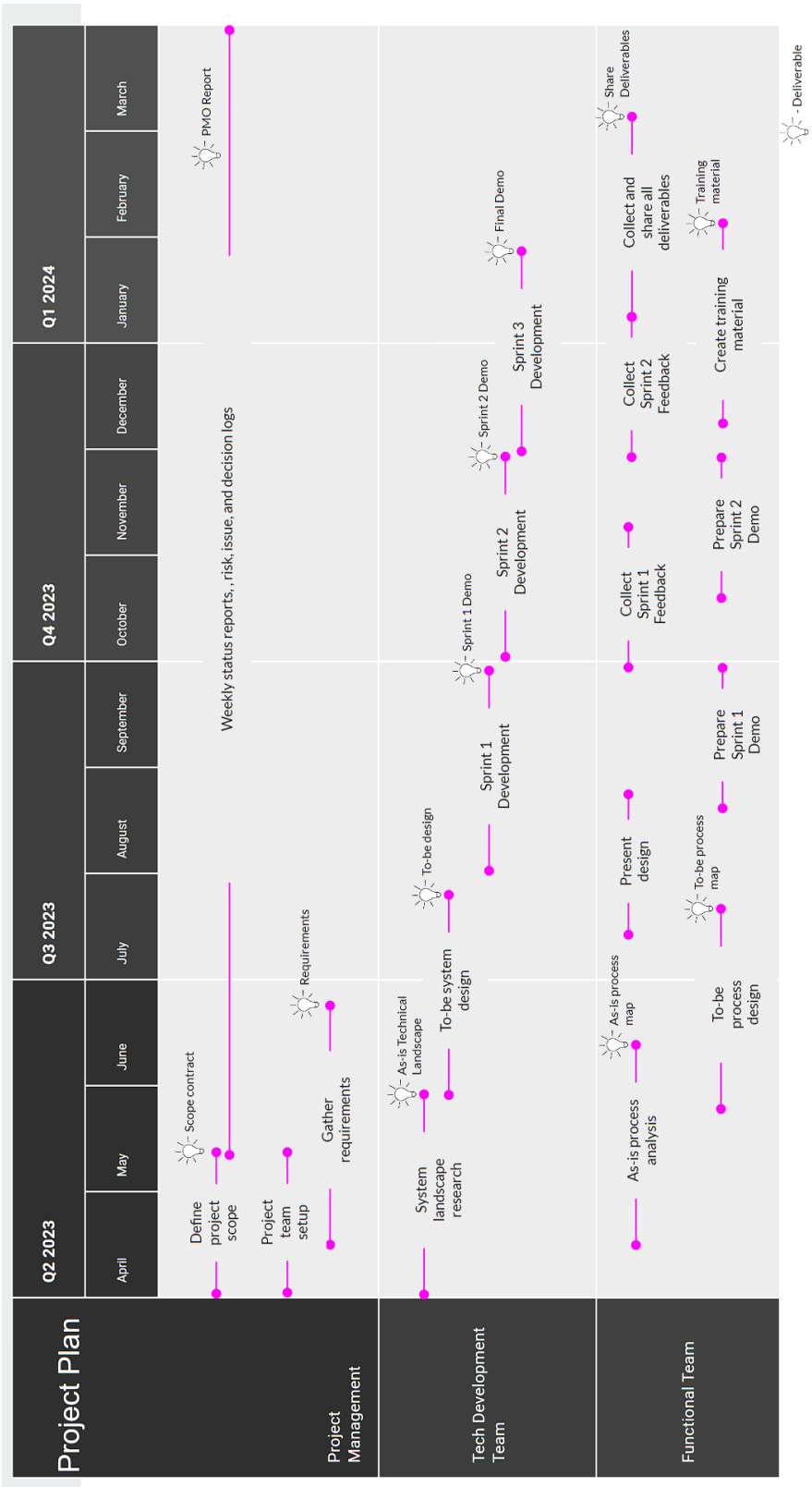


C Appendix: BPMN - future process

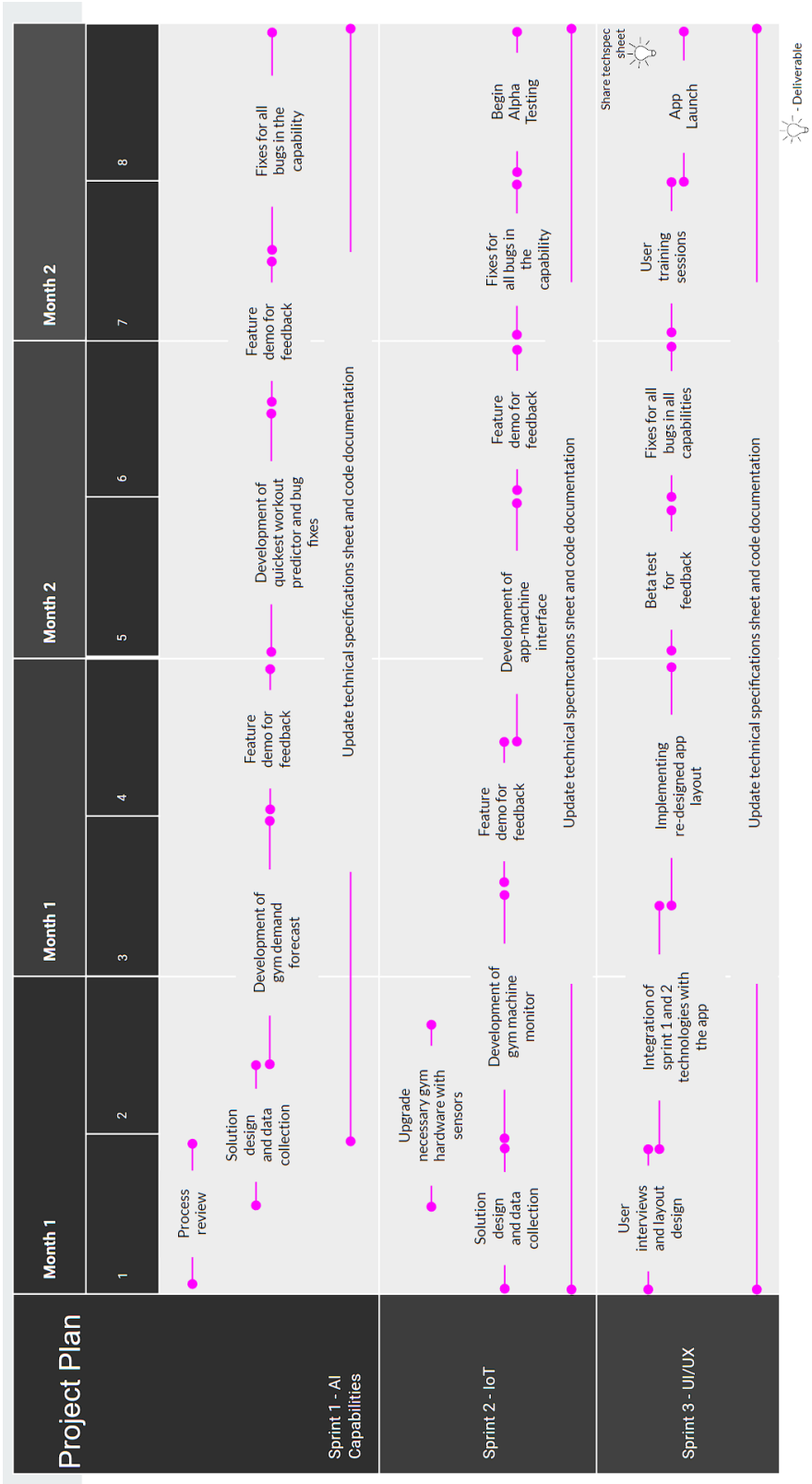


D Appendix: Implementation plan - Schedules

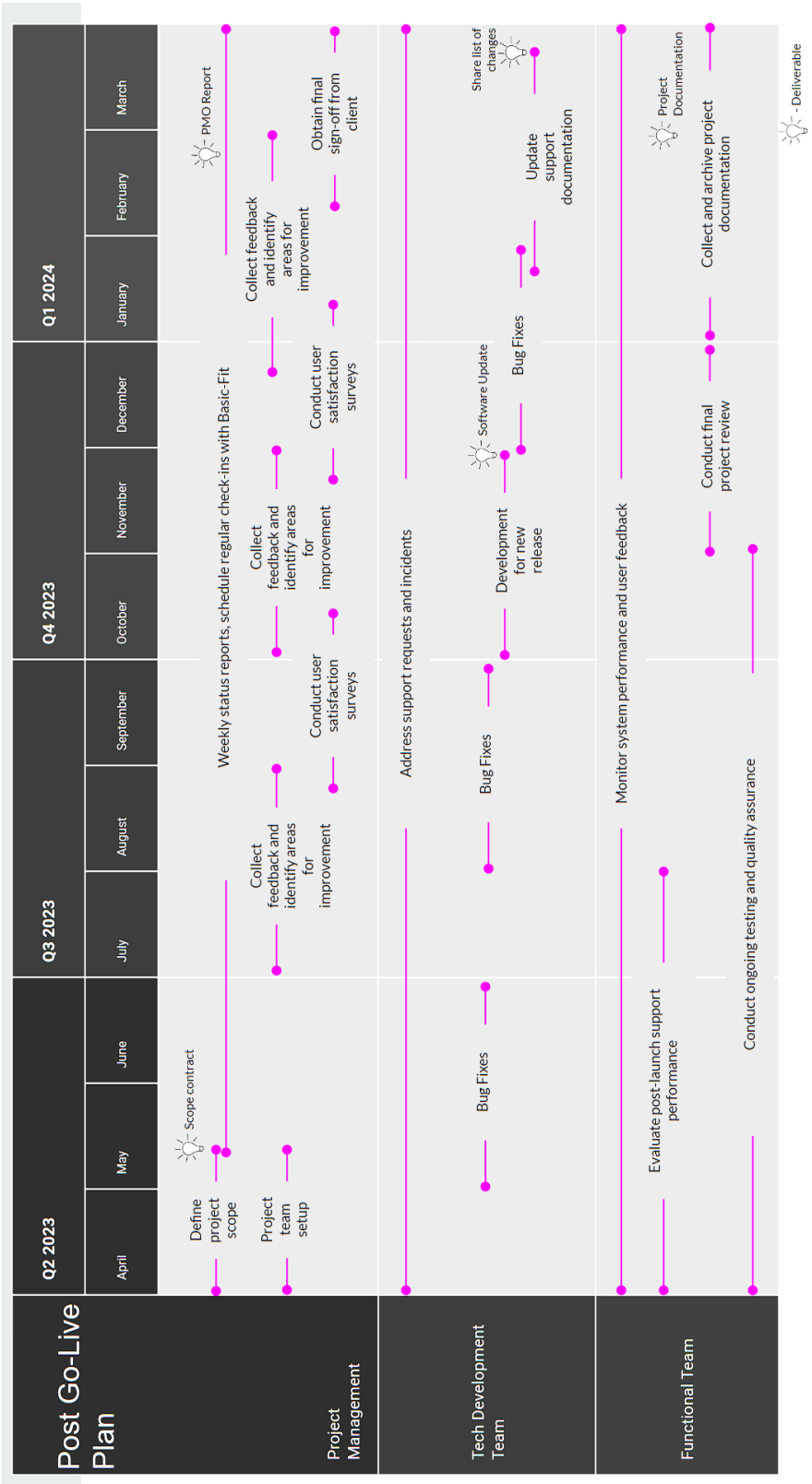
D.1 Schedule - Implementation timeline



D.2 Schedule - Individual sprint timeline



D.3 Post Go-Live timeline



E Appendix: Personal reflections

E.1 Personal Reflection - Julia van den Heuvel

Group contribution
Although we have done this group project together, I have been responsible for a few tasks within this project.

- Introduction
- General Research and background information
- Giving feedback as the Business owner
- Mission, Vision and Strategy
- Market Analysis
- Ansoff Matrix
- Cost-Benefit analysis and time evaluation
- Risk analysis / Mitigation Plan
- Set-up and presenting of mid-term presentation

Experience
It was interesting to do this big improvement project with a multicultural group of people. This gave me insight in how people work and communicate, and this actually worked really well. Besides the project work we had interesting talks about each other's outlook on the world. In the project I got the role as a business owner, after doing research about the characteristics and what this role means for Basic-Fit. With this role I learned to act on behalf of a company. The project work was great to do together, there were efficient meeting where the individuals could really show their progress. Next to that we had work sessions together to motivate each other while doing the group work. The assignment and feedback from the teachers was clear, but for next year I would advise the teacher to motivate the students to choose a process in week 1 of the quarter and to give a clear assessment sheet about the report. Apart from that I learned a lot during the course about process improvement, the different methods you can use to analyse, improve and implement an innovation and which stakeholder and resources you need to account for and how to balance these factors. Finally also analyse the impact in costs, benefits and the risks of an innovation.

E.2 Personal Reflection - Darsh Modi

Group Contribution

- General Research into Basic-fit.
- Current State Business Process Modeling
- Interviewing Basic-Fit Employees
- Diagnosis (SWOT and 5 why's)
- Suggested Improvements
- Project Implementation Plan
- Conclusions
- Proofreading and editing of the report

Experience
My role for this project was that of the product owner. Although our roles had certain descriptions on paper, all of us ended up doing a lot more as a team. I enjoyed working with a very driven group of people, with each of us bouncing ideas off of each other, making sure we hit our deadlines, and complemented each other's working styles. I think one of the biggest challenges of this assignment was to adjust to the way each of us write content in the report, as we had to work quite hard to make sure nothing was left open to interpretation. I also thought it was really interesting to work with people who have had very different experiences growing up, because that set the stage for us operating in the same context with different points of view. What was obvious to some, was alien to others, and the process of working through this confusion was very rewarding. Overall, I am very happy how the team worked together and created a high quality report for a real business with a real problem. Another limitation we

faced was that it was very difficult to get any information from Basic-Fit about their company processes; employees we contacted were very unwilling to talk to us. On the other hand, I have worked in several consulting projects in the ideation and implementation phase professionally; looking back, I was doing a lot of work because I was told what to do and how to do it. After studying DBPM, I have retrospectively realised many of the reasons I did some of the activities I did. Moreover, it has given me the confidence of planning and executing projects without the experience of senior managers and the expertise of SMEs, and it is a good feeling.

E.3 Personal Reflection - Maarten Hoogstad

Group Contribution

- General Research and giving feedback as a customer of Basic-fit.
- Mission, Vision and Strategy
- Stakeholder Analysis
- Balanced Scorecard and Strategy Map
- Desired Future Process, Methods used, Suggested Improvements
- Set-up of final presentation
- General editing of report
- Management Summary

Experience
For this project my role was scrum master. This role has thought me how to work together in a project, even though this wasn't my first project, there is always something new to learn from working with different people. Especially since this team was multi-cultural, it was interesting to see how different people use their own experience to tackle a subject as well as their own point of views on the matter. As a team we were able to steer communication in such a way that it became more streamlined as we, especially in the beginning made use of Trello and later on devised our own method of keeping track of the progress. By informing the rest of the group whenever one of us has completed a task with a simple update text through WhatsApp was found to be very motivating for everyone and gave the team a sense of accomplishment.
As scrum master my role was to make sure that deadlines were set and met by all members of the team. This sometimes proved challenging due to everyone having different classes and adjacent projects to work on. However key to our collaboration were the weekly meetings that were held as well as another stand-up meeting in between to keep each other up-to-date and whenever needed, work could be taken over from another team member or aided by working together on one part of the project. Sometimes some confusion arose on the direction of the project or how certain topics were supposed to be tackled, these meetings did help iron out the hurdles that we faced as a team. My main takeaway of the DBPM course are methods to analyse processes within a business and figure out what it important to research to be able to understand any business process and how to improve on them. Not only looking at stakeholders perspectives but also at customer needs for example. Also how important the tools taught in this course are. As well as the need to recreate the process in a model and not thinking to lightly on modelling en envisioning. It was nice to work on a real-life company with a real-life problem. This made me look at the environment around me and be more critical on the business processes that I encounter in daily life. Some limitations that were faced during this project was the very focussed scope, so there was constant realling in of our thought patterns, as well as the limit on page numbers for this essay, so there were some other things we wanted to explore but had to cut out of the project due to time and space limitations.

E.4 Personal Reflection - Akshat Kasana

Group contribution

- Brainstorming potential problems
- Mission, Vision and Strategy
- Selection of critical business process
- Stakeholder perception analysis

- Aligning the strategic goals
- Set-up and presenting of the final presentation
- Narrative through the report and proofreading

Experience
I mainly worked on brainstorming various problems, drawing the strategy map, understanding the loopholes in our own thought process as a group, and preparing the presentations.
I had the role of scrum-team-member for the project. This project allowed me to explore various concepts relating to business process analysis, improvement and implementation. Personally, I found it very interesting to align multiple strategic goals so that a couple of changes in the business process can lead to solving a number of strategic problems. Understanding how stakeholders work with each other and they might even have conflicting values was also something new to imbibe. The tools and techniques such as the Balance Score Card, Ansoff Matrix, BPMN and formation of scrum teams will guide me in the future whenever I approach a problem relating to business processes. Another major area of learning was communicating and organising meetings with fellow team members with a variety of different skills and knowledge. Each member of the team provided key insight or did the necessary legwork which laid the foundation on which we built this project.
I was also very happy to learn about the utilisation of technologies such as IoT and machine learning in areas that we often do not correlate with data collection and analysis. In conclusion, after working on this project, I have gained an insight into how one can plan out the process of improving a business process; how to align various elements of a business strategy and use technology to enhance already existing solutions.

E.5 Personal Reflection - Rens van der Geest

Group contribution
In this project I have taken several tasks upon myself. The tasks I have worked on are:

- General Research
- Mission, Vision and Strategy
- Stakeholder Analysis
- Balanced Scorecard and Strategy Map
- Selection of critical business process
- Current process description, model and stakeholder perception
- Issues and root-cause analysis
- Methods used, Suggested Improvements
- Future process description and model
- Set-up and presenting of mid-term presentation
- General editing of report

Experience
During this project I have taken the role of stakeholders. In this role it was important to look at the business and process from different perspectives. Although maybe obvious, I found that stakeholders are desiring the opposite of each other. So, my role as representative of the stakeholders showed me how difficult it is to balance the needs of different parties. And how easy it can be to slip in the habit of using a narrow vision (i.e. only using the perspectives of one or some stakeholder(s)).
Overall, as a group we were well functioning. The weekly and stand-up meetings were instrumental in this success. In these meetings we were catching up on everyone's work and dividing new tasks. By doing so the tasks that weren't on track were easily spotted and adjustments were made accordingly. Also, everyone did their share of the work. The one thing I would change the next time is to have more discussion about the direction of the project or how we are going to tackle problems or chapters to be on the same page. Sometimes during the project there was some confusion about how we were going to do something, which could have been prevented. On the other hand, the confusion was often quickly resolved due to the meetings. Furthermore, we didn't have access to any real data or information about how the business actually works in reality.
This project has taught me a lot of tools to analyse a business and its processes, such as the balanced scorecard, BPMN, root-cause analysis and the different methods. For example, beforehand, I, as many

others, would only evaluate a business' performance according to the financial results. However, a lot of factors are influential in the evaluation of a company such as Basic-Fit. Hence, this course and project helped me in developing a systematic method which I can use to analyse businesses.