



Business Process Management 2023

"Improving and Automating Helpdesk Process for Dialog Telekom GmbH"

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1 Introduction

Dialog Telekom GmbH is an Austrian telecommunication company that offers a wide range of services to its customers. The company provides mobile, fixed-line, and broadband services, as well as data communication solutions. Dialog Telekom aims to provide excellent customer service to its clients, and for that reason, they have asked the group to analyze, improve, and automate their helpdesk process.

The team was asked by Dialog Telekom to help them improve and automate their helpdesk process for customer care and technical support. Currently, the company uses email and manual to-do lists to track open tasks and who is responsible for completing them. This process can lead to delays and inefficiencies, as well as a lack of a shared overview of the process for all involved actors. Dialog Telekom hopes to implement a ticketing system that can automate their helpdesk process, improve communication between actors, and increase efficiency in resolving customer requests.

1.1 Company description

Dialog Telekom GmbH is an Austrian telecommunication company that has been operating for over 20 years. The company offers a wide range of services, including mobile, fixed-line, and broadband services, as well as data communication solutions. Dialog Telekom has a large customer base, and they are committed to providing excellent customer service to their clients.

1.2

Problem description

Currently, when Dialog Telekom receives a customer request or complaint, it is manually forwarded to the responsible actor, who then either resolves the issue or requests another actor to complete tasks necessary for the completion of the request. This process can be slow and inefficient, as actors may not be aware of the status of the request, and it can lead to delays in resolving the issue. Additionally, there is a lack of a shared overview of the process for all involved actors.

To address these issues, Dialog Telekom has asked us to implement a ticketing system that can automate their helpdesk process, improve communication between actors, and increase efficiency in resolving customer requests. The system should allow for the filing of a customer request, including all necessary information like a problem description and who is responsible for tackling the issue. The system should also establish a shared overview of the process for all involved actors and help with evaluation and data insights after the issue has been resolved.

The model below illustrates on a high-level how the process is currently managed in the Dialog Telekom.

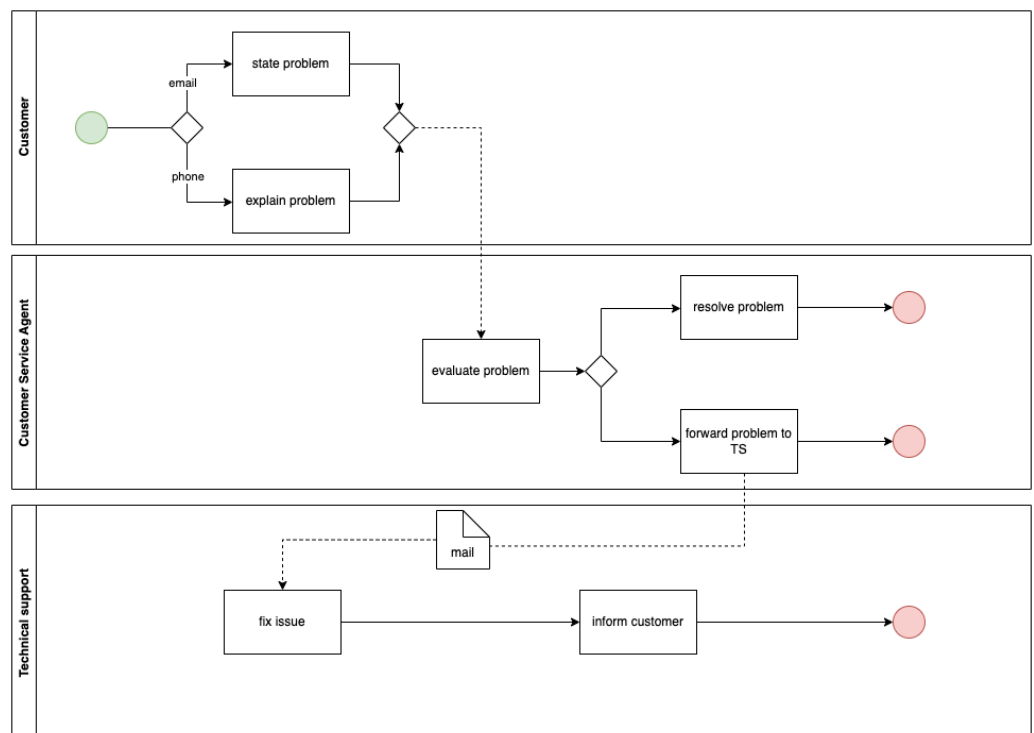


Figure 1: AS-IS business process

1.3 Approach

Firstly, the actors and their relationships will be described. Secondly, there will be described business process models such as high-level business process and primary process. Thirdly, the user interface will be designed for the future customer service application. Fourthly, the process will be described in more detail with an explanation of every sub-process. Finally, recommendations for the Dialog Telekom will be stated based on results of application and models.

1.4 Tools

The design of the business processes will be drawn using the draw.io tool. The implementation of these processes will be performed using the Mendix platform.

2 Involved actors

2.1 Actors

1. Dialog Telekom customer
2. Dialog Telekom customer service
3. Dialog Telekom technical support
4. Dialog Telekom manager

The first actor involved is a customer that requires some help from the company or wants to complain about issues to the company. The Dialog Telekom is responsible for solving the customers' complaints. To complain or ask for help from the customer service, the customer needs to be in the Dialog Telekom's customers database. In other situations, customers will not receive an answer from customer service.

The second relevant actor is the customer service of the DT. This actor is responsible for solving issues from the customer and responsible for establishing communication between the customer and the DT. They can receive complaints via call or email. They can resolve issues directly or consult the technical specialists in the technical service department. They are furthermore responsible for informing the customer about any solutions that have been found.

The third actor involved is technical support that receives tasks from the customer service. Their main responsibility is to fix the technical issue of the customer.

The last actor involved is the manager that manages customer service process. This actor is responsible for the quality of the relationship between customer and customer service. The manager can derive insights for his decision-making using the collected ticket data.

2.2 Relationships

The main goal of Dialog Telekom is to increase efficiency in solving customer requests. Therefore, the aim is to achieve faster communication between actors. Communication between actors heavily depends on customer service because if a customer's complaint stacks in the customer service section, technical support will not even have the complaints from customers.

3 High-level business processes

The purpose of a high-level business process model (HLBM) is to provide a broad overview of how a process works, without going into further detail. It is essential to establish a customer-process relation. Every high-level business process model should have connections between key processes (primary processes) and the results should be integrated properly. Also, a HLBM does not need irrelevant operations, because the model should be designed to focus on developing visualizations of business processes that can be presented to stakeholders.

There are three actors in the high-level business process: the DT customer, the DT's customer service and the DT's technical service. The model starts with the customer contacting the customer service, this can be done by either phone or email. It should be emphasized again here, that the diagram at hand models the business process on a high-level and details will be modeled and elaborated upon in within the primary process section of this report. After contacting the customer service, the customer should explain the problem he is experiencing or the reason he is contacting the customer service.

The customer service agent then searches the customer in the DT customer database and fills out a ticket denoting the customer's issue and all relevant information that will be stored in the ticket database. If this issue is solvable by the customer service agent, the customer service agent resolves the issue at hand and closes the ticket after which it will be stored to the ticket database. The customer service agent then informs the customer about the solution that was found. If the customer service agent cannot solve the issue at hand, he publishes the ticket, essentially forwarding it to the technical support.

The technical support after receiving ticket, fixes the technical issue at hand. After that, the technical support closes the ticket and sends it to the ticket database. After that, the customer service agent will inform the customer about the solution that was found by the technical service using the corresponding ticket.

When the customer is informed about the solution to his problem, this solution can either be satisfactory or not. If the customer is satisfied, the process can be terminated. Otherwise, the process will be reiterated, starting with the customer again stating the problem that he is experiencing, which in this case would be the problem he has with the proposed solution.

The described model illustrates the high-level business process of a customer complaint or request being handled by the DT customer service and technical support. As the HLBP models the “bigger picture”, the model does not go into specific detail about every activity and branch.

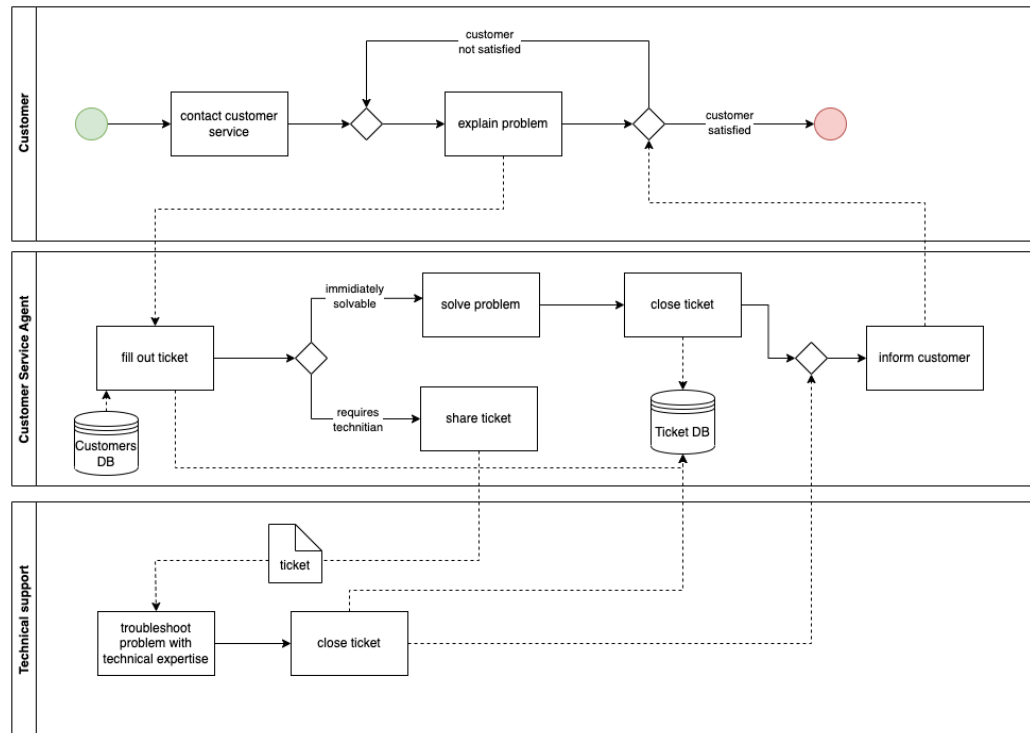


Figure 2: HLBP - customer complaint

The model below briefly illustrates how the manager can use the data created by the ticketing system for his decision-making in handling customer requests. As unfortunately a dashboard implementation is out of scope for this project and the DT does not have designated business or data analysts, the manager can review the data in the ticket database and can make more data-driven decisions based on that. Insights that can be derived from the collected ticket data include but are not limited to the average closing time of a ticket, most frequent issues and how many tickets an employee has worked on. The reason that this was modeled as a separate process is that the manager can choose to review the ticket data at any moment in time and it is independent from the process of handling a single customer request.

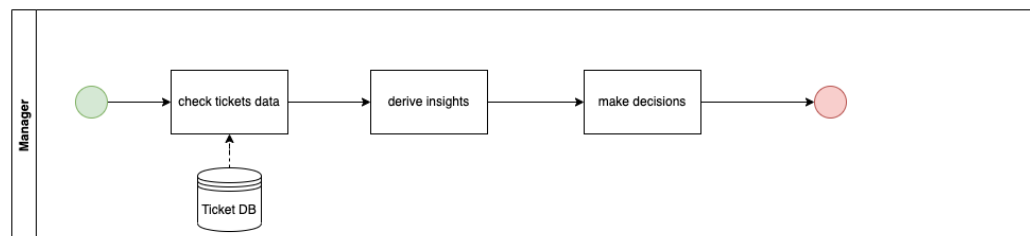


Figure 3: HLBP - manager

4 Primary process

The Diagram above shows the relevant business process, after implementation of the proposed ticketing system to the Dialog Telekom for coordination of its help desk and technical support. This section is going to walk through the activities and flow of the diagram and explain further assumptions and adjustments that have been made along the way.

The main process starts by the customer contacting the customer service of the Dialog Telekom via either email or telephone. The customer will be asked to identify himself so that the customer service agent can find the corresponding data within the customer database, following which the customer should describe the reason he is contacting the customer service, or to put it differently state the problem he is experiencing. The agent will then open a ticket within the developed ticketing system and decide if the problem at hand is immediately solvable by the agent. One of the most frequent calls that the Dialog Telekom receives is the customer asking for further details about payments on their bill, which are located on the backside of the bill – many customers simply forget to turn it around, this issue would fall under the aforementioned category and could be immediately solved by the customer agent. He will simply give a brief description stating the reason of the call within the ticket and close it immediately, for reporting reasons. The process can then be terminated.

If the customer agent decides that other parties need to be involved to resolve the customer's issue following the structure of the ticket, the agent should further interview the customer to fill out all necessary details. Filling out the ticket is described in a subprocess, as it involves further decisions to be taken, before the ticket can be entered into the system.

Firstly, the customer service agent will have to evaluate whether this problem is related to the landline or the mobile network.

If it is concerning the cellular phone network, another decision on whether it is related to an administrative or a technical issue must be made. In case it is an administrative issue, the Dialog Telekom works with external distribution partners and consulting about their contracts and terms will be forwarded and made their concern. If 14 days pass without receiving a confirmation of the distribution partner, there will be a complaint sent and if another 7 days pass the issue will be forwarded to another distribution partner and the distribution partner at hand will be questioned about the incident. As the Dialog Telekom currently does not track the status of forwarded requests or issues, this is an assumption made by the group. Since the Dialog Telekom does not operate its own infrastructure, but rather buys slots from bigger telecommunication providers like T-Mobile if the issue at hand is of technical matter, it can either be solved internally or externally. In case it is internally solvable the customer agent will assign the responsibility in the ticket to the technical support. If the issue is regarding to the infrastructure for example, the agent will forward this issue to the operator of the infrastructure. Here, this will invoke a similar process to forwarding it to the distribution partner, also an external company. When there is no confirmation received within 14 days, the external partner should be recontacted. It can also happen that the customer agent, as most of the time he has limited technical knowledge, supposes the issue can be handled internally and forwards it to the technical support where it is then discovered to not

be solvable internally, in which case the technical support will contact the external partner in equal manner.

If the issue is related to the customer's landline network, the customer agent must further decide on whether it is an open order, which most of the time refers to the customer asking for a delivery date of an order of a new telephone for example, or if it is a technical issue. In case it is an open order the customer agent should provide the requested information, after which the process can be terminated.

If it is a technical issue, again it must be decided on whether or not this issue is internally solvable. If it is, the responsibility will be assigned to the technical support.

It should be mentioned here that currently all issues are resolved pretty much individually by the technical support, that means there is not really standardized ways of dealing with common issues and requests. The ticketing system will give an insight into which problems occur on a regular basis and thus should be subject to a standard process of dealing with them.

If it requires involvement of an external party, the concerning company will be contacted in an equal manner to how forwarding issues to external parties has been described above. Once the customer agent has properly filled out the ticket it can then be entered into the system.

The technical specialist, will access open tickets in the system and resolve the issue that is described or if it is not solvable, forward it to the concerning external party. This can easily be done by converting a ticket to pdf using the built-in browser plugin.

If the issue has been resolved, the ticket will be relevant and will automatically be captured in the ticket database for reporting and business intelligence reasons. The process can then be terminated.

Unfortunately, a dashboard implementation is out of scope for this project. But the ticketing system collects the data necessary for these kinds of visualizations enabling more data-driven decision-making.

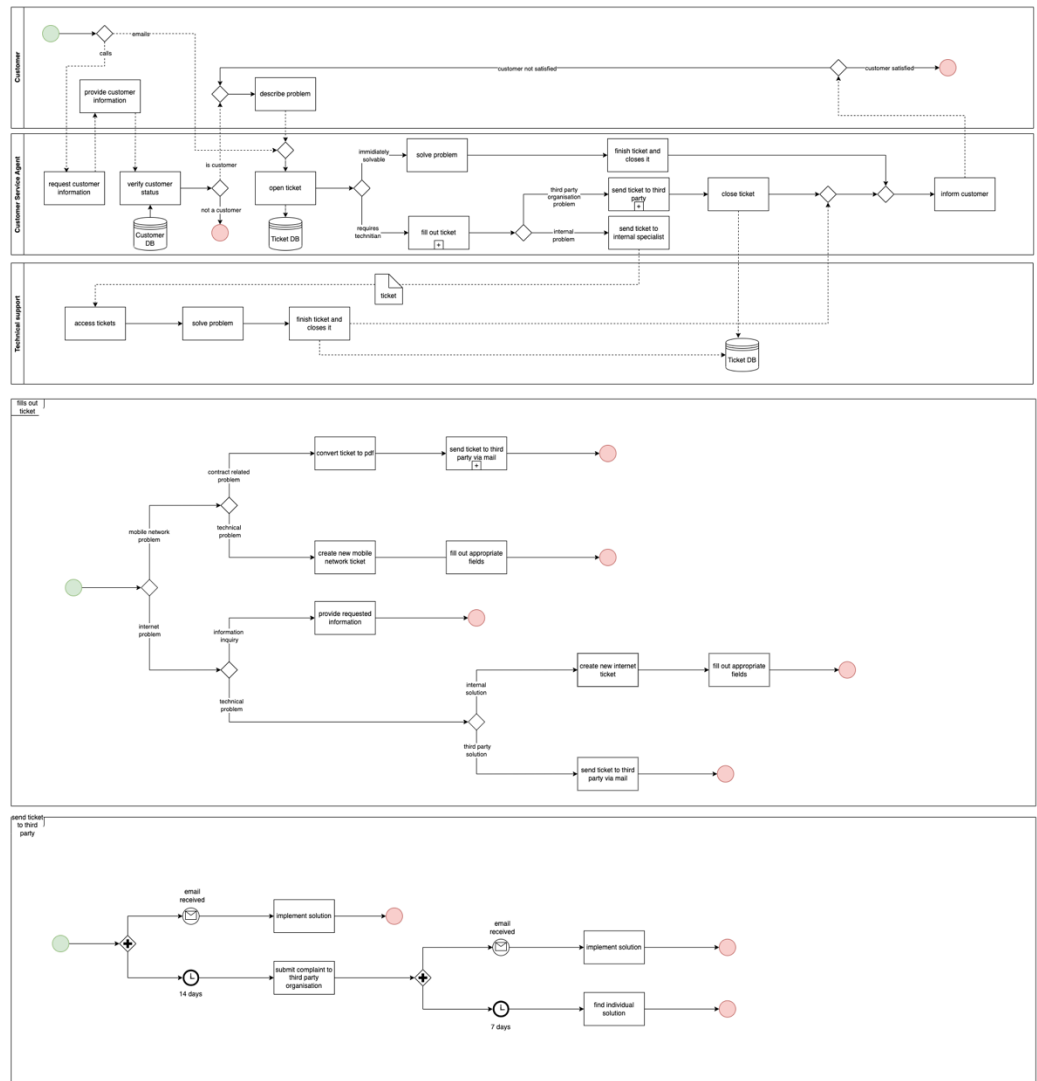


Figure 4: Primary business process

5 Data model

The data model, or to put it differently, the mendix domain model has two entities with different attributes. These attributes are displayed as fields when creating or editing a ticket within the app, they capture the relevant information on the issue at hand in a Ticket, which is the models main entity. This entity has attributes such as Customer_ID, Opening_Date, Closing_Date, Description, IssueID, Customer_Phone_Number, Status, Ticket_Type. In this case, The Customer_ID is responsible for relating to Dialog Telekom's customers database, so that relevant information can be quickly accessed by the responsible party. The status attribute can be either in open, in-progress or closed state. The other entity is the employee, an instance of which can be created by the manager. The Employee name on a ticket can be selected using a drop-down menu also after creation, so that a ticket can be assigned to a responsible actor, also if not directly done by the customer service.

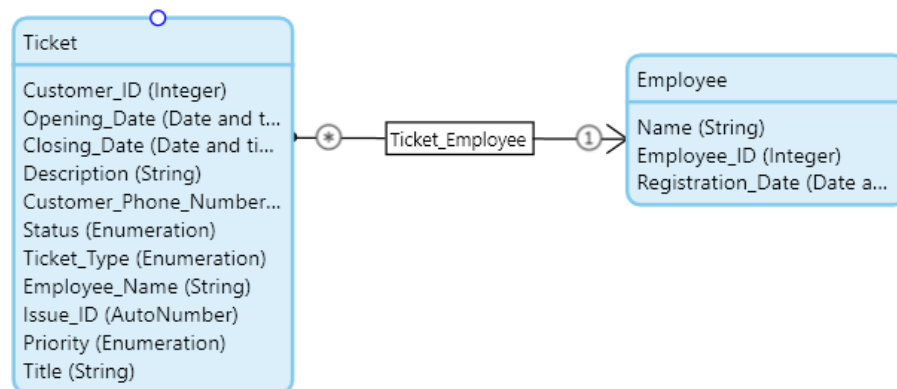


Figure 5: Domain model

6 Recommendation

The app that has been developed over the course of this project provides a more efficient way of organizing tasks for the Dialog Telekom customer and technical service. The most significant area of improvement is efficient task-allocation. The responsibility for solving a ticket is assigned with its creation and the person or department that is assigned this responsibility will be provided an overview of open tasks and who is currently working on them. This is a major improvement in comparison to shared access to an email account and individual to do list of the department which was the main form of coordination previously. The ticketing system enables a better task overview and helps efficiently assign and track open tasks. As the Dialog Telekom works with a variety of external companies, the ticket can quickly be downloaded as a pdf using built-in browser plugins, allowing for faster and easier communication with 3rd parties in the process of solving an issue presented by a customer.

Furthermore, the proposed prototype helps collecting valuable data on tickets, which allows the managers to have an enhanced overview of how efficiently this department is working or where most time is lost. Moreover, it can help in understanding the most frequent request which standard procedures should be defined for to further enhance efficiency.

7 App manual

This section is going to walk through the setup and usage of the app prototype and elaborate on any information necessary to effectively use the app prototype at hand.

When launching the app prototype, a login page will appear, the default login credentials are:

Username: MxAdmin

Password: 1

The User Interface is designed in an easy-to-use and straightforward manner, however the general structure and basic instructions will be discussed.

Clicking the small blue icon on the right side of the screen, different demo views can be selected. Different roles have different access rights, where only the manager can access all pages. Other roles can only see what's relevant and necessary to their work. Customer Service members can create a ticket. The ticket then must be filled out according to the fields that appear. It is not mandatory to fill out every field, for example the closing date should be left blank in most cases, as it will be entered in a later state of the ticket. Moreover, the employee's name field can be used to directly assign the ticket to a responsible actor. In case the customer service agent cannot yet decide, who exactly is responsible for the ticket, it can be left blank and filled out later, by a different actor, as it will appear in the respective open ticket overview either way. The ticket can be either internet or mobile network related, these are presented in separate open ticket overview, because the DT technical service distinguishes between the mentioned directions in their approach to assigning responsibilities. Once an issue has been resolved, the ticket can be closed.

Some functionalities inside the app have been automatized to create a smooth and efficient user experience. Opening dates of tickets will be automatically filled out with the current date. Once a Ticket has been processed, and the 'closed' status has been selected, saving the ticket will automatically fill in the closing date. A Manager role can create new employees and add them to a comprehensive employee list. Once a new employee is created, he can be selected from a drop-down list inside the new ticket edit. Since the company wants to use the stored ticket data to derive insights into the quality of their customer service, for data storing purposes, there is an option to bring the ticket titles to upper case. This is to ensure easy readability as well as keeping up with the standard currently applied in the company's ticket database.

It should be emphasized, that the proposed app is a prototype where features and debugging can further be improved when the app has been deployed and can be tested in real business processes.

(Note: We created 4 employees in the current file but are not certain if they will be transferred with the mpk file. If you find the employee list to be empty, please use the 'Register new employee' button to create an instance of an employee entity and use the full scope of the application. Also use the change user button on the right of the screen to select different roles to be able to use certain buttons and see the role respective pages.)

8 Summary

8.1 Feedback reflection

The group received peer-feedback from two other groups and a TA, about halfway through the project. Following a waterfall approach, we did not have a proper implementation of the app, so the feedback could only be given relating to the designed models, the report and its structure. The feedback we received was highly positive, allowing us to validate what we had done and gain confidence for the remainder of the project. The received feedback pointed out some potential for improvements in terms of grammar, layout and readability of screenshots. We took these suggestions into account and improved our report accordingly. Besides this, the suggestions mostly mentioned to start developing the app as soon as possible, which we also did right after the peer-feedback opportunity.

8.2 Contribution

As a team, we have been working on the Business Process Management project for the past few weeks. Through our collective efforts, we have made significant progress, and everybody has contributed to the success of the project.

The team held multiple meetings a week, these meetings always had a leader, that was responsible for creating an agenda, and making sure it was executed during the meeting. This resulted in lively discussions on the diagrams and their contents, in which everybody actively participated. This really helped to enhance the profoundness of our understanding of the diagrams and the contents of this project.

Even though the workload was sometimes overwhelming, we were able to manage it effectively by dividing tasks equally and fairly among team members. This allowed us to make steady progress on our projects and avoid overwhelming any individual team member. Overall, our team's ability to effectively divide and manage the workload was a key factor in our success.

In conclusion, our team has worked hard and made great progress on the Business Process Management project. We have had productive meetings, divided tasks fairly, provided support and guidance to each other, and consistently sought out ways to improve the project, especially by considering external feedback. Through our collective efforts, we have successfully completed the project and are more than content with the outcome.

8.3 Remark

The Dialog Telekom GmbH came to our attention through family connections. We took the initiative to approach a representative of the company, who upon request, provided us with the case at hand. He was also available for further questions that came up over the course of this project. It was exciting to work on a real business process and the Dialog Telekom GmbH was a great partner during this procedure.

8.4

Conclusion

Over the course of this project, we have analyzed the business processes of the Dialog Telekom's helpdesk in detail, resulting in the development of a ticketing system to automate and improve these processes. The app improves and automates the tasks of the helpdesk and its coordination with the technical service and external parties on various levels. The development approach was subject to the waterfall method, so developing the app started in a rather mature stage of the project, while this simplified the app development process in a sense that it was very clear, what the requirements and underlying businesses processes were, it resulted in a more challenging timeframe for the app development. Next time, an agile approach would be the better choice, as app-development could commence in a much earlier state of the project. The fact that none of the group members have previously worked with Mendix further supports that an agile approach would have been the better choice, because it would have allowed for peer-feedback on the app, which was not possible following a waterfall approach.

All in all, the project was a success and the goals set in the beginning of the project have all been achieved. Choosing the waterfall approach just put a little bit more pressure onto the final weeks of the project.