Improving the (Perceived) Service Quality of Rostering Services for Cabin Attendants

Final Report

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SUMMARY

Rostering Services is the department which Cabin Attendants can contact when they have a problem with their roster. The quality of the roster influences the quality of service provided by Cabin Attendants. It is therefore important that Cabin Attendants are satisfied with their roster. To assure this, Cabin Attendants have to be satisfied with the service provided by Rostering Services, as they need this party when they have roster problems. Cabin Attendants have been dissatisfied with the accessibility of Rostering Services and in particular the accessibility of the Rostering Services Agents since years. Moreover the employee satisfaction surveys of the last couple of years show that the expectations of Cabin Attendants about Rostering Service Agents have not been met. During this study the causes of these complaints have been analyzed. The goal of the entire study was to improve the perceived service quality, with the following research question:

How can the (perceived) service quality of Rostering Services for the Cabin Attendants be improved while taking into account operational performance and operational cost?

Rostering Services consists of three different parties, namely the Informants, P&A Service Point and the Rostering Service Agents. The Rostering Service Agents are the only party that can actually make an adjustment in the roster of a Cabin Attendant. Deciding on adjustments in the roster, Rostering Service Agents have to take into account regulatory and policy constraints of KLM.

The complaints of Cabin Attendants have been assessed by a survey and interviews during this research. The complaints made about Rostering Services are presented in the figure below.

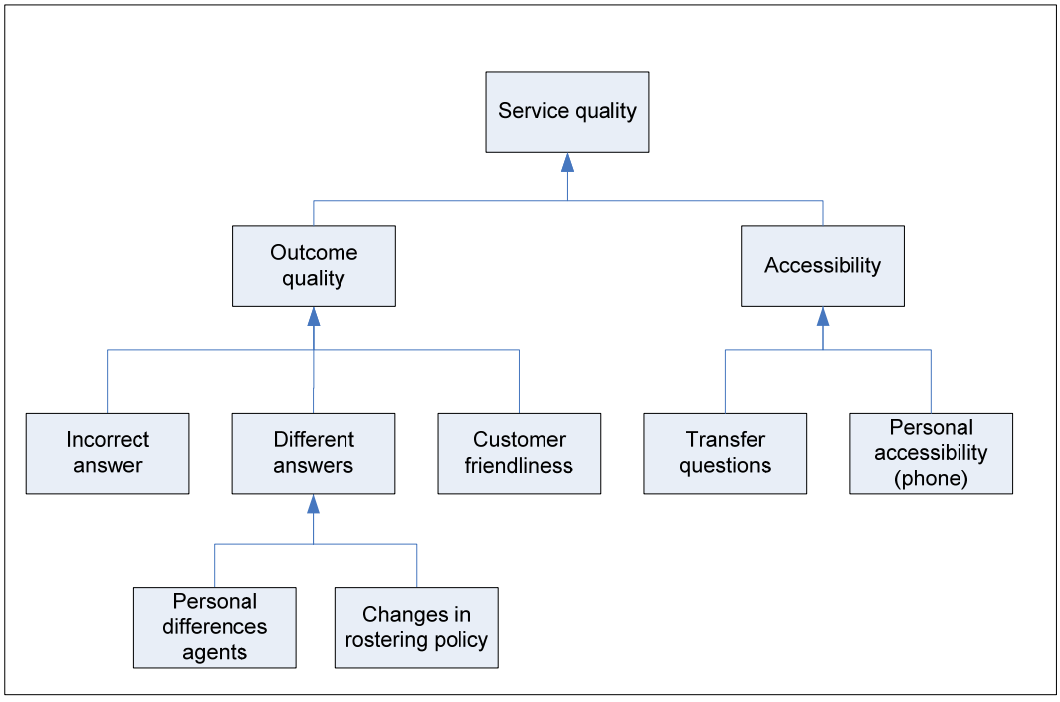

Figure 1-1: Complaints Cabin Attendants made about Rostering Services in interviews

As presented in Figure 1-1, accessibility complaints represent only part of the complaints made by the Cabin Attendants. The other part of the complaints is related to the outcome quality. Outcome quality is influenced by the given answers (incorrect and different) and how the answers are given (customer-friendly).

During the interviews with Cabin Attendants the perceived service quality is measured and not the actual service quality. The perceived service quality is influenced by the actual service quality and the expectations about the service quality. If expectations are higher than the

service quality, the perceived service quality is low. Through interviews and observations it has been analyzed that the knowledge of Cabin Attendants is not sufficient. They pose requests which cannot be granted according to KLM policy. It is important that this is improved to increase the perceived service quality.

The service quality and complaints made by Cabin Attendants about the service quality have been assessed by data-analysis, interviews and observations.

Accessibility
It has been analyzed that the abandonment rate of Informants is 30% which is high. This high abandonment rate is caused by an insufficient number of Informants. The number of questions received is too high to be processed by the scheduled Informants.
The three communication channels are difficult to manage for Rostering Service Agents. They receive calls, visits and emails simultaneously. If Rostering Service Agents have received many new emails, they tend to not pick up the phone.
It has been analyzed that while there is insight in the number of RSA's scheduled, there is no insight in the number of RSA's that are available to process questions during each time of the day. According to the RSA's there are points in time at which there are insufficient RSA's available to process questions.
The complaints made about transferred questions are caused by the fact that Cabin Attendants call a central call center which always transfers the call to Informants. Moreover, Cabin attendants are not aware of the differences between the parties of Rostering Services. They contact the 'wrong party' and therefore their question has to be transferred.

Outcome quality
The knowledge and skills of Informants is insufficient. This results in incorrect answers given to Cabin Attendants by Informants.
Differences in answers are caused by the fact that answers and skills are not standardized. As no consistency check is made this can result in differences in answers. Most of the time the RSA's are most not involved before a policy is implemented. Therefore it is possible that implemented policy does not take into account some important roster technical details and has to be adapted.

The above represents the most important factors that influence the service quality. Based on these factors, options have been generated to improve the perceived service quality. This has been done by brainstorming sessions, benchmarking and literature research. These options have been structured and quick wins have been selected by scoring the options on costs, time needed to implement, usefulness, acceptance and feasibility. Due to the fact that the (perceived) service quality had to be improved in a short period of time, many quick wins have already been implemented. In the end, the following quick wins have been recommended and are already implemented:

Accessibility

- Extra Informant: The number of Informants was not sufficient to cope with the number of questions received. The workspace capacity of the Informants could not be increased. By making a roster for the breaks of the Informants, it was possible to schedule one extra Informant without the need of an extra workplace.

- Call back option, which makes it possible to change inbound calls into outbound calls: The call back option will make it possible for the Cabin Attendant to get in contact by phone with his Rostering Service Agent by making a telephone time slot reservation.

- Rostering Service Agents capacity management tool: A tool has been created which can easily calculate the number of available Rostering Service Agents for each point of the day as well as the total number of available Rostering Service Agent hours per day. This insight can help to manage the capacity of the Rostering Service agents better.

- Absence of a central call center: It has been communicated that it is not useful to call the central call center and that it is better to call the Informant directly. This will reduce the number of unnecessary transferred calls, since the central call center always transfers the calls to the Informants in the current situation.

Knowledge/Expectations Cabin Attendants

- Frequently Asked Questions (FAQ) published on internal website KLM: The questions which are posed frequently can be easily read by the Cabin Attendants. This will reduce the number of questions posed (since a Cabin Attendant can easily find the information himself) and accordingly it will help to manage the expectations of the Cabin Attendants.

- Flow chart: A flow chart has been created which indicates what kind of questions are useful to pose, to whom (which party) and how (email or phone). As with the FAQ, the flow chart can reduce the number of questions and manage the expectations of the Cabin Attendant due to increased knowledge. The flow chart can also help the Cabin Attendant to get in contact with the correct party immediately. This will reduce the number of transferred questions.

- Change in opening hours: When communicating that Rostering Service Agents are not open at Tuesday morning, the expectations of the Cabin Attendants will be better managed.

Outcome quality

- Informant supervisor: A Rostering Service Agent is responsible to supervise the informants. By presenting relevant Key Performance Indicators, visiting and evaluating the Informants, the service quality and outcome quality in particular will probably improve.

Some quick wins still have to be implemented:

Accessibility

- Immediate satisfaction: The number of calls closed on first contact is next to abandonment rate one of the main aspects which influences customer satisfaction. Moreover when a question is completely answered, fewer questions have to be posed to ask for clarification. Agents have to be aware of this, and process questions in such a manner that the number of calls closed on first contact is high.

- Forwarding emails: Emails are sent to a Rostering Service Agents which should belong to another party (for example P&A Service Point). These emails have to be forwarded to the 'correct party'. This will reduce the number of questions received by Rostering Service Agents.

Outcome quality

- Case discussions: By discussing cases the different answers given by the Rostering Service Agents will be identified. Then it can be decided which solution would be best for the case. This way the RSA's will have a guideline and therefore the differences will probably be reduced.

- Policy Rostering Service Agent: One Rostering Service Agent is responsible for monitoring Key Performance Indicators, consult managers when changing roster policy, use capacity management tool and generating business cases.

Outcome quality and accessibility

- Monitoring Key Performance Indicators: In this study Key Performance Indicators are defined. By monitoring them the indications of a low (perceived) service quality of Rostering Services can be assessed earlier and adequate measures can be taken sooner.

After implementing all quick wins, most of the complaints made by the Cabin Attendants will theoretically be (partially) resolved. The blocks in blue in Figure 1-2 represent the complaints which are partially covered by the quick wins. No quick wins are identified to improve the customer friendliness of the agents. However, some options generated during the brainstorming sessions can help to increase customer friendliness, for example training and evaluations.

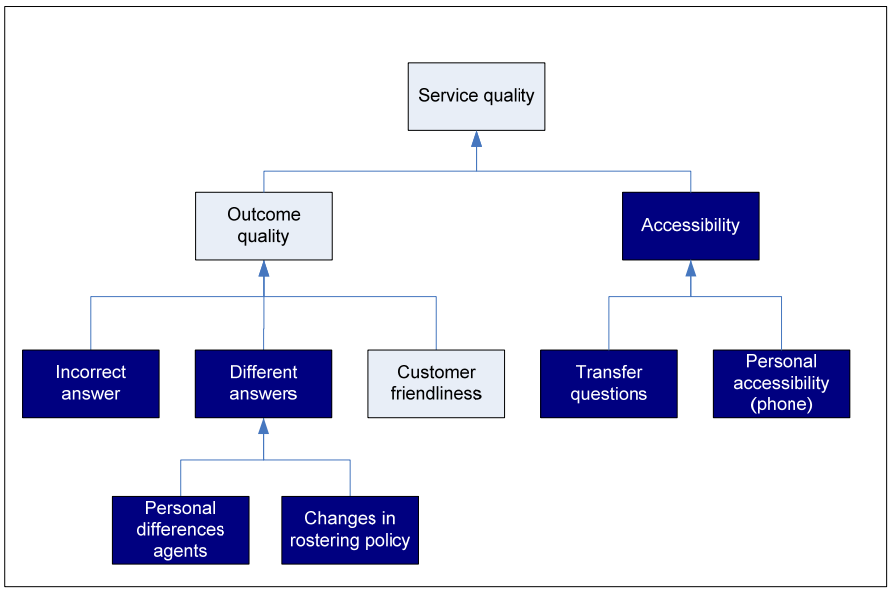

Figure 1-2: Problem areas (partly) covered by quick wins (in theory)

As most of the quick wins have only been implemented since a month, it is too soon to present the results of the quick wins on the (perceived) service quality. However it was possible to make a first indication of the success of the quick wins. An email has been send to all participants of the call back pilot in the first three weeks. In this survey questions about the call back pilot and flow chart among others have been posed. More than 90% of the Cabin Attendants which responded to the evaluation survey of the call back pilot stated that the accessibility by phone had improved. The respondents and other KLM employees reacted positively to the flow chart. However, it remains a problem that Cabin Attendants are not satisfied with MY KLM, the internal website of KLM. In the month of June the abandonment rate of Informants was 20%. This means that 20 % of the Cabin Attendants hang up the phone when they are put on hold, before the Informants has picked up the phone. This abandonment rate is still too high and will have to be decreased.

Though the first step has been taken to increase the (perceived) service quality there is still room for further improvements. In this research the following long term solutions have been identified to increase the perceived service quality:

- Educate Service Points so that they can take over questions from Rostering Service Agents during busy periods
- Rostering Service Agent Coach
- Use email as a medium to communicate recent information (news letter) to Cabin Attendants
- Specialisation agents (every agent has his own subject in which he has most expertise)
- Front office Roster Service Agents at P&A Service Point (these Rostering Service Agents process visits and possibly phone calls over there).
- Flexible Pre-Assignment agents which can be used as stand-in Rostering Service Agents
- Extra agents
- Analyze peaks, and schedule the number of agents based on these peaks. So if January is a busy month, make sure that there are extra agents available in January
- Cabin Attendants have to indicate the subject of their question they would like to email. Based on this subject the email is routed automatically to a party (P&A Service Point or Rostering Service Agents for instance)

After the implementation of the new rostering system (PBS), which will be introduced in September 2009, the results of the quick wins on the (perceived) service quality have to be evaluated. When further improvement is needed, the above mentioned options have to be worked out in more detail and it has to be analyzed whether implementation is possible.

PREFACE

This report is one of the end products for the course SPM 5910, the final course of the SEPAM MASTER program. The performed research has been conducted for KLM and TU Delft. The purpose of this research was to improve the perception of service quality of a Rostering Services department by improving the actual service quality. During this research different options have already been implemented. So the first enhancements have already been made. Recommendations for further improvements have also been made. I am very proud of the end result of this research, but I know that I could never have done it by myself. Therefore, I would like thank all people that have contributed to the end result.

First of all I would like to thank Johan van Lynden of the KLM. Each week he returned my paper in red, due to all his corrections. Moreover, he was always available to brainstorm on ideas with me. His critical view kept me sharp during my entire thesis.

I also owe much gratitude to my supervisors at the TU Delft. I would like to thank Joseph for all his tips and moral support. Scott for all his creative out of the box ideas and that his door was always open, even if you did not have an appointment. Alexander for all his advices during the different milestones and that his door was always open too, when you had succeeded to make an appointment.

I would also like to thank all the employees of KLM who gave me all their support during the research. The managers of Planning and Assignment were always willing to spend time on my research, for a brainstorming session and to evaluate my ideas. The different agents of Rostering Services were also very helpful during my research. Especially the RSA's have been very helpful in validating my ideas, brainstorming and helping to implement quick wins (like FAQ and the flow chart).

Last but not least I would like to thank my friends and family for their moral support and help in improving my report.

Den Hague, July 2009

Liselot Goudsmit

INDEX REPORT

APPENDICES

1 INTRODUCTION

KLM (Koninklijke Luchtvaart Maatschappij) is a Dutch airline, which operates all over the world (KLM 2009). KLM is the core company of the KLM group, which also comprises Transavia, Martinair and KLM Cityhopper. In 2004 KLM merged with AIR FRANCE resulting in the AIR FRANCE KLM holding. In financial turnover, AIR FRANCE KLM is the biggest airline company over the world. It transports the largest number of passengers and is the second largest air cargo operator. Within the holding KLM and AIR FRANCE have their own identity (one group, two airlines). This means that KLM can determine its own business activities as long as they are attuned to the AIR FRANCE KLM holding (KLM 2009)

KLM has approximately 8500 Cabin Attendants (CA's) (KLM 2009). A CA is a stewardess or steward. In this report (senior) pursers will also be called CA's. The differences between a steward(ess) and a purser will be discussed in section 3.2. All CA'sl have a roster which shows them their work schedule. For the CA's it is important to have a good roster, to keep work and life in balance (Partridge & Goodman 2007). The quality of the roster influences the quality of service provided by CA's, which makes it important that CA's are satisfied with their roster. According to Doerner et al. (2002) a good roster is an alternative for monetary compensations for the CA's. Moreover, when employees are not satisfied with their roster and therefore are less happy at work, it is likely that the quality of the services the employees offer to passengers on board decreases. This can result in less satisfied passengers.

Rostering problems for airlines are a well known phenomenon (Cappanera & Giorgio 2004). A roster without empty spaces is important for the company, because cost of personnel are the second highest cost next to fuel (Doerner et al. 2002; Kohl & Karisch 2004). Different pairings (a sequence of work assignments) have to be assigned to the crew. A pairing contains the duties of the CA (flights, rest periods, reserve blocks, annual leave, training periods and additional activities) (Konig & Strauss 2000). Different factors contribute to the complexity of rosters. For instance, CA's are not qualified to operate on all different types of planes (Doerner et al. 2002). The primary goal of Airline Crew Rostering is to maximize the CA satisfaction with their individual roster (within operational and costs constraints) and to provide a fair and even distribution of workload among all CA's (Konig & Strauss 2000).

Whenever a CA has a problem with his roster, he can contact Rostering Services. This study will focus on the service quality of Rostering Services. In the following chapter the current problem of the service quality will be explored.

1.1 PROBLEM EXPLORATION

Rostering Services consists of the following three parties: The Rostering Service Agents (RSA's), Informants and P&A Service Point. A CA can contact the RSA's whenever he has a problem with his roster. He can contact the RSA's by phone, email and by face to face contact. The possible transfers for requests by phone are presented in Figure 1-1. When a CA tries to call the RSA by phone he will first call a central call center. Most of the time the agent of the central call center will transfer the CA to an Informant. If the RSA's have their lines open, it is possible for the central call center to transfer the calls directly to the RSA's, however this has never been the case since February 2009. The manager of Rostering Services has determined a policy which states that the RSA's can only be accessed through the Informants (due to the high workload of the RSA's). An Informant can help the CA with general problems. When the CA has a specific problem, the Informant will transfer the call to a RSA. Because most of the calls are directed to the Informants first, the connection 'central call center-RSA' is presented with a grey dotted line. P&A Service Point can help the CA with questions about the software which shows their (unofficial) schedule and which is used to request flights. The central call center seldom redirects calls to P&A Service Point. Therefore, this connection is also presented with a grey dotted line. The RSA's, Informants and P&A Service Point together form the department Rostering Services and will be described in detail in section 2.2. No Automatic Call Distributors (ACD) (Whitt, 2002), is used when a CA calls with a certain request. The

RSA's and P&A Service Point are directly accessible through email and face to face visits. Therefore only communication by phone is presented in the figure below.

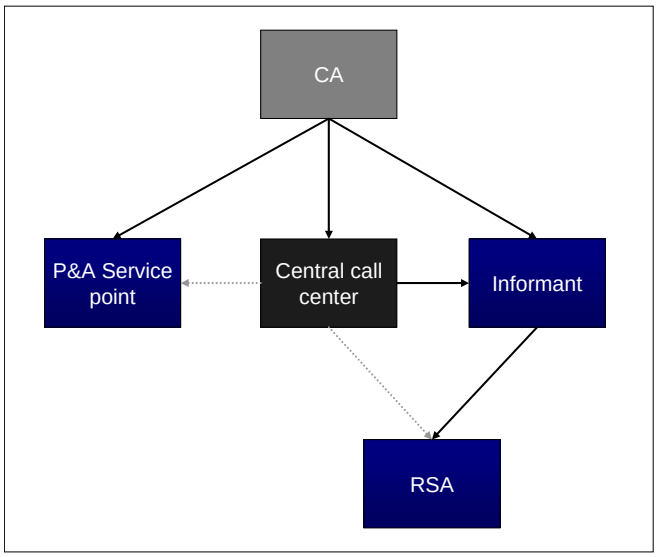

Figure 1-1: Possible transfers directions questions CA by phone

The RSA's can be seen as a contact centre. A contact centre is a call centre in which different multimedia contact channels are added to the telephone channel. Contact centres have been stimulated by internet, the demand of customers for more channel diversity and by potential for efficiency gains (Koole & Mandelbaum 2002). The goal of a contact centre is to give a good quality of service for minimal costs. The quality of service is dependent on the qualitative, psychological part on one side and the quantitative operational part on the other side (Koole & Mandelbaum 2002). This is shown in Figure 1-2. The qualitative part relates to the service perceived. Is a customer happy with his answers, is he satisfied with the service provided to him? The quantitative quality is operational and affected by for example the service accessibility. Service accessibility is influenced by waiting time and the number of customers that have to call back to get in touch with the contact center (Koole & Mandelbaum 2002). For managers of call centers it is important to focus on both types of quality (Gilmore, 2001).

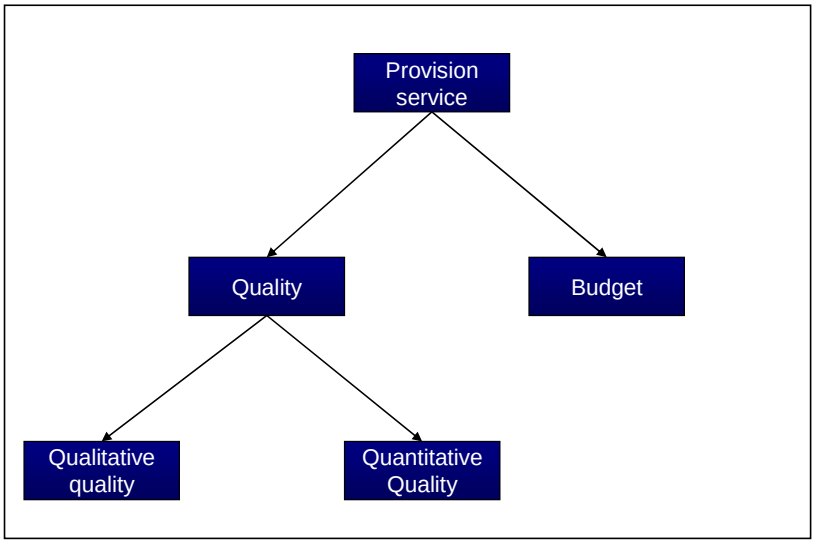

Figure 1-2: Quality of service contact centre (Koole & Mandelbaum. 2002)

KLM measures the employees satisfaction by an employees satisfaction survey the so-called 'Medewerkers Tevredenheid Onderzoek' (MTO). In this MTO survey, the CA's were asked to give their opinion about the accessibility of the RSA's and to which extent their expectations about the RSA's were met (Klunder et al. 2008). In the table below the results of this survey and the results of this survey in 2005 and 2006 are shown. In the last couple of years

approximately 25% of the CA's were negative about the accessibility of the RSA's. The same percentage of CA's stated that their expectations about the RSA's were not met. Since the roster is so important for the satisfaction of the CA about their work, a percentage of about 25% of CA's being negative about the accessibility and expectations of the RSA's is seen as a big problem by KLM.

MTO Survey 2008	Positive			Neutral			Negative		
	2005	2006	2008	2005	2006	2008	2005	2006	2008
Expectations about RSA met	53%	50%	55%	22%	22%	21%	25%	27%	24%
Accessibility RSA	54%	46%	53%	18%	22%	20%	28%	32%	27%

Table 1-1: Answers MTO survey 2005, 2006 and 2009

RSA Accessibility results MTO 2009	Positive	Neutral	Negative
Face to face accessibility (visits)	45%	37%	18%
Email accessibility	87%	9%	4%
Telephonic accessibility	31%	28%	41%

Table 1-2: Answers MTO Survey 2009

In the MTO research of 2009 the telephonic, face to face and email accessibility of the RSA's have been assessed negatively. These results are presented in Table 1-2. In total 41 % of the CA's are dissatisfied about the telephonic accessibility. As shown in Table 1-1 however, 25% of the respondents indicated that their expectations about RSA's are not met. A manager should try to decrease the gap between the expectations of customers and the actual service (Douglas & Connor 2003). This gap is also presented in Figure 1-3 on the next page. In this case the RSA's can only help the CA's within the constraints given by KLM. They can only make adjustments which are financially, operationally and socially acceptable by KLM (MyKLM 2009). Before making an attempt to decrease the gap, it is important to know whether the expectations of the CA's take into account these constraints. Otherwise their expectations are probably too high. It has to be analyzed how many people ask questions that cannot be taken into consideration by Rostering Services. When it is known by the CA's which options the RSA's have and more important what their limitations are, less people will unnecessarily contact the RSA's. Therefore expectations and knowledge also influence the accessibility problems.

1.2 MAIN RESEARCH OBJECTIVE

In Figure 1-3 a means-ends analysis of this research is presented (see also appendix A). A means-ends analysis can help to determine the scope of a project (Enserink et al. 2004). The overall objective is to satisfy/motivate CA's. This can be done for instance by increasing the perceived service quality of Rostering Services. There are also other possibilities to ensure satisfied and motivated CA's. The client of this research is the manager of Rostering Services. This manager is mainly interested in how the perceived quality of Rostering Services can be improved, since this is the main way in which she can enhance the satisfaction and motivation of CA's. Therefore this research will focus on increasing the perceived service level.

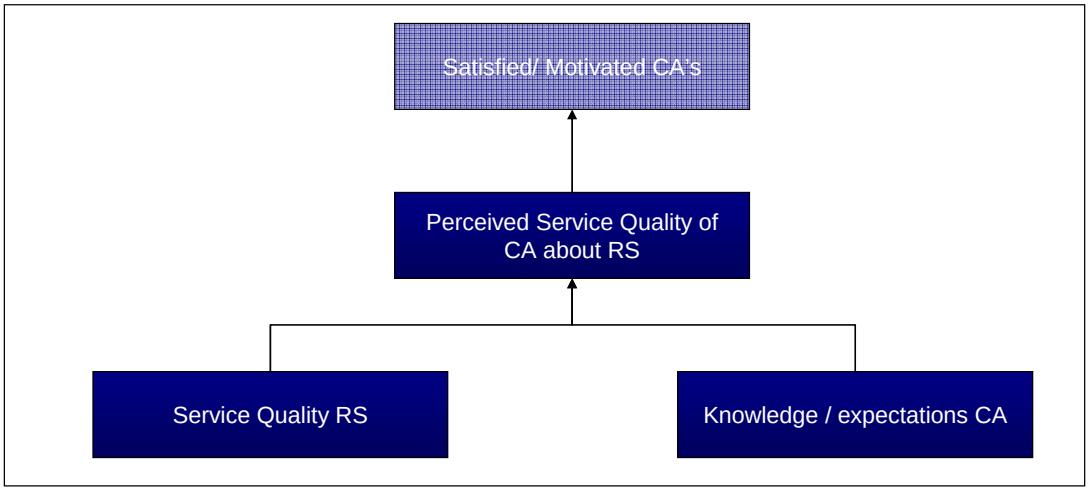

Figure 1-3: Means ends analysis

A system is a collection of elements which by working together produce a result which would not be achievable by the elements alone (Maier & Rechtin 2002). Rostering Services is a sociotechnical system, since programs are used to create the end product (CA's satisfied with their roster), but involvement of people if necessary as well. The most important characteristic of a sociotechnological system in contrast with technological systems is the tension between facts and perceptions about system behaviour. It is not the facts that count, but the perception of the client/users (Maier & Rechtin 2002). Therefore the objective of this study is to improve the perception of the CA's on the perceived service quality. At the end of this research an answer will be given to the following main research question:

How can the (perceived) service quality of Rostering Services for the Cabin Attendants be improved while taking into account operational performance and operational cost?

In this case the second definition of perception described in the paper of Davis & Heineke (1998) is used which states that perceived service quality equals satisfaction. Davis & Heineke (1998) concluded that improving the perception of waiting can improve the customers' satisfaction. Different elements within a firms' control influence the perception of waits: unexplained versus explained waiting time, uncomfortable versus comfortable, unknown versus known and unfair versus fair. Moreover, when a customer is anxious while waiting, the waiting time will be perceived to be longer. During this study however, these elements will not be taken into account. As presented in Figure 1-3 the perceived service quality will only be improved by improving the actual service quality and the knowledge/expectations of the CA's. Service quality depends on the *accessibility* (time a person has to wait before he is in contact with an agent) and the *value of the information* received in combination with how the *service is provided* (customer friendliness) (Aksin et al. 2007). The latter combination will be called 'outcome quality' in this report

Chapter 2 will present the current situation at Rostering Services. What kind of questions are being posed and to which parties? To know which types of questions are being posed some basic knowledge about the roster system is required and what types of constraints are imposed on the roster system and the parties involved with the roster. All these factors have been analyzed through interviews and observations within the Planning and Assignment department.

The results of the MTO surveys of the last couple of years show that approximately 25% of the CA's are not satisfied with Rostering Services (Haas & Klunder 2009). They have assessed the accessibility negatively and their expectations of Rostering Services are not met. In the MTO survey of 2009 more than 40% was dissatisfied with the telephonic accessibility of the RSA's. It is important to know why this many CA's are not satisfied with Rostering Services. Therefore the actual complaints of the CA's will be assessed in chapter 3. This will be assessed by interviewing (written and oral) the CA's. After determining the complaints, the causes for the

low perceived service quality can be analyzed. The perceived service quality is low when there is a gap between service quality and the expectations about the service quality. The factors that have caused this gap to occur will be determined through observations, data-analysis, surveys and interviews within the Planning and Assignment organization. At the end of this chapter a good overview of all possible causes for the lower perceived service quality is established.

These first two chapters will represent the analysis phase. After defining the different factors that play a role in the current (perceived) service quality the possible ways of improvements will be generated. This will be done in the second part of this study; the solution oriented part. Brainstorming, benchmarking and literature study have been used to generate many solutions. Since the accessibility problems had to be solved as soon as possible, quick wins have been identified and implemented during this study. The generated solutions, identified and implemented quick wins, and identified long term solutions will be discussed in chapter 4.

Chapter 5 will evaluate the implemented and recommended options. These evaluations are based on meetings, interviews and a survey. Chapter 6 will present the conclusions of the overall research and chapter 7 the recommendations. In the last chapter of this report, chapter 8, the reflection of this research will be presented.

ANALYSIS PHASE

2 CURRENT SITUATION OF ROSTER SERVICES

Before possible ways of improvement can be assessed, the current situation has to be analyzed. Therefore this chapter begins with analyzing the roster system. It is important to know how this works and to determine the type of questions posed by CA's. Secondly the capabilities of the different parties of Rostering Services and other parties involved with the roster system are discussed. Thirdly the question flow, which indicates how questions are transferred within Rostering Services, is discussed. At the end of this chapter the constraints of Rostering Services are presented. They have to be taken into account in the solution oriented phase.

This current rostering system will be determined by the creation of an organizational model. Models can help decision makers in an organization design process, because it can filter out the irrelevant real life complexity (Giaglis 2001). A Business Process Model (BPM) is a model which is used to represent the internal elements of a business process. Different internal elements are: activities needed including their dependencies, dataflow, goals, roles and actors involved (Lindsay et al. 2003). By making a model of the business processes, it is possible to experiment with alternative configurations and process lay-outs. An organization process is a set of logically related tasks that transfers input into output (of value by customer). For instance, a question is transferred into an answer. A workflow model is composed of tasks (Russel et al. 2005). A workflow is a set of business activities that are ordered according to a set of procedural rules for service delivery (Eshuis & Wieringa 2001). These set of activities produce an outcome that is of value for the customer (in this case CA) (Kwan & Balasubramanian 1997). Different elements are incorporated in a workflow model: tasks (activities), procedures, roles, actors, information object (data that is manipulated during task).

A business process model can be built for several reasons (Giaglis 2001),

- Understanding & Communicating
- Process Improvement
- Process Management
- Process Development
- Process Execution

The main reason for making a BPM in this study is to understand and communicate the business processes. The current processes have to be analyzed and by modelling them it is possible to communicate the gathered analysis. This communication enables experts to check whether the Business Processes are modelled according to reality. This is also called face validation (Sargent 1994). Knowledge about the current business processes is a prerequisite for analyzing different ways of improvement (Giaglis 2001), which will be done in chapter 4.

When designing a BPM it is important to make sure that the demarcation of the BPM is not too narrow nor too broad. When redesigning a business process too narrow, it is possible that the redesign only has small effects. There are several examples in process redesigning where the expected results were to decrease the business unit cost with 23 %, while in reality this was only decreased by 4% (Rosenthal et al. 1994). The reason for this small reduction in cost was the fact that several processes were overlooked. However, when the process is too broadly defined, it is difficult to have impact on a business unit as a whole (Rosenthal et al. 1994).

The Business Process models presented in this chapter are modelled from an organisational and functional perspective. The organizational perspective describes the *who, where* and *with what* of a certain process*,* while the functional perspective describes the type of activities (*what)* of a certain business process *(*Giaglis 2001). Since the focus of this research is on the Rostering Services parties, section 2.2 describes these parties from an organizational and functional perspective. The assigned role(s) of the different parties will be discusses (functional perspective) as well as other elements like the location, capabilities and schedules of these parties. These latter elements belong to the organizational perspective (Kwan & Balasubramanian 1997). In section 2.3 the other parties involved with the roster system are described only from a functional point of view. In section 2.4 the question flow of Rostering Services will be presented in a diagram.

2.1 ROSTERING SYSTEM OF KLM

A CA can influence his schedule in three different stages. In the first stage a CA can request a flight. Flights can only be requested 5 weeks in advance. If his requested flight is not granted to him, he can pass on his preferences by making requests for time-off days by the Informants or RSA's. When this did not work out he can contact his RSA in the published schedule period (see also Figure 2-2), to see whether there are still options for him to make preferred changes in his schedule. These different steps are shown in Figure 2-1. In the next section the different stages will be discussed in more detail.

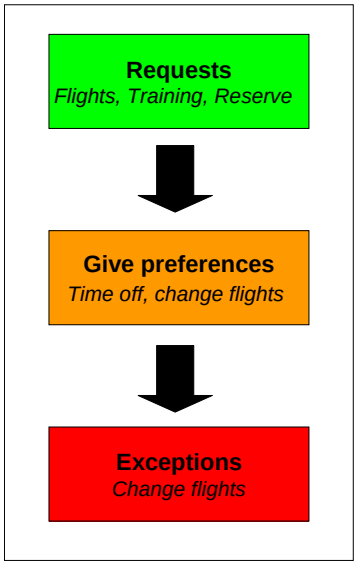

Figure 2-1: Steps for CA to try to influence his roster

Request period

A CA can give his preferences by requesting certain flights (destination and period) at least five weeks in advance (MYKLM). Five weeks before the actual flight (at the so-called request date) a CA gets informed whether his requested flight has been assigned to him. This method is described as a bid line method. Though there are airlines where this bidding is based on seniority (Kohl & Karisch 2004), KLM gives an equal chance to all the CA's to grant requests over time. It works as follows: All CA's have a request counter which counts the number of requests granted in a year to the CA. If a requested flight is allocated to a CA and he has actually flown the flight, the request counter will go up by type of contract (full time/ part time). This means that a request for a person with a 50% contract will count double on the request counter compared to a person with a full time contract. The rostering system assigns a requested flight to the person with the lowest request counter (if it fits in his schedule) (MYKLM 2009). When two people have the same number of points on their request teller, the flight will be assigned to the most senior person. When a person makes a request for a flight, he has to make sure that his request fits his schedule. Otherwise it is certain that the request will be denied. When a person does not have a flight in his concept schedule (because he did not request a flight for that period), he has to have a minimum of six, nine or twelve days (dependent on type of contract) open roster before he can make a request. In the request schedule the assigned trainings and ground duties are already shown (Leur et al. 2002). Due to the fact that these days influence the before mentioned number of open days in the schedule, trainings and ground duties are often assigned weeks before the request date.

Concept schedule

If a request of a CA is not complied with or a CA did not request a flight, the rostering program (Carmen) will assign a flight to the CA which will be presented in his concept schedule at around week three. The concept schedule is a period of three weeks (week 3-5). When a CA would like to make changes in his schedule and these changes are operationally, financially and socially acceptable, a RSA can make adjustments in this schedule. When a change in a flight will result in open days in the schedule of a CA which cannot be filled with another flight,

the change will not be made. KLM can make changes in the concept schedule (due to changed circumstances) as well. When a CA wants to request a flight in the concept schedule, the RSA will only make adjustments when the CA already has a planned flight in his schedule at that period. This is because a RSA does not want to change the number of open flights (not already grouped to CA). When a person's request is granted, his flight is shown one day after the request date in his concept schedule. Changes in assigned requested flight can only be made by KLM when the requested flight is cancelled.

Published schedule:
A CA has a published roster for the next coming two weeks (MYKLM 2009). This schedule is final and sent to his home address. In principle no changes can be made for this period. So a CA knows exactly when he has to fly and when he will have his travel leave. But there are some situations in which this is not the case:

- When a CA is on the reserve status
- When a flight is cancelled / delayed
- When a CA is ill

A CA contacts a RSA when he has a problem with a flight in his published flight schedule (if for example he has to sign in/out on a time which is not preferred by him). RSA's do not make adjustments in the roster three days prior to the Day of Operation (DO). This is because Crew Control is responsible for the daily operation of flights.

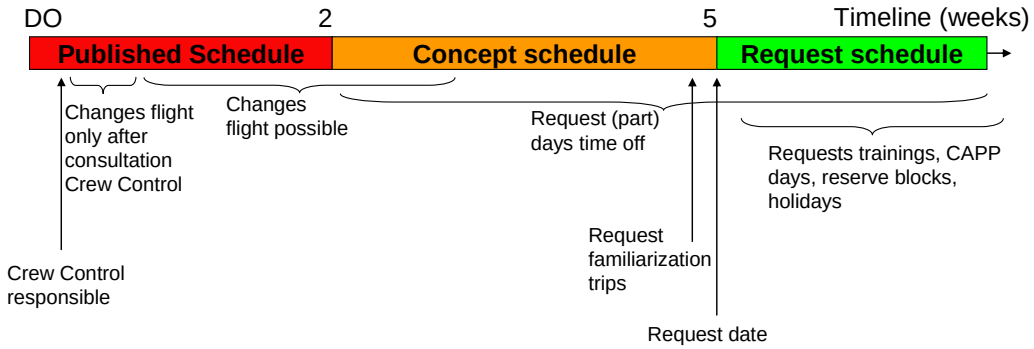

Figure 2-2: Different influence phases presented in a timeline

In the figure above the different influence phases are presented in a timeline. Only the first two weeks are published. Week three of the concept schedule can already contain several flights. The other weeks of the concept schedule are only filled with flights when the CA has requested flights. The period over more than five weeks is still open. Only assigned holidays and reserve blocks are shown in this period. At the bottom of the schedule the different types of questions the CA's pose during these periods are presented. Other important elements that play a role during the different phases are discussed below.

Counters
A CA has different counters. One of these counters is the CS counter. These are compensation days. With certain types of contracts CA's receive a quarter or half day travel leave for a flight. These partial days are transferred to the CS counter. CS days are also earned by the CA when he has flown during a day off ('bewilligd'). The CA can give his preferred data to schedule his CS days. However, KLM can ignore these preferred days and schedule the CS days in the roster of the CA at the time that is best for production. Other important counters are the VV counter (counts the number of already assigned request in a year), Reserve Counter and all the different holiday counters. JV (stands for 'Jaarlijks Verlof') is the holiday that every CA receives each year. When a person is ill during his holidays these days will be counted on the JZ (stands for 'Jaarverlof Ziek') counter. When JV days are not used within a year they will change into OD days (stands for 'Oude Dagen') and assigned to the OD counter. JE holiday days (stands for 'Jaarlijkverlof Extra') are assigned due to contract changes.

Reserve Blocks
During a period of five days a CA has to be available as possible stand in. The period after a reserve block a CA has to have an open schedule, because it is possible that he will receive a flight in day five of his reserve block. Approximately 70% of the crew will experience changes in his schedule after his reserve period (MYKLM 2009). That is the reason why a new reserve block system is implemented. In this new system a CA has a block of fourteen days. This makes the schedule more flexible. A so-called travel leave counter has been created for the new reserve block. Travel leave days of a flight assigned in the reserve block which overlap with the already published schedule can be put on the so called travel leave counter. This way the published roster does not have to be adapted due to the travel leave days overlapping. The travel leave counter will decrease when there is a gap between the reserve block and the schedule after the reserve block.

Holidays
The winter and summer holiday period of a CA is determined by KLM. If a CA is not satisfied with his holiday period he can try to swap with his colleagues on the internet. This is possible up to eight weeks before the planned holiday (Mars, 2009). When a CA could not find another CA to swap dates with, a CA can ask the RSA whether there is sufficient room in planning in his preferred holiday period to shift his holiday. The holiday days are represented in different counters.

Education / Trainings
A CA is trained and certified to operate on certain types of planes. When they have an 80-100 % contract they are allowed to operate a maximum of four different types of planes. With a contract below this percentage the maximum is three different types. There are two general trainings which have to be followed and validated each year and a training which has to be followed once in three years. A CA also has to follow a specific training for each type of plane. A CA has to operate on each type of plane for which he is certified at least once in six months. Otherwise he has to familiarize himself on that type of plane again. As presented in Figure 2-2 familiarization trips are scheduled after the request date at week five. A CA can contact a RSA when he sees that he has to familiarize himself on a certain type of plane. This way he can give his preferences for particular available flights. If a CA does not contact a RSA, Rostering will plan the CA on a familiarization flight. Rostering will be discussed in more detail in section see 2.3.4.

2.2 DESCRIPTION OF ROSTERING SERVICES

As mentioned in section 1.1 Rostering Services consist of three different parties, namely Informants, RSA's and P&A Service Point. In this section the differences between these parties will be discussed. Also the observations made while walking along with these parties several times are described.

2.2.1 INFORMANTS

Number of employees:	Between 1-4 (dependent on time of day)
Type of employees:	Replacement work (pregnant CA's)
Opening hours:	07:00 – 19:00 every day (including weekend)
Type of questions:	General questions
Legitime possible actions:	Part day free requests
Number of questions per week:	800-1400 calls (Telefoon RSA, KLM 2008)

Informants are CA's who cannot work as a CA (for example due to pregnancy). They are situated in a separate room on the ground floor on the Crew Centre (Bemanningscentrum) (separate from P&A Service Point and RSA's). Informants can only be contacted by phone. The CA can ask general questions about their time schedule to the Informants. Informants can put requests for a part day off in the system. Informally the Informants use a password of a RSA which allows them to put time-off requests of day(s) in the system.
The Informants use software (PLATO), different to the software used by the CA's (Plan & Go). In PLATO changes are directly shown, while Plan & Go has a delay of one day. This means

that when a CA has made a request, he has to wait one day longer to know whether the requested flight is assigned to him. Some CA's call the Informants, because the Informant can already see the result of the request of the CA in the system.

Example Questions:
- Can you already see whether my request for flight / holiday is assigned to me?
- I would like to make a split in my holiday how does this work?
- Requesting a block reserve, how do I do that
- What does this (cross, JVU, MNI etc.) mean in my roster?

Observations
It is observed that the Informants do not have a lot of interaction with other parties of Rostering Services. They give information to each other and check whether the information they provide to the CA is correct by asking each other. When they doubt whether the answer to a question really is no, instead of consulting the RSA's they recommend the CA to send an email to the RSA. New Informants learn how to process questions by the other Informants. It looks like the Informant do not have a high incentive to search for the correct answer and to put effort in checking whether their answer is correct when they are not sure. Moreover, Informants are not always aware of changes in policy. This could also result in incorrect answers.

2.2.2 RSA's

Number of employees:	Between 6-10 (sometimes less due to other obligations)
Type of employees:	Fulltime / Combination CA and ground employees
Opening hours:	08:30 – 17:00 working days
Type of questions:	Requests for changes in schedule (flight, days off etc, trainings), information questions (how does this work).
Legitime possible actions (e.g.):	Making adjustments in rosters (changing flights, trainings etc.) (Part) day free requests
Sub tasks:	Meetings with Unit Managers, coordinator P&A Service Point, Informants, etc.)

Number of questions per week: 100-300 calls, 1300-2100 emails, 400 visits

The RSA's work in different teams; each team exists of 2 RSA's most of the time. The CA's are divided over the teams. So in principle each CA has two personal RSA's to contact when he has a problem. The RSA's receive emails, phone calls and visits.
The RSA's are the only group that can actually make adjustments for the CA. When a CA wants to have changes made in his roster he can ask his RSA whether this is possible. A RSA evaluates the request of the CA on the social, operational and financial consequences (My KLM 2009). A CA can also make requests for assigning their CS (compensation days) to certain days.
The CA's are not the only customers of the RSA's. The different parties that also pose questions to the RSA are described in section 2.3.

Example questions:
- I have to sign in really early that day, is there another flight open with a late sign in time?
- Could you assign a CS day for me on that date?
- I would like to split the last 8 days of my holiday.

Observations
The RSA's have three different communication channels. This is sometimes difficult to cope with by a RSA. It is observed that RSA's are visited by people, when they are in the middle of an email. After this the phone suddenly starts ringing as well. This will result in disruptions when processing questions.

It has been observed that when the RSA's have a lot of new email; they tend to ignore the telephone and only respond to emails. There is an agreement that the RSA's have to respond to emails within 48 hours (MYKLM 2009). However, sometimes RSA's also ignore the telephone when they only have recent (received a few hours ago) emails in their inbox. When

a team has answered all its email, it will start helping other team(s) with processing their emails. RSA's prefer to communicate by email with CA's over communication by phone. Over the phone CA's can be very emotional, which is more intensive for the RSA's. In literature it is stated that email is a communication channel with less social cues, which results in a greater sense of anonymity (Bargh & Mckenna 2004).Therefore the RSA's probably experience a higher workload when answering the phone. In an article of Gans et al. (2003) it is described that phone calls should have priority due to the fact that a phone call has to be served immediately and emails can wait.

During different meetings with the manager the RSA's have expressed that they experience a high workload, due to the continuous inflow of new emails. Therefore they tend to focus on emails instead of the telephone, because they want to decrease the amount of work they have to do. It has been observed that the RSA's were complaining when they received new emails (even if their mailbox was almost empty). According to different studies stress levels in call center studies appears to be high. One study has indicated that call center agents have a stress level higher than a coal miner. In this study nearly 25% felt that stress in their job is high to very high. More than 60 % did not experience stress symptoms in their previous job, but since working in a call center 70% of the agents have experienced at least one stress symptom (Wallace et al. 2000).

Some RSA's are not focusing on helping the CA as best as possible. Example: During several meetings the RSA stated that they preferred not to present certain things on the site, because this would increase the number of questions they would receive. A CA can contact his RSA if holiday swapping was not successful. The RSA can contact Man Power to ask whether they have space in the preferred holiday period. Some CA's already contact their RSA for this type of question. Other CA's however, do not know that it is possible to ask the RSA to shift the holiday when swapping themselves did not work out. The RSA's did not want to present this possibility on the site, because they did not like to receive extra questions. It is also observed that when a CA visits the RSA's, all the RSA's keep looking at their computer. Both of these two examples indicate that the attitude of the RSA's is not always customer-friendly.

2.2.3 P&A SERVICE POINT

Number of employees: 1-2 (dependent on time of day).
Type of employees: CA and ground employee (1 week ground, 5 weeks CA)
Opening hours: 07:00 – 18:00 working days
Type of (answerable) questions: Problems with Plan & Go (like requesting)
Legitime possible actions: Only to give advice
Number of questions:

A CA can contact P&A Service Point by phone, email and visiting them. P&A Service Point answers questions about Plan & Go and PBS (successor of Plan & Go). This is the program which CA's use to request flights. When a CA likes to make a request in Plan & Go and makes an error, the program will give him a warning. A CA can contact P&A Service Point if he does not know what the warning means. Also afterwards, when a request is denied, a CA can contact P&A Service Point to ask why the request was denied. P&A Service Point has an open room in the Crew Centre next to the waiting area of the CA's. In their room they have a number of computers which can be used by the CA's.
P&A Service Point also answers questions about non schedule related items, such as Visum and passport related questions and intranet questions (MY KLM 2009).

Example Roster related questions:

- My request for a flight is bounced can you see why?
- I have warnings when I try to make a request, do you know what these warnings mean?
- I would like to swap with a colleague, but it does not work. Can you help me?

Observations
P&A Service Point contacts the RSA's by email several times per day. When they do not know the answer to a question, they ask the RSA's whether they can help them.
P&A Service Point receives several emails per week that should have been sent to the RSA's.

It also has been observed that P&A Service Point receives requests for changes in holiday dates (when swapping did not succeed within the term). P&A Service Point still sends these emails to Pre-Assignment instead of Manpower.

2.3 DESCRIPTION OF OTHER PARTIES

Different parties are involved with Rostering Services. These different parties are discussed in this section. The focus is on the relationship between these parties with Rostering Services and the CA's.

2.3.1 CA'S

KLM has approximately 8500 Cabin Crew Members (KLM 2009). There are four different types of functions namely:

- Cabin Attendants
  - ' Eenbander'
  - Tweebander'
- Assistant Purser
- Purser
- Senior Purser

Officially, only the first category Cabin Crew Members are Cabin Attendants. At KLM however, all the various Cabin Crew Members are called CA's in colloquial speech. In this report the colloquial speech (daily language) of KLM is used as a guideline. So the term CA is applicable to all Cabin Crew Members.
There are three different flight related goals for the CA's (SPL/NY 2008):

- Safety (by following safety rules/procedures)
- Satisfied customers (effective, efficient service)
- Punctual flight execution (good preparation, on time actions)

The Purser is in charge on the Boeing 737 airplane. On the other types of air planes the purser has to follow the instructions of the senior purser. When in charge, the (Senior) Purser is responsible for the end product on board (SPL/NY 2008).

2.3.2 CABIN CREW MANAGEMENT

Cabin Crew Management focuses on the relationship between CA's and KLM. By organizing different events, Cabin Crew Management tries to build up a relationship with the CA, to increase their commitment to KLM (Brama 2009)

Unit Managers
A Unit Manager (UM) is the managers of a group of CA's and is their first person of contact. The UM is responsible for the professional functioning of the CA (MyKLM 2009). Each UM has around 150-400 CA's. CA's contact their UM for different questions. When a CA has a special reason why he wants to make changes in his schedule which are not possible according to the rules, he has to go to his UM. A UM can decide whether the reason is special enough to make an exception to the rules. A UM has to contact the RSA to inform about the exception, so they can make the requested adjustments. Without the permission of the UM, a RSA cannot make exceptions to the rules.

Reintegration Managers
When a CA cannot fly due to certain circumstances (illness, trauma etc.) and after 6 weeks the prospects are not getting better, he has to contact a Reintegration Manager (RM). The RM will help to reintegrate the CA. Together they make plans how this can be achieved (starting up slowly, with restrictions etc.)
When a CA has not flown a particular plane for a year, the CA has to take the exam with respect to this particular type of plane again and make a familiarization trip. If a CA has been

inactive over a period longer than one year, he has to repass the general exams as well. So when a CA has been inactive for a while, he has to undergo many exams and familiarization trips. The RM will ask the RSA to plan these exams and familiarize trips in the roster of the CA.

2.3.3 PRE-ASSIGNMENT

Pre-Assignment is responsible for keeping track of changes in availability of CA (contract, pregnant, non-activity) and changes in contact information (address, number etc.) (Leur et al 2002). The CA's have different counters for holiday dates (see section 2.1). When a CA asks a question about his counter, the RSA will contact Pre-Assignment to ask what the correct number of points on the counter is. When a CA wants to change his JZ (compensation days for being sick during the holidays) the RSA will ask Pre-Assignment whether there is room to assign the JZ days to the preferred date/period. Pre-Assignment can swap the holidays in the system manually (Mars, 2009). So they will be contacted to do this when ' holiday swapping' does not work in Plan & Go (due to technical problems). Ground duties are assigned in the roster by Pre-Assignment as well (Mars, 2009).

2.3.4 ROSTERING

Rostering assigns or denies the requests of the CA's (at request date). Rostering fills the roster for the CA's who made a request and have an open roster for their request. If they cannot fill the open roster with flights, the request will be denied (Bouman 2009). Rostering is also responsible for filling the open rosters in week three (concept schedule). This is done every Wednesday. Rostering schedules the familiarization flights and the flight safety trainings. When they do not have sufficient time to do this, they ask the RSA's to do this for them.

2.3.5 MANPOWER PLANNING

The available production (scheduled flights) is given to manpower planning by the network department (Feenstra 2009) and changes over time. Manpower planning estimates how much FTE's are needed over time per CA function (per plane type) by looking at this production curve. This estimation is made half a year prior to the day of operation. Manpower planning analyzes whether the available number of CA's (which is a result of the different types of contracts, restrictions, holidays) is at the same level as the number of CA's needed (for production). For instance, if in September the production will have an increase of 20% compared to the previous month, the needed number of FTE also has to increase with 20% (assuming that the number of FTE was correct in August). Manpower planning will communicate the (extra) needed FTE's to recruitment (new employees are needed) and education (promotion CA's) (Leur et al.2002). Moreover, they give the holiday space availability per period to Pre-Assignment and communicate when this space changes. When a CA wants to change his OD (JZ days older than a year), JV, or JE days a RSA will contact man power to ask whether there is sufficient place in the preferred period of the CA (Steman 2009).

When a CA did not succeed in swapping with a colleague (only possible until 8 weeks before holiday), Manpower checks whether there is sufficient space in the required period to change the holiday period of the CA on his request (Feenstra 2009).

2.3.6 SCHEDULE PLANNING

As mentioned in section 2.1 each flight has a number of travel leave days. Schedule Planning determines how much travel leave days each flight will contain. They also make BIP pairings. A BIP pairing is a combination/package of short (European) flights which can be requested by CA's. So Schedule Planning wraps several flights together into a BIP (Beumer 2009).

In Figure 2-3 the organizational Business Process Model of Planning and Assignment is presented in an IDEF0 model. IDEF0 models are used to represent the functional (processes or activities) of an organization (Presley & Liles 1995). See appendix B for a detailed description of this model and the IDEF0 technique. There is a sequential interdependence between the different parties of Planning and Assignment. This means that the output of the task of one party is the input of another party (Mintzberg 2003). The CAO and WRR procedures presented in the figure below will be discussed in section 2.5.

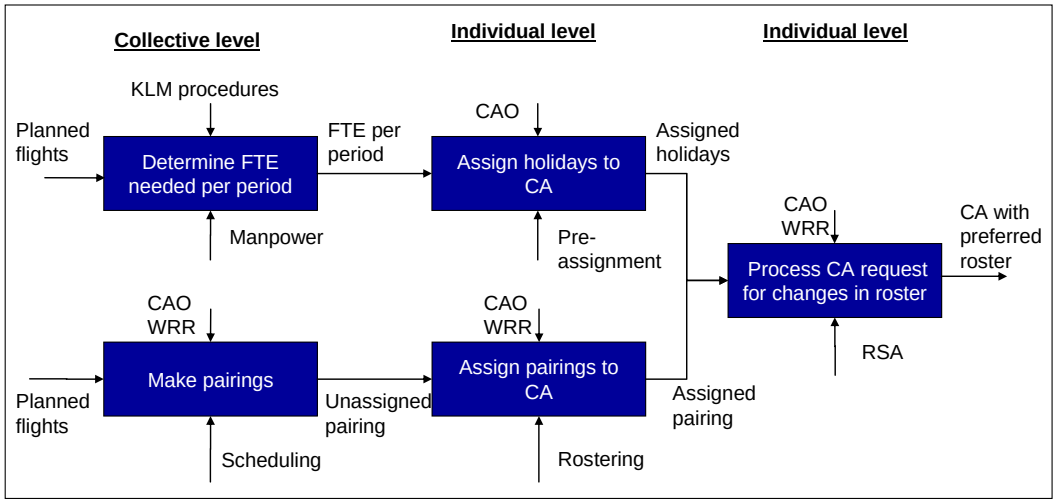

Figure 2-3: IDEF0 model Planning and Assignment

2.3.7 CREW CONTROL

Crew control is responsible for the flights of the published schedule (week 0-2 in schedule). They have to make sure that a sufficient number of qualified crew is on board. When a CA is delayed or ill on the day he has to fly, he has to contact Cabin Crew control (My KLM 2009). The available numbers of CA's is affected by CA's calling in sick. The available production can be changed as well, due to flight cancellation for example (Leur et al 2002). The outcomes of the matching process of Crew Control (matching available CA with available production) are sufficient numbers of qualified assigned CA's. RSA's can make changes in flights from day five and further (in published schedule). When they would like to make changes in the roster for day 1-4 of the published schedule they will contact Crew Control to ask whether these changes pose a problem to them.

Figure 2-4 shows how the different parties of Planning and Assignment are involved in the roster over time.

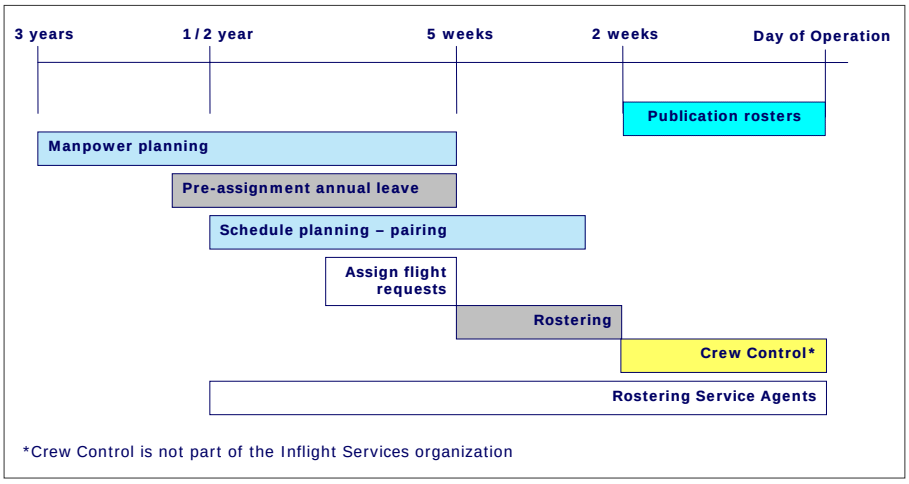

Figure 2-4: Involvement parties in roster over time
(Source: Inflight Services Cabin Crew Planning: 2009)

2.4 QUESTIONS FLOW

As described in section 2.2, each of the three different parties of Rostering Services has its own capabilities. Each party receives different questions. During observations it is analyzed what type of questions are posed to the different parties at this moment. This is presented in the figure below.

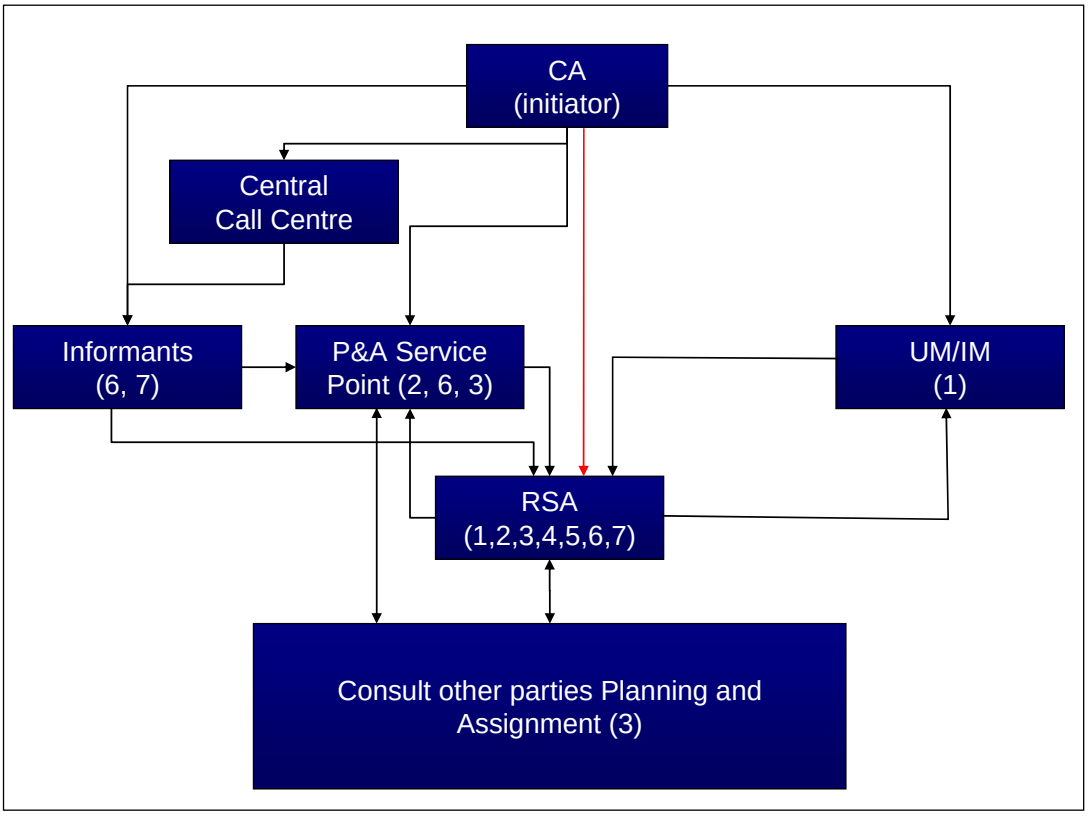

Figure 2-5: Question flow and capabilities Rostering Services

1. Personal problem/situations → exception in schedule (permission UM needed)
2. Problems Plan & Go
3. Holiday planning
4. Education/Reintegration
5. Request (flights, reserve blocks) changes in schedule
6. Information
7. Request time-off

In Figure 2-5 it is shown how the different types of questions of the CA flow through Rostering Services. There are 2 different types of parties involved in a transaction concept: the executor and the initiator (Barjis 2007). In the case of KLM, the CA is an initiator and a party of Rostering Services an executor. The different parties are represented in blocks and the numbers in the block show which type of question the party can process (capabilities of the parties). Arrows represent the different types of questions. The goal of this diagram is to present the *capabilities* of the different parties and the *questions* they receive.

None of the different Business Process Models as described by Giaglis and Kwan, focus on the capabilities of the different parties in combination with the question flow through the different parties (Giaglis, 2001; Kwan & Balasubramanian 1997). For instance: An IDEF0 model focuses on the different processes of a system. Petri Net focuses on the different states and transitions

of an entity in a system (Zakarian & Kusiak 2000). Therefore the model presented in Figure 2-5 is a combination of two different models, namely an object orientated model and an IDEF0 model. An Object Orientated model states the different activities (which can also be seen as capabilities) of the actors (Maier & Rechtin 2002). It also represents the attributes of the actors, which are not of interest in this model. The question flow between the different objects is not represented in an object orientated model. With an IDEF0 model the inputs and outputs of the processes are presented (Zakarian & Kusiak 2000). In this case a party receives a question and transforms this question into output by certain activities/processes that a party performs. With an IDEF0 model a modeller has to focus on the processes. Some actors can perform the same process. In that case these actors would be in the same block. This would not help in presenting the capabilities of the different actors. That is why a combination of these two models is used.

The capabilities of the parties are presented in the blocks. So an Informant can process question 6 and 7. The central call center only transfers calls and does not have the capability to answer a question related to the roster of the CA. Question 1 can be processed by the RSA, but permission of the UM is needed. A CA has a question due to a personal problem/situation which a RSA cannot help without bending the rules. A CA has to ask his UM whether his case can lead to an exception to the roster rules. A RSA can only make exceptions when an UM gives permission to abandon the rules. An UM however cannot make the adjustments in the roster himself. The agents from P&A Service Point are supposed to answer question 2. However, the RSA's also have the capability and it is observed that some of them do answer the question when a CA asks why his request was not granted.

The different communication channels (visits, calls and emails) are represented by different arrows. The red arrow only represents email and face to face communication. A CA can only directly contact his RSA by emailing or visiting him. As presented in the diagram, there are different routes a CA can take to pose his question. When it is not clear for a CA who he has to turn to, the probability that he will contact the wrong department of Rostering Services will increase. The CA has to be redirected when this occurs. The results of the survey which will be discussed in chapter 3 shows that redirection of questions influence the complaints with respect to accessibility (scored second together with waiting time as a cause for complaints about accessibility).It is observed that at the moment around 10 – 20 % (see appendix D) of the questions are posed to the wrong party (in the sense that the CA could have posed that question to another party resulting in less transfers).

Figure 2-6 presents what the process looks like when a question is received by a party of Rostering Services. There are three different processes when a question is received by a party. It is possible that a party redirects the question to another party. Another possibility is that the party consults another party of Planning and Assignment (the party that received the question from the CA gives the answer to the CA). It is also possible that the question is processed (and answered) by the party himself. These different options are possible for all the different parties of Rostering Services.

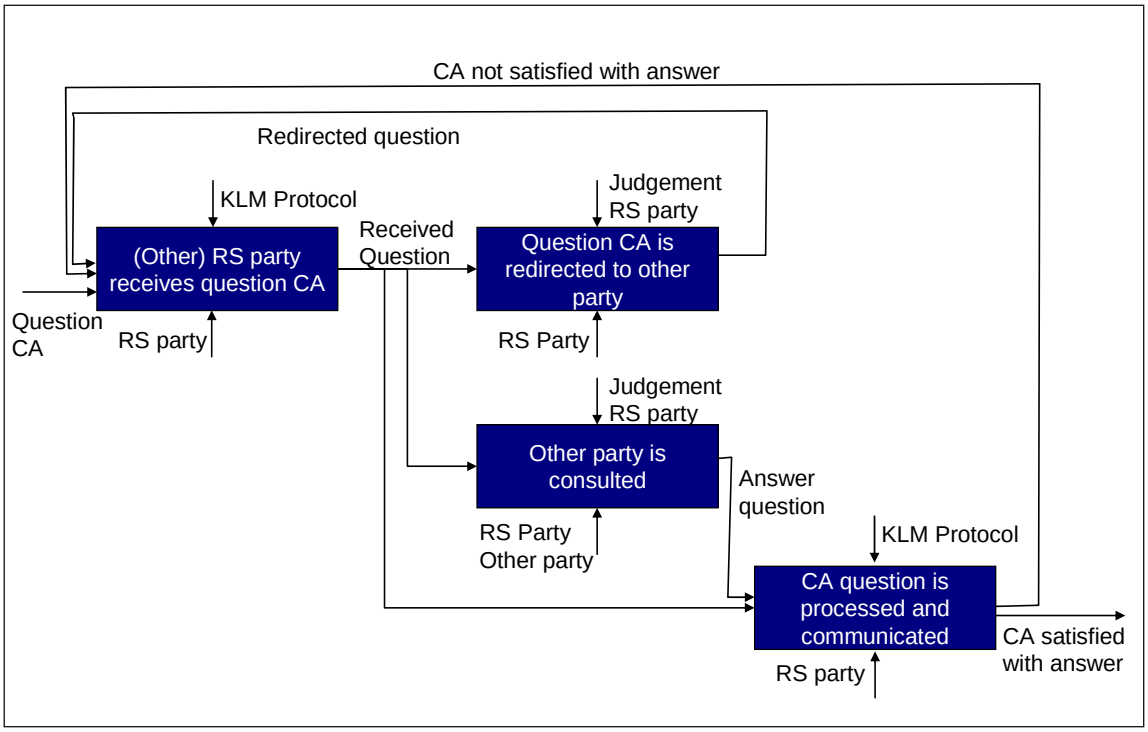

Figure 2-6 IDEF0: Questions processed at Rostering Services

2.5 ROSTERING CONSTRAINTS

When questions are being processed by Rostering Services, there are different constraints which they have to take into account. Therefore it is important to understand these constraints, as these constraints influence the limitations of Rostering Services. First of all there are constraints posed by the trade unions and regulatory authorities. These constraints will be discussed in section 2.5.1. Moreover the parties have to follow the policy of KLM regarding the operation of the roster. This policy will be discussed in section 2.5.2.

2.5.1 CAO AND OTHER REGULATORY CONSTRAINTS

There are different regulations that KLM has to take into account when rostering the pairings of CA's (Kohl & Karisch 2004). Horizontal rules influence an individual roster. The three most important horizontal rules deal with rest time between tasks, rest day patterns and restrictions of CA as defined below.

- Rest day Patterns: The working period (combination of tasks/pairings) is always limited to a particular number of days. At the end of such a working period, one to three days for European flights and two to nine days for intercontinental flights without any working activity have to be assigned to the CA with a fulltime contract (MYKLM 2009). The number of travel leave days is dependent on the type of flight. For instance: The bigger the time zone difference, the more extra rest days (RV days at KLM) have to be granted to the CA according to the CAO agreement and WRR regulation (Beumer 2009). When a CA has to sign in several times at 06:00 o' clock in a pairing, the CA has to receive more RV days. This rule has to be followed according to the EU-FTL law (FNV 2009).

- Rest time between tasks: These are rules that determine whether two activities can follow each other without a rest period. This depends on the activities (number of days, start time, end time etc.) (Kohl & Karisch 2004). *For instance when a CA has followed a training, he needs to have 16 hours of rest between his training and flight.*

- Restrictions of CA. Due to medical circumstances or traumatic experiences, a CA may have certain restrictions. These restrictions may relate to locations, departure hours and duration of flights.

Vertical constraints are not based on the individual roster level, but on a multiple roster level (Kohl & Karisch 2004). The following two constraints fall in this category:

- Qualification of employees: Employees have to be qualified to operate on a certain type of plane. In order to be qualified a CA has to pass a course and make a familiarization trip.

- The aim of rostering is to keep cost as low as possible while taking into consideration the quality of life of the CA's (Kohl & Karisch 2004).

2.5.2 KLM POLICY

The aim of this research is to enhance the perceived service level of Rostering Services for CA's. This section will focus on the service quality and the different trade-offs KLM makes regarding service quality in particular. The service quality of Rostering Services has to be improved while keeping in balance the operational performance (sufficient CA's onboard), the cost of operations and the social aspects. By social aspect KLM means the satisfaction of CA's (dependent on responsiveness, insight, influence) (KLM Planning & Assignment 2008). The aim of rostering is to keep cost as low as possible while taking the quality of life of the CA's into consideration (Kohl & Karisch.2004).

In Figure 2-7 the different goals of KLM regarding the operation of the roster are presented. In the white boxes the different ways to achieve the goals are presented.

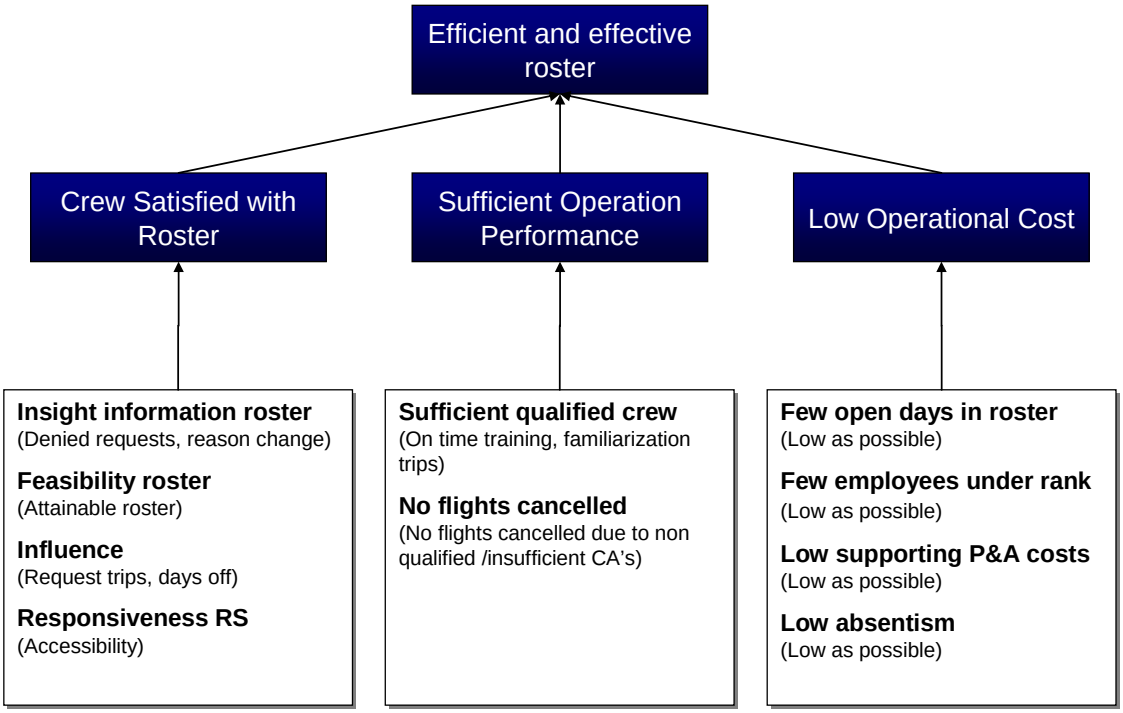

Figure 2-7: Objective tree Planning and Assignment (Planning and Assignment 2008)

Above three elements (crew satisfied with roster, sufficient operation performance and low operation cost) are also de basis for the answers by the RSA's on the questions posed by the CA's. For the RSA's it is most important that the schedules of the CA's are filled as best as possible. When a RSA receives a question to make changes for a certain flight, he determines whether this request is operationally, financially and socially acceptable. This means for

example that no open days (that cannot be fulfilled with another roster) are created when making the requested adjustments in the schedule of the CA's.

The visit and email accessibility has been assessed positively by the CA's in the employees satisfaction survey of 2009 (MTO) (Haas & Klunder 2009). CA's were however not satisfied about the telephonic accessibility of the RSA's. Therefore for KLM it is very important to improve the accessibility by phone. Literature also supports the fact that communication by phone is important, since this is better for developing and sustaining social relationships than email communication (Cumming et al. 2002). Research shows that people who are communicating with text (email and chat) focus more on task constraints and matter facts than the feelings and motives of the other party (Whittaker 2002). Production costs are higher for text based communication than speech based, because people find it harder to type than to speak. Therefore politeness is something that will be reduced in email (person has to write extra words, which takes too much time). A person with good typing skills uses more polite words in their emails than people with slow typing skills (Brennan & Lockridge 2006).Verbal communication is also two to three times more efficient than email communication. This means that the same tasks are performed in two to three times more time with email compared with speech communication (Brennan & Lookridge 2006, Whittaker 2002). This is due to the fact that there is no interactivity in email communication. This will prevent immediate feedback, which will decrease shared understanding (Whittaker 2002). Due to all these reasons KLM wants to improve accessibility by phone.

2.6 CONCLUSIONS

In this chapter the current situation of Rostering Services based on observations and interviews is presented.

The RSA's are the only party of Rostering Services that can actually make adjustments in the roster. P&A Service Point may help a CA when he has problems with Plan & Go. The Informants can give general information and can make time-off request for the CA's. Other important parties that are involved in the planning process are Rostering, Manpower, Scheduling and Pre-Assignment. Moreover a RSA has to contact UM's and Integration Managers if they intend to make exceptions in the roster rules.

In this chapter some of the constraints which have to be taken into account when making a roster, such as regulations and the policy of KLM, have been presented.

3 (PERCEIVED) SERVICE QUALITY FACTORS

The results of the MTO surveys of the last years show that 25% of the CA's are not satisfied with Rostering Services. The result of the MTO survey of 2009 even shows that more than 40% is not satisfied with the accessibility by phone of the RSA's. As described in the introduction, the perceived service quality is depends on the one hand on the service quality and on the other hand on the knowledge/expectations. Service quality is dependent on the *accessibility* (time a person has to wait before he is in contact with an agent) and the *value of the information* received in combination with the *service provided* (Aksin et al. 2007). In this report the latter combination will be called outcome quality. In order to improve the perceived service quality the complaints of CA's about Rostering Services have to be analyzed first. This will be assessed in section 3.1. After this the possible causes for these complaints will be presented in section 3.2. In section 3.3 the knowledge/expectations of the CA will be dealt with. This chapter will provide an overview of all factors which influence the (perceived) service quality.

3.1 CA'S' COMPLAINTS AGAINST ROSTERING SERVICES

In this section the complaints of CA's about Rostering Services are assessed. These complaints have been analyzed by means of a survey and interviews. Customers make judgments about quality of a service based on the following five dimensions (Douglas & Connor. 2003):

- Reliability: Ability to perform the promised service accurately
- Tangibles: Appearance physical facilities, material, equipment
- Responsiveness: Willingness to help customer and provide prompt (on time) services
- Assurance: Knowledge employees
- Empathy: Caring, individual service to customers.

In this case the tangibles are not very relevant, due to the fact that most CA's email their RSA or contact them by phone. Responsiveness and in particular accessibility (providing prompt services) is assessed by a survey. The advantage of using a questionnaire to gather this information is that with a questionnaire many people can be reached in a short time. Reliability, assurance and empathy are assessed by interviews and observations (section 3.1.2). During an interview more complex questions can be asked (Baarda & de Goede 2001). The results of the interviews and questionnaires are discussed separately in the following sections to prevent confusion on how the data is collected.

3.1.1 SURVEY

A study of Feinberg et al (2002) shows that it is not trivial which aspects influence the caller's satisfaction. Moreover, there is no clear definition of accessibility. Do for instance CA's mean that the opening hours of the RSA's are not sufficient? Or do they have to wait (too) long before they get in touch with the RSA? Before analyzing the accessibility of the RSA's it is important to know what the actual problems are according to the CA's.

In the survey different questions were posed about the accessibility of Rostering Services. The three different departments of Rostering Services (RSA's, P&A Service Point and Informants) were assessed separately. The set-up of the survey can be found in appendix C. The survey only had closed questions (except for the 'other' category), because a previous survey already contained open questions. Moreover, respondents do not prefer open questions, because it takes more time to answer the question in their own words (Nardi 2003). In the end 300 respondents filled in the survey.

From all the different parties the RSA's were contacted the most. Approximately 20 % of the CA's contact their RSA at least once a month. More than 37% of the CA's contact their RSA less than 2 times a year. Almost 70 respondents did not fill in anything about their contact

frequency with P&A Service Point. The reason for this is not clear, but it is possible that respondents did not answer this question because they do not visit P&A Service Point. If this is the case, than 200 of the total 300 respondents never visit P&A Service Point. And another 70 respondents visit P&A Service Point less than 2 times a year

For the RSA's the accessibility by phone is perceived lowest of the communication channels. Almost 50% of the respondents is not satisfied with this accessibility and have rated it bad or mediocre. The email accessibility however is rated much better. Whenever a respondent assessed the accessibility of a communication channel negatively, they were asked to divide a number of 10 points to the following 5 possible reasons.

- Transfers (redirected questions)
- Waiting time
- Personal contact
- Opening hours
- Different, namely…

Personal contact has scored the most points (682 out of 1480 points). Waiting time and transferred calls scored the most points after personal contact. They both scored approximately 300 (out of 1480) points. Opening hours and the 'different, namely…' category scored the lowest points.

Not many respondents were negative about P&A Service Point. The large number of indifferent CA's is probably due to the fact that not many people go to P&A Service Point for their questions. One third of the CA's did not comment on the different P&A Service Point communication channels.

Only 10 percent of the respondents were negative about the accessibility of the Informants. However, data about the (telephonic) service level of the different parties show that the service level of the Informants is much lower than the service level of the RSA's. The service level indicates the percentage of calls answered within 20 seconds (KPN 2009). While the average service level of the various RSA teams in one month is 69.4, the service level of the Informants is 37.79 (see table below). Based on the analysis of KPN data, it was expected that the accessibility of the Informants by phone would be assessed more negatively than the accessibility of the RSA's by phone. However, as mentioned before, 50% of the respondents were negative about the accessibility of the RSA's by phone and only 10% were negative about the accessibility of the Informants by phone.

KPN data	Calls offered	Calls answered	% Abandoned	Service level
RSA May 08	470	413	88%	66.67
Informant May 08	4076	2530	62%	26.09
RSA Dec 08	330	293	89%	69.40
Informants Dec 08	2389	1657	69%	37.79

Table 3-1: Service level determined by KPN

This table is shown as an indication that the service level of the informants is lower than the service level of the RSA's. More data (more months) about the accessibility by phone will be presented in section 3.2.

3.1.2 INTERVIEWS

Interviews were held at the Crew Centre of KLM. Random CA's were asked whether they had 10 minutes of time to answer some questions. In total 20 CA's were interviewed. Random CA's were asked to participate (some attention was paid to diversify rank, gender and age). First a respondent was asked to fill in the survey regarding the accessibility of Rostering Services. After this questions were posed about the perceived service quality. Interesting aspects gathered by the interviews are mentioned below:

Accessibility
Most complaints were made about the accessibility by phone. Due to the personal nature and the interaction (less time needed to receive answer) 50% of the CA's would prefer to use a telephone when accessibility by phone would be increased.

Personal RSA
The valuation regarding the importance of having an assigned personal RSA differed per CA. CA's who communicate by email did not think that it was important to have a personal RSA. At this moment other RSA's answer their emails as well (which is correct, because RSA's answer emails of other teams, when their own mailbox is empty). Other CA's stated that they do think that a personal RSA is important. However, when a CA had to make a trade-off between accessibility and personal RSA almost 80% chose accessibility.
The true value of a service is determined by what a user is willing to give up for obtaining the service (Maier & Rechtin 2002). So in this case it can be concluded that accessibility is important, as most CA's who stated that a personal RSA is important, choose for better accessibility in the end.

Communication channel RSA
Most of the CA's email their RSA. Some CA's would prefer to use the phone, but because they perceive the accessibility by phone negative, they send an email. In total almost 50% of the respondents prefer to call the RSA's instead of sending them an email. There are CA's who prefer to use the phone or visit, because they think that a RSA will try harder to help them when they use these communication channels. CA's also prefer to call, because a question can be processed faster due to the interactive nature of a telephone call and because of personal contact. This is applies to face to face communication.

Differences RSA
In an open question about the satisfaction rate of CA's over Rostering Services, 20% of the respondents stated that they encounter differences in answers of RSA's. One CA could actually give an example where two RSA's gave different answers to the same question. The first RSA did not want to give her a particular flight and the second RSA was willing to give this flight. In both cases the same flight was available in the system according to the CA.

Changes in policy
One respondent made a complaint about the changes in policy over time. In January for example KLM scheduled CS days in the roster of the CA's. It was not possible for a CA to withdraw the CS day when they were already scheduled. A lot of people complained about this, because a CS day which is suddenly scheduled can influence the plans of a CA negatively (CA cannot make requests on planned date). Due to all these complaints KLM decided that shifting in CS days was possible again.

Opening hours
Some CA's responded quite negatively regarding the opening hours of the different parties of Rostering Services. During the interview they stated that for instance the Informants have to be open during the weekend as well. At this moment the Informants are already open during the weekends. When checking at the internal website of KLM however, it was observed that it was not mentioned that the Informants are also open during the weekends.

Satisfaction
Some people filled in the survey quite negative, but during the interviews they were actually quite positive about Rostering Services. One respondent assessed the accessibility by phone negatively in the questionnaire based on one bad experience. The level of satisfaction or dissatisfaction of a current experience of a customer is highly influenced by experiences of similar services in the past (Douglas & Connor. 2003). It is also possible that the respondents did not really have an opinion about Rostering Services (and its accessibility) before the survey (Nardi 2003). So they just choose a rating without really thinking about it. During the interview, they are forced to form an opinion, due to the fact that different open questions are posed to them.

Figure 3-1 gives an overview of all the complaints made by the CA about Rostering Services during the interviews and survey. This figure will be expanded in the following section with

possible causes for the complaints and other issues that have been analyzed during observations and interviews of parties from Rostering Services and Planning and Assignment. Outcome quality will be presented in more detail in Figure 3-3 and accessibility in Figure 3-5.

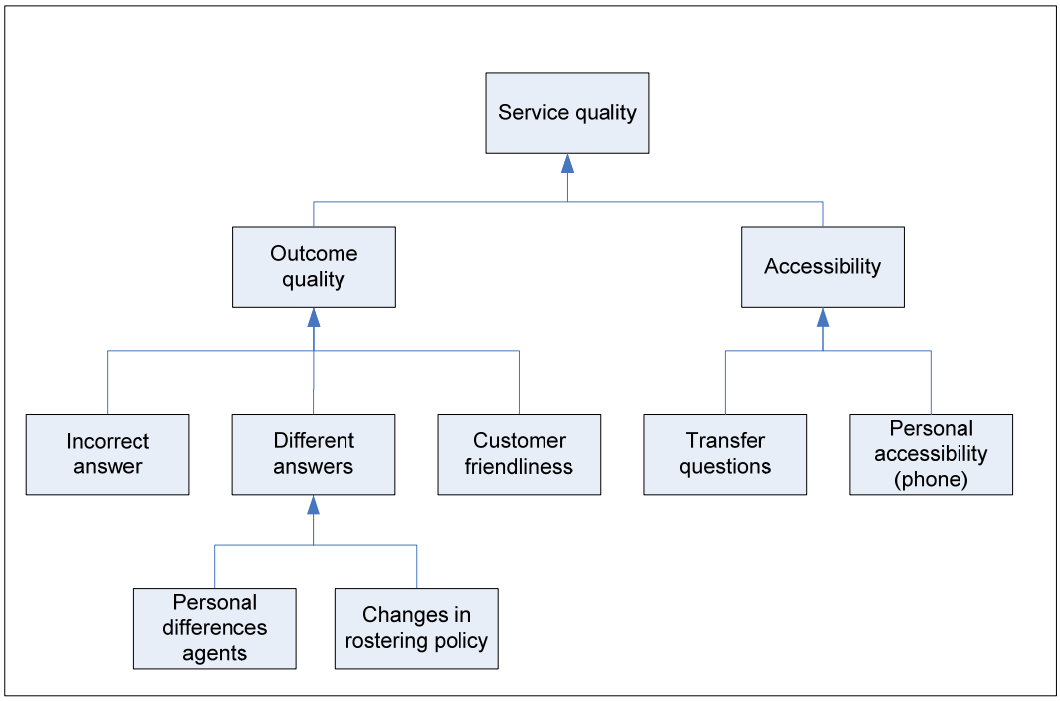

Figure 3-1: Complaints CA

3.2 CAUSES CA'S' COMPLAINTS

In the previous section the complaints of the CA's about Rostering Services have been presented. In this section the factors which influence the (perceived) service quality (and have caused complaints) of Rostering Services will be presented. These factors have been determined after observations, interviews and data-analysis. As the perceived service quality is influenced by the gap between service quality and expectations, the knowledge/expectation of CA's about Rostering Services will also be analyzed in this section. Outcome quality, accessibility and knowledge/expectations CA will be discussed in separate sections. The relationship between these three different aspects is shown in Figure 3-2. Insight gathered in this section has contributed to the solution oriented phase.

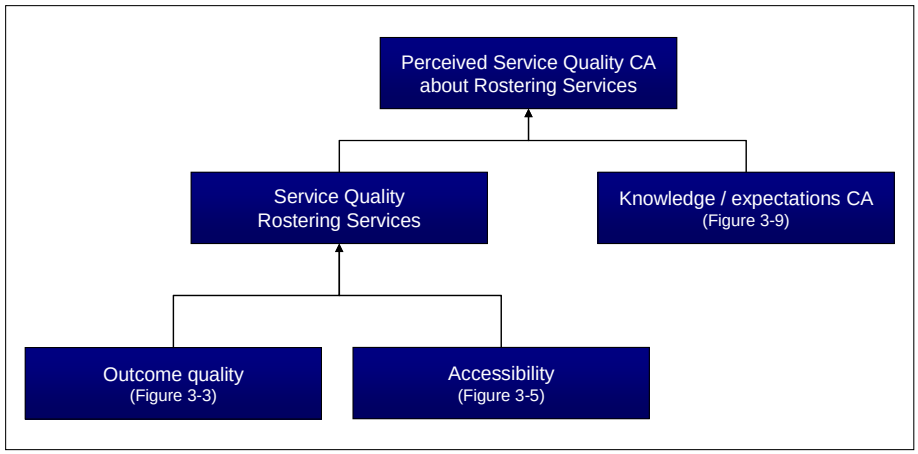

Figure 3-2: Relationship outcome quality, accessibility and knowledge/expectations CA

3.2.1 OUTCOME QUALITY

The different factors presented above have been added to the outcome quality factor presented in Figure 3-3 on the next page.

Incorrect answer
The Informants do not have sufficient knowledge to answer questions. One RSA is responsible for scheduling the Informants. This RSA also sends new information to the Informants by email, but does not check whether the Informants have read and understood the email. More interaction between the Informants and the parties of Rostering Services does not occur. Moreover, it has already been discussed in section 2.2.1 that the Informants do not have an incentive to check the validity of their answers. They are also not always aware of the policy changes. The latter is also the case for P&A Service Point.

Different answers
The CA's, UM's and Informants have complained about the differences in answers of the RSA's. There are various possible causes: First of all there is no policy at the moment how to process questions. No consistency check at the department is made. So it is not known whether all the agents give the same answer to a particular question. A consistency check is a post-activity. However, it is also possible to aim for consistence answers pro-actively by standardizing answers and skills. It is important to decrease the discretionary power of the RSA's as much as possible. However, since there will always be exceptions it will probably be impossible to totally eliminate the grey area.

Some questions are complex and require creativity. It has been observed that one RSA took 30 minutes to answer a question. This RSA tried to solve a problem in several ways, while other RSA's would probably have given up earlier (and therefore responded negative to the request of the CA).

Moreover different answers are also given due to the fact that policy has changed. This is due to the fact that sometimes policies are implemented without taking account of all consequences. This has been stated during the brainstorming sessions with the RSA's and by the manager of Pre-Assignment. Most of the time RSA's are not involved before a policy is implemented. Therefore the implemented policy does not take some important roster technical details into account. CA's start complaining, (and the RSA's as well), since they do not agree with certain aspects of that policy. (See CS days example of section 3.1.2). Moreover, sometimes policy is changed due to circumstances. For instance when there is not a lot of free space in a period, it is not possible to shift the holiday easily.

Customer friendliness
It has already been discussed in section 2.2.2 that the attitude of the RSA's is not always customer-friendly. Moreover, the RSA's did not receive any training how to deal with CA's when processing questions. Therefore it is possible that they do not have the optimal skills to be customer-friendly.

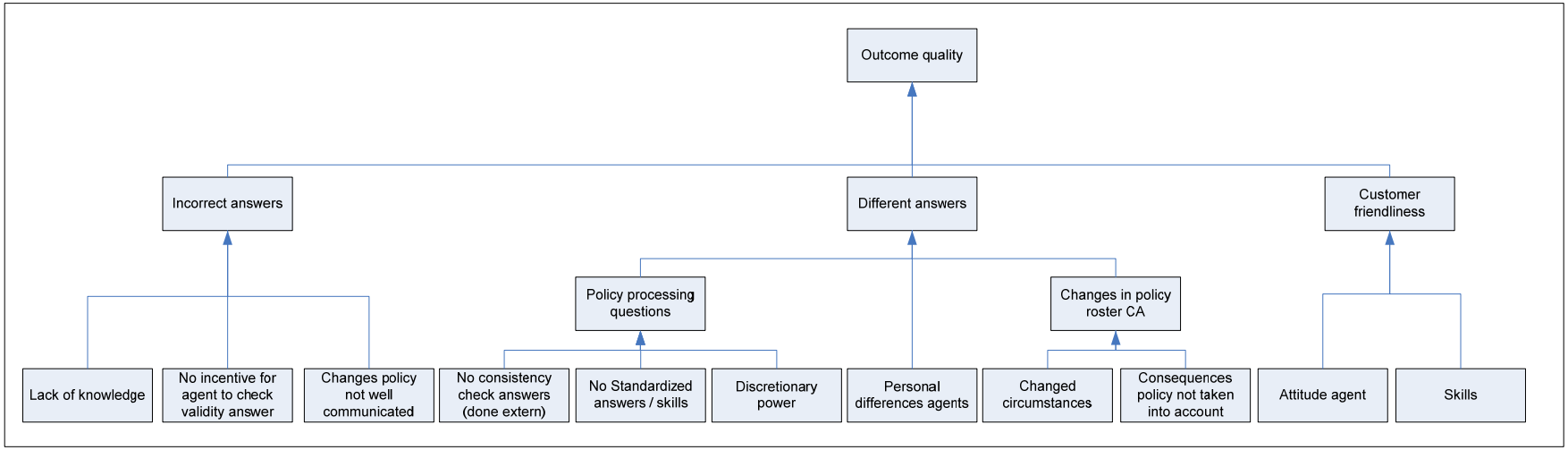

Figure 3-3: Outcome quality factors

3.2.2 (PERSONAL) ACCESSIBILITY

Call centers can be viewed as queuing systems (Koole & Mandelbaum 2002). Therefore queuing theory has been used to approach the accessibility problems of Rostering Services. This section will focus on the accessibility factors in general, which influence the accessibility of Rostering Services. Section 3.2.3 will present a quantitative analysis regarding the accessibility of the RSA's and section 3.2.4 a quantitative analysis for the accessibility of the Informants.

In the figure below a simple queuing system is presented. A customer arrives and has to stand in line before he is served. When a customer has been served, he will leave the queuing system. The most important attributes of a queueing system are the customers and the servers (Gross 2008). The customers are the persons or objects that enter a queueing system; the CA's in this case. The server is the object offering a service; in this case the RSA's or other agents of Rostering Services.

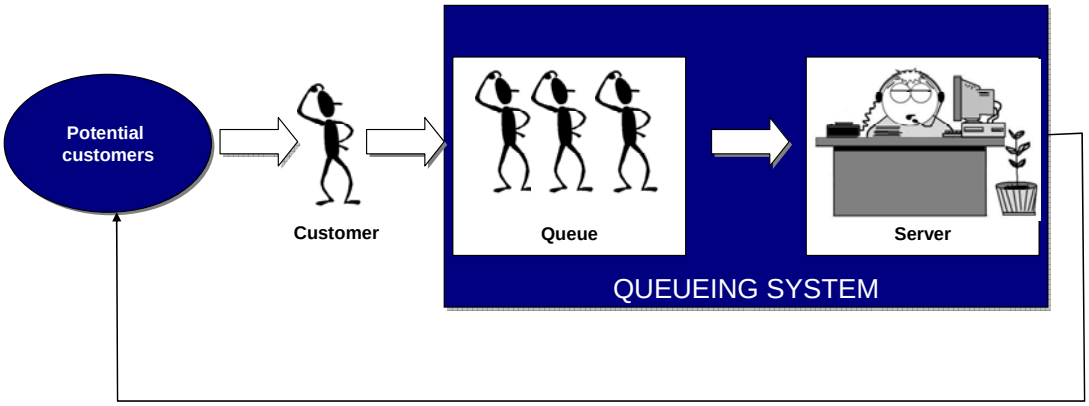

Figure 3-4: A queueing system

Whenever a customer arrives and the statuses of all servers are busy, a queue will be the result. In such a situation demand for a particular service is higher than there is facility for service available (Gross 2008). This can be caused for several reasons: There is a shortage in the number of servers, to prevent waiting is economically infeasible or there is insufficient space. Generally these problems can be solved by the expenditure of capital. Queueing theory can help to gain understanding in how much expenditure is needed to obtain the required service level (Gross 2008). Queueing theory includes mathematical formulas which help to determine the required number of agents, average waiting time and service level (Koole & Mandelbaum 2002).

A queuing model consists of the following attributives (Gross 2008).

- Arrivals
- Process time
- Numbers of servers (in this case agents)
- Capacity of the system
- Size of target group (potential customers)

In appendix G it is analyzed that the number of RSA's scheduled should be sufficient to cope with the number of questions arrived over the different points over the day. This means that accessibility problems are not caused by the fact that there are insufficient servers for the number of questions received. Most CA's indicated in the survey that they did not desire to expend the opening hours of the RSA's (see also appendix C). As the aim of this research is to improve the (perceived) service quality, by for instance reducing accessibility problems, it has not been analyzed whether cost reductions are possible. Due to the above mentioned reasons, a detailed queueing model has not been made for this research. Accessibility problems will therefore be analyzed from a soft system perspective. This means that the environment which influences accessibility is identified as complex and fuzzy. The

environment is analyzed with a structured systematic approach (by for instance making drawings) (Checkland 2000).

Arrivals
RSA's also tend to answer questions of a CA which should be dealt with by another party. As mentioned before, when the knowledge of the CA is improved, less unnecessary questions will be posed to the RSA (or other agents of Rostering Services).

On the other hand it could be helpful to reduce the number of questions posed to the RSA's. At this moment this is not possible as there is no flexibility to outsource questions. Training is needed for agents of P&A Service Point or Informants to be able to handle questions for the RSA's.

Immediate satisfaction is not the main target for the RSA's at this moment. When focusing on immediate satisfaction the aim of an agent is to close the call on the first contact. When more calls are closed on the first contact, less people have to pose another question to the agent. Moreover, immediate satisfaction is one of the main determinants of customers' satisfaction according to Feinberg et al (2002).

All the factors discussed above influence the quantity of arriving questions. However it is also possible to influence the distribution of arrivals. When all the questions arrive at the same time, the accessibility during that time period will be very low. Since the RSA's have periods of time in which they are more busy than others, this is an important factor.

Process time
The second attribute is the process time of the agents. This is the amount of time it takes to process questions posed by email, phone call or visit. The factors that influence this are presented at the right part of Figure 3-5. The skills of an agent influence the process time. For instance: Some RSA's can type fast while others have more difficulty with typing.

Another factor that influences the process time is the number of disruptions. As described in chapter 2 a RSA may be confronted with processing questions through various communication channels simultaneously. This means that it is possible that an agent is answering an email while receiving a telephone call and a visit at the same time. The agent has to stop processing his email to help the visitor. Afterwards he has to restart answering the email which will take extra time.

Numbers of servers, scheduled agents
The numbers of servers are determined by the schedule of the agents. The schedule of agents depends on the opening hours. It is possible to increase the opening hours and decrease the number of agents per hour (no need to hire extra agents). Last but not least, there are additional tasks that an agent (in this case especially the RSA) has to perform. The more additional tasks agents have to perform the less time is left in their schedule to process questions.

The capacity of the system and target group
The capacity of the queuing system identifies what the maximum number of customers in the queue is. The capacity for the queuing system of email and visitors can be seen as unlimited. Since no overflow is reported in the monthly reports of KPN it is assumed that the queueing capacity for telephone is also unlimited.

The size of the target group is much larger than the number of servers. For the RSA's for example, which has the highest number of agents, there are 8500 CA's for ten servers. Therefore, the arrival rate will not be influenced by CA's visiting the RSA's. The size of the target group is unlimited. As these two factors do not influence the accessibility, they are not presented in the figure on the next page.

Figure 3-5 represents all the factors that influence the accessibility problems of the Rostering Services

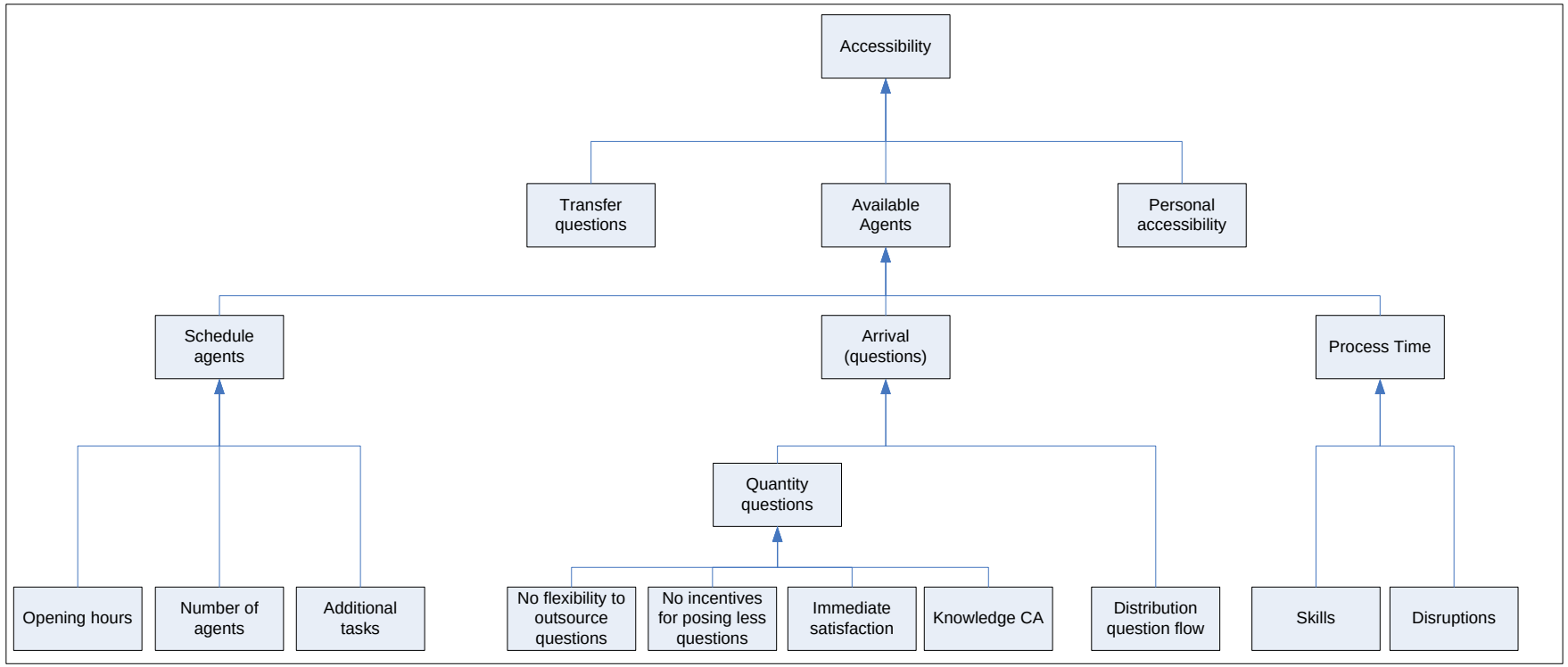

Figure 3-5: Accessibility factors

3.2.3 ACCESSIBILITY RSA

During the surveys and interviews most complaints were made about the accessibility of the RSA's. This section will focus on the actual service quality and the following section will focus on the accessibility of the Informants. It will be analyzed how much questions are received by the RSA's and whether the available number of RSA's is sufficient to process such a number of questions.

Number of questions

As discussed in chapter 3, approximately 20% of all the CA's represent the target group of the RSA's. Some of them pose several questions a day. Table 3-2 shows that in one month time there were some CA's that contact the RSA 8 times. RSA also answer questions which can be found on the internet. At this moment there is no incentive for CA's to pose fewer questions.

Frequency contacted	CA	Contact moments	Percentage
1	1518	1518	38.0%
2	577	1154	28.9%
3	221	663	16.6%
4	81	324	8.1%
5	30	150	3.8%
6	14	84	2.1%
7	12	84	2.1%
8	2	16	0.4%
Total	2455	3993	100%

Table 3-2: Frequency emails CA to RSA over the month May 2009

Availability agents

There is one document that shows which RSA's are scheduled each day. This document is kept up to date by one of the RSA's. However, the RSA's also have additional tasks and meetings which they have to perform and attend. There is at least one meeting a week which they all have to attain. While there is insight in the number of RSA's scheduled, there is no insight in the number of RSA's that are available to process questions during each time of the day. According to the RSA's there are points in time at which there are insufficient RSA's available to process questions. This creates work pressure for the RSA's that are processing questions during such periods of under capacity and the accessibility for visitors and callers will be worse during such periods.

In Table 3-3 the availability of the agents in the third week of June is presented to give an indication of the available RSA hours for a week. Appendix N explains how the available RSA hours have been calculated.

Availability	Monday	Tuesday	Wednesday	Thurday	Friday
8:30	8	8	6	7	4
9:00	8	0	0	6	4
9:30	8	0	0	6	4
10:00	8	8	6	7	4
10:30	8	8	6	6	5
11:00	8	8	6	5	5
11:30	8	8	6	6	5
12:00	4	4	3	3	3
12:30	4	3	3	4	3
13:00	8	6	6	7	6
13:30	8	8	6	7	6
14:00	7	0	6	7	6
14:30	9	0	8	9	8
15:00	8	0	8	9	8
15:30	8	0	7	9	8
16:00	10	0	7	9	8
16:30	10	0	7	9	8
17:00					
Half hours	132	61	91	116	95
Total available RSA hours	66	**30,5**	45,5	58	47,5

Table 3-3: Availability RSA's

The table below presents the number of hours the RSA's have to spend daily processing emails and visits. Since phone calls are hardly received in the current situation, they have not been taken into account in this table. The data-analysis which resulted in the number of questions and the averages for processing the questions can be found in appendix F. Table 3-4 presents the number of available RSA hours needed to process a certain number of emails and visitors. No lower bound is presented, as the number of scheduled agents is dependent on the busiest periods (Angus 1983). As it has not been possible for a CA to call the RSA directly in the period of observations, phone calls are neglected in the scenarios. Per day 30 to 41 RSA hours are needed to process the questions. This is the so-called design capacity, which can only be sustained for a relative short period (Reid & Sanders 2007). Therefore additional hours have to be added to include for example toilet breaks, this way the effective capacity is calculated. One study has identified that one third of the hours of an employee is spend on non-related work activities (Arnesen & Weis 2007). In a large best practice call center, an agent's utilization level averaged between 90 and 95% (Koole & Mandelbaum 2002). As the RSA's cannot be considered as best practice, but a utilization rate higher than 70% is also assumed, a productivity loss of 15% is used for the calculations presented below. With this productivity loss an average day needs five extra RSA hours and a busy day seven hours. Therefore it is advised to make sure that there are minimal 48 available RSA hours per day.

RSA hours needed for emails and visits	Average	Upperbound
Emails	300	400
Process time emails (seconds)	260	260
Total time needed to process emails (hours)	22	29
Visitors	90	130
Process time visitors (seconds)	330	330
Total time to process visitors (hours)	8	12
Total time needed to process emails and visitors (hours)	30	41

Table 3-4: RSA Hours needed to process emails and visits

3.2.4 ACCESSIBILITY INFORMANTS

In the survey not a large number of complaints have been made about the informants' accessibility by phone. However, people who would like to contact a RSA by phone, have to

call the Informants first in the current situation. Therefore, data about the accessibility by phone of the Informants has also been analyzed. In the table below the number of calls offered, abandoned and other important information about the accessibility by phone has been presented. Since the Informants are only called ten times or less during the weekend, the weekend days are not taken into account to calculate the average number of calls per day.

The service level presented in Table 3-5 presents the percentage of calls answered within 20 seconds (KPN 2009). The service level defined by another call center of KLM (Sygnific) is set at as follows: 70% of the calls have to be answered within 30 seconds (Diemen 2009). A similar service level is set by the general call center of KLM (Nijmeijer 2009). In Figure 3-6 the distribution function of the average delay per day is shown. Around 15% of the calls are answered within 30 seconds. This number is lower than the service level of the Informants (which ranges between 16 and 46). When there are certain calls with a high time delay of for instance three minutes, the average time delay will be high as well. It is possible however that some calls have been answered within 30 seconds. These calls are taken into account when calculating the service level based on individual calls. Therefore the percentage of calls answered within 30 seconds based on individual calls is higher than the percentage of calls answered within 30 seconds based on an average time delay per day.

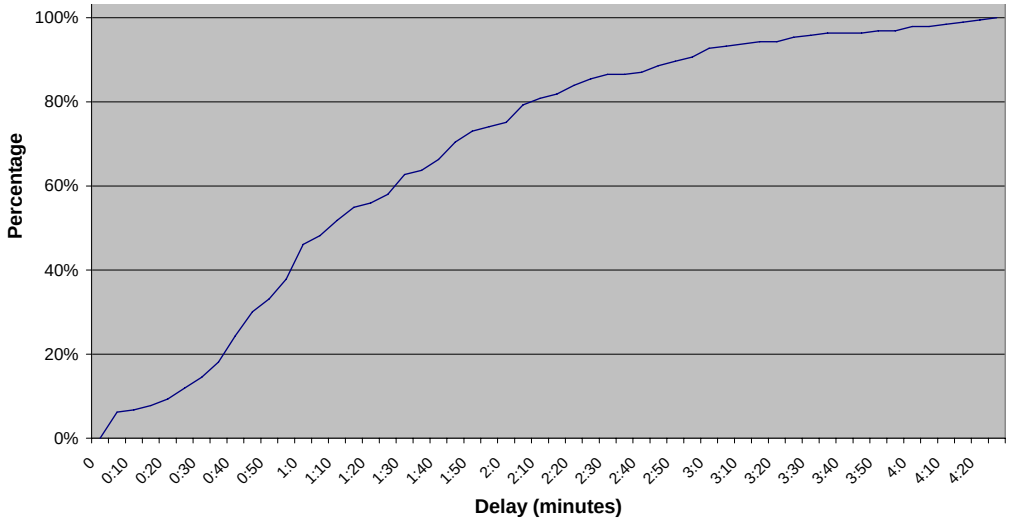

Figure 3-6: Distribution function of delay Informants

As shown in Table 3-5 the service level of the Informants is between the 16 and 46. This low service level is probably caused by the fact that between 20 and 45 % of the calls are abandoned. It is possible that this low service level also affects the perceived accessibility of the RSA's. Therefore it is important to increase the service level.

Month	Calls offered	Calls answered	Calls abandoned	Average duration	Average call per workweek day	Maximum calls	Service level
Feb-08	4574	62%	38%	3:59	216	338	16.28
Mar-08	5623	55%	45%	3:58	266	456	15.68
Apr-08	4304	65%	35%	3:24	194	417	26.11
May-08	4076	62%	38%	3:23	183	314	26.09
Nov-08	4517	63%	37%	2:53	248	427	23.31
Dec-08	2389	69%	31%	2:53	139	243	37.79
Feb-09	3619	77%	23%	2:45	188	288	23.57
Mar-09	2542	82%	18%	2:30	139	270	31.43
Apr-09	2731	80%	20%	2:24	122	272	45.55
May-09	3575	80%	20%	2:51	169	284	37.62
Average	3795	70%	30%	3:06	186	331	28.34

Table 3-5**:** Informants offered and answered calls

As presented in Table 3-5 the average duration of phone calls per month fluctuate between 2:24 and 3:59 minutes, which is a fluctuation of approximately 60%. The highest number of calls received on one day during a month is shown in the column maximum calls. For three months this number is higher than 400 calls. It is necessary to analyze whether the number of Informants is sufficient to process so many calls. It is not possible to create an extra workspace for an extra Informant in the short run since there is not sufficient space in the room. In Table 3-6 the number of scheduled Informants and available Informants is presented. Though during some part of the day there are four Informants scheduled, due to the breaks of the Informant in total there are only two hours in which the maximum capacity is used.

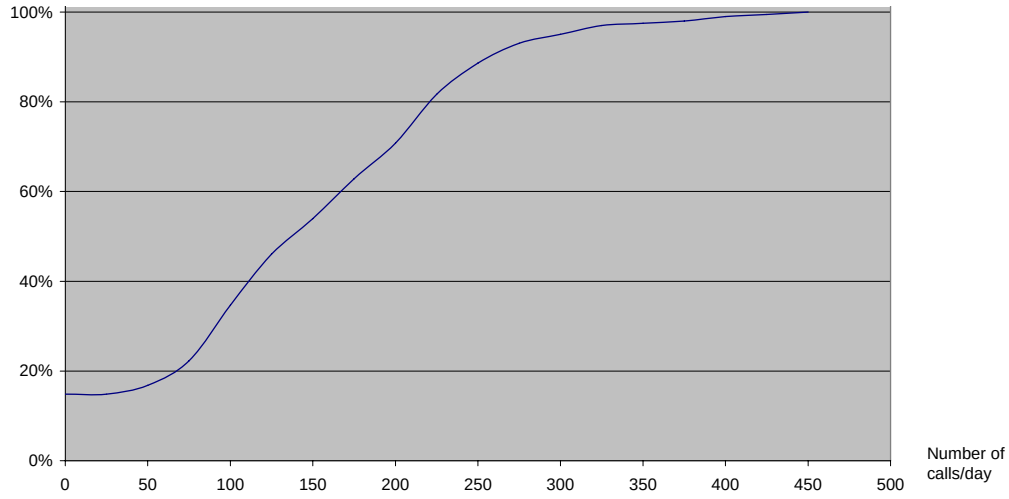

Figure 3-7: Distribution function received calls per day Informants

Time	Agents scheduled	Breaks	Agents working
7:00	1		1
7:30	1		1
8:00	1		1
8:30	3		3
9:00	3		3
9:30	3		3
10:00	3		3
10:30	3		3
11:00	4	Break 1	3
11:30	4		4
12:00	4	Break 2	3
12:30	4		4
13:00	4	Break 3	3
13:30	4		4
14:00	4	Break 4	3
14:30	4		4
15:00	3		3
15:30	3		3
16:00	3		3
16:30	1		1
17:00	1		1
17:30	1		1
18:00	1		1
18:30	1		1
19:00	1		1

Table 3-6: Scheduled and available Informants

The Informants are open from 07:00 o' clock till 19:00 o' clock. There is no data available on how the calls are received over time. However, according to the Informants most of the calls are received between 8:30 and 17:00. It could be possible that this is because of the fact that the RSA's are also only open from 8:30 to 17:00. In Table 3-7 it is shown how many questions can be answered when questions are received during the entire day, or during the opening hours of the RSA's. Since this number is also dependent on the process time, three different process times have been used to calculate this number. The average, highest and lowest process times are presented in Table 3-7. As these process times are based on average process times over one month, no extreme process times are used. It is therefore possible that the actual process time of a day is higher (or lower). With the highest process time 399 questions can be answered. Therefore even when calls would be evenly distributed over time (of openings hours RSA) it would be impossible to answer all questions. The questions however, are not equally distributed over time, they cluster. In a typical distribution, when 3200 calls are received in a day, 550 to 600 of them are received in the busiest hour. Moreover, no person will process the maximum theoretical calls in an hour over a longer period of time without burning out (Angus 1987). The above will result in an even lower number of questions that can be processed per hour. Therefore it can be concluded that the number of Informants is insufficient to cope with the number of questions received.

	Process time 186 seconds	Process time 239 seconds	Process time 44 seconds
Hours available per day	30.5	30.5	30.5
Agents hours available 8:30 till 17:00	26.5	26.5	26.5
Average phone call (seconds)	186	239	144
Phone calls per hour per agent	19	15	25
Answers entire day	590	459	763
Answer from 8:30 till 17:00	513	**399**	663

Table 3-7: Examples of theoretical maximal number of answered calls

In the figure below it is shown that the percentage of calls answered decreased when the number of calls increased. This also indicates that the number of Informants is not sufficient to cope with the number of questions received for certain 'busy' days.

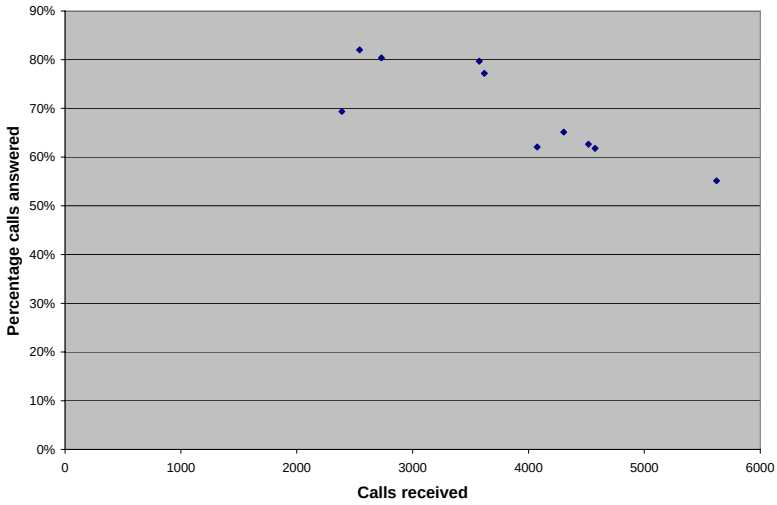

Figure 3-8: Relationship calls received and answered

3.3 EXPECTATIONS/KNOWLEDGE OF CA

When the knowledge of the CA is increased, the expectations will be more compatible to the pursued service quality of Rostering Services. There are almost no situations in which the expectations are made more compatible without improving the knowledge about Rostering Services. Since knowledge and expectations are interrelated in this study, these two factors will be discussed as such.

The expectations of the CA have been analyzed by interviews and observations. The knowledge/expectations about the limitations of Rostering Services have been assessed as well as the knowledge/expectations about the different tasks of the parties of Rostering Services.

Insufficient knowledge of CA
It is observed that at the moment approximately 10 – 20 % (see appendix D) of the questions are posed to the wrong party (in the sense that the CA could have posed that question to another party with a shorter path through the organization). This in combination with the

analysis during the interviews indicates that not all CA's have a good idea which party they have to contact to pose their questions about their roster.

During the interview CA's were asked what the tasks of various parties of Rostering Services are. Approximately 50% of the respondents had never heard of P&A Service Point (or Cabinet Support).

There were several CA's that did not know what the RSA's actually do. They think the RSA's still make the roster of the CA's, while in reality the RSA's only make adjustments in rosters. Some CA's have been unpleasantly surprised in the past that a RSA could not help them with their request. Some of them also stated that they know a RSA can make adjustments, but they are not willing to do this sometimes. Apparently, not all CA's accept that a RSA sometimes does not make an adjustment because they have to follow the roster rules. For instance, a CA had made a time-off request. However, a time-off request is not binding. The CA received a reserve block in her roster. She asked the RSA to withdraw the reserve block, since she had requested a time-out. A reserve block cannot be withdrawn from a roster. Moreover, her time-off request does not have to be granted as it is not binding. The CA knew that a RSA is able to withdraw the reserve block and was therefore disappointed that they were not willing to do this for her.

It has been observed during this study that RSA's denied 25 out of 74 requests by CA's. CA's that asked information questions have not been included.

It is observed that CA's ask for information that is also shown on the internal website of KLM. For instance in March all the CA's received eight days off. It has been communicated many times that when these days (locked days) were scheduled in the roster, they could not be shifted anymore. Still the RSA's received many requests of CA's to shift their locked days.

Causes lack of knowledge

CA's were asked during the interviews how many times they check the website. MY KLM is checked at least a couple of times per week by most of the CA's. Fifty percent of the CA's even check my KLM daily. MY KLM is assessed negatively by the CA's during the interviews. It is not easy to find the desired information according to them. Moreover in the Employee Satisfaction Survey of 2009 MY KLM satisfaction of MY KLM is rated also poorly. The result of this survey shows that 30% of the respondents state the information can be easily found on MY KLM. However, 59% of the respondents does not agree with this and is negative about this statement (Haas & Klunder 2009).

Also when MY KLM is improved, it may remain difficult to reach the CA's. During the interviews it became clear that some of them do not even know how to use a computer. Besides, ten percent of the interviewed CA's preferred a different type of communication medium.

Two CA's were interviewed who only have worked for KLM for 6 to 10 months. It was peculiar that both of these CA's had never heart of the different parties of Rostering Services. They told that during the basic training ten minutes was spent on Rostering Services. However, both of them could not remember what was told during those ten minutes.

During the brainstorming sessions, which will be described in the following chapter, it became clear that the attitude of the CA's is a cause for their lack of knowledge. During the brainstorm with the CA's, which will be described in chapter 4, it was stated that CA's do not actively search for knowledge. If they want to know something they do not really want to put effort in searching for information.

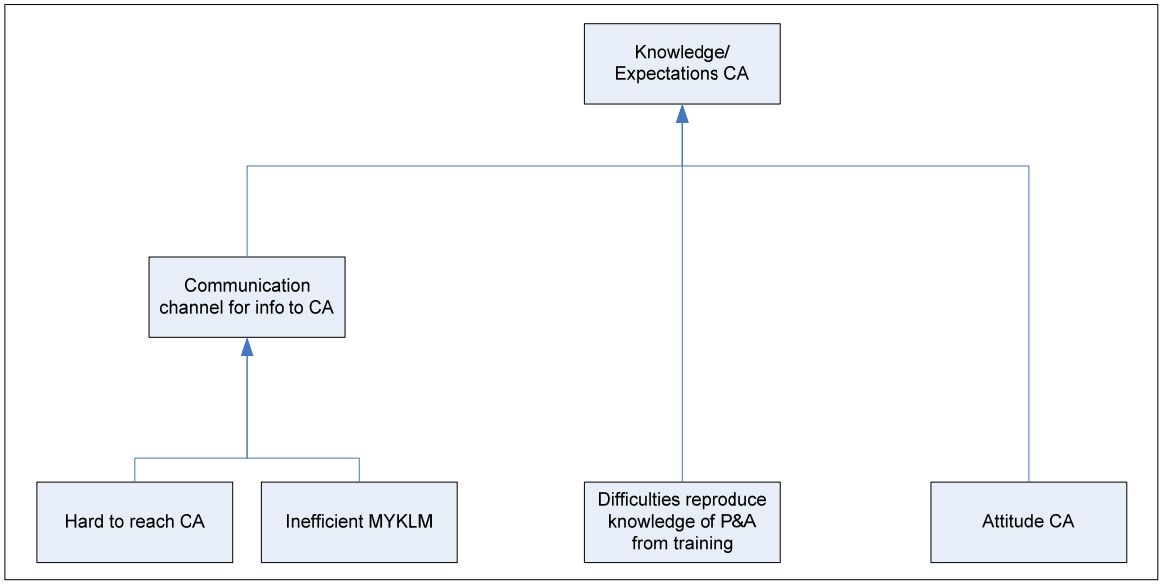

Figure 3-9 Knowledge and expectations factors

3.4 CONCLUSIONS

In this chapter the factors which influence the (perceived) service quality of Rostering Services have been identified.

First the complaints made by the CA's about Rostering Services have been identified by a survey and interviews. Complaints have been made about accessibility (personal contact and transferred questions) and about the outcome quality (differences in answers, incorrect answers and no focus of agents to be customer-friendly).

After this the possible causes for these complaints and for the low perceived service quality in general have been assessed by observations and interviews. Separate diagrams have been presented for causes affecting accessibility and outcome quality. The knowledge of the CA's also influences the perceived service quality. During interviews and observations it became clear that the knowledge of the CA's about Rostering Services is not sufficient. Possible causes for this insufficient knowledge have also been presented in a diagram in this chapter.

SOLUTION ORIENTED PHASE

4 WAYS OF IMPROVEMENT

The previous two chapters described the current issues at Rostering Services. There are different ways to solve problems. Problem solving can be done in algorithm and heuristic ways (Titus 2000). For algorithm tasks a known path to the solutions exists. In contrast with algorithm tasks, for heuristic tasks the path to the solution is not clear. Therefore, these types of problems are in need of creative tasks to find a suitable solution. This approach is also called the Creative Problem Solving approach (CPS) (Titus 2000). This research has used CPS to generate solutions.

4.1 GENERATING WAYS OF IMPROVEMENT

Two Creative Problem Solving (CPS) techniques have been used in this research: Brainstorming and external research. Literature study and Benchmarking are the two research methods used for external research. In this chapter the generated ideas by CPS will be presented. These methods will be shortly described in the following section.

4.1.1 BRAINSTORMING

Brainstorming is an activity where participants generate ideas related to a defined problem. The free-wheeling nature of brainstorming helps to open new avenues for research and analysis. The idea behind brainstorming is that one person's idea can stimulate another person to come up with better alternatives. When more ideas are generated, more qualitative ideas will be generated as well (Titus 2000). This is also the key principle of brainstorming (Shah et al. 2003). All ideas generated during a session should be captured. The participants need to have a high level of respect for each other's ideas (Shah et al. 2003).

The following rules are applied to brainstorming (Shah et al. 2003):

- No criticism
- Quantity is good
- Wild and unusual ideas are more than welcome
- Improve ideas of others, combine ideas… interact with each other

The first phase of brainstorming is the divergent phase. In this phase participants are stimulated to think "outside the box" and to create as much ideas as possible (Shah et al. 2003). Limits and barriers are removed during the divergent phase. Therefore it is important that no ideas are judged during this phase, because this will decrease the numbers of ideas generated (Titus 2000). Brainwriting is used for divergent brainstorming during this research. Writing down ideas could help to overcome the problem that persons have to wait until they can express their idea. This problem is also called production blocking (Paulus & Yang 2000). In this case the so called 6-3-5 method has been used. As it is described in Dym & Little (2004) six participants have to write three ideas on a sheet of paper and hand their ideas to their neighbor. The participants have to handover their ideas five times and there are therefore five rounds (Dym & Little 2004). In this case four participants were used, three ideas and three rounds. This means that per brainstorming session 48 ideas have been generated (4*3*4).
The 6-3-5 method is a progressive method, because ideas are generated in steps which are repeated several times. A progressive method is an intuitive method, which breaks down the mental block (Shah, et al. 2003). The disadvantage of this method is the fact that no group dynamics are created (Voorendonk 1998). Therefore, after the brainstorm the different ideas were discussed plenary. Sometimes judgments about different ideas are given too soon in the brainstorming process. This results in less generated ideas. By suspending the convergent phase, this risk will be reduced (Sim 2000). Therefore during the brainstorming session the

ideas were discussed plenary and adapted but not rated. During this discussion of ideas the participants were stimulated to think as Kaufman & Carter (1994) support: “Instead of saying No, because… it is important to say Yes, if…” .

As presented in the previous chapters, there are multiple issues that can be improved at Rostering Services. Ideas to solve these issues can not be created in one brainstorming session. Moreover, some issues can be better discussed in other groups. The mixing of different levels of participants is not desired, because this can influence the comfort level of the participants (Isaksen 1998). Therefore ideas for the following three subjects have been discussed in the groups presented below.

Different brainstorming subjects:

- Outcome quality (MT, RSA’s)
- Accessibility (MT, RSA’s)
- Knowledge of CA’s about Rostering Services (Informants, P&A Service Point)

4.1.2 EXTERNAL RESEARCH

External research is another way to generate ideas (Mansson 2004). Two different external research approaches have been used during this research: Research published literature and benchmarking. If external research is done too early in the process, it can pose boundaries in the mind of the user (Mansson 2004).

Reading relevant literature could help to come up with new ideas (Hirsch et al. 2001). In this case interesting subjects were channel management, specialization agents and coordination tasks.

Benchmarking is a method where ideas are generated by analyzing processes of a similar product. Different concepts of these processes may be used by the designer (Mansson 2004).

Generating alternatives	**Parties**	**Subject**
Benchmark	Prof. Ger Koole Customer care Central call center KLM Sygnific	Communication channels Work pressure Training Performance Indicators
Brainstorming	MT RSA, MT CA	Outcome quality Accessibility Knowledge CA
Literature		Channel management Specialized agents Coordination tasks

Table 4-1: Overview methods for generating solutions per subject

Process management

Parties do not automatically accept a problem definition and the outcome of a project, when they are not convinced by substantive arguments of the new design and miss their own views in the outcome of the project (Bruijn et al. 2002). Failures of many large-scale projects can be traced back to employees’ resistance (Bovey & Hede 2001). The RSA’s have blocking power in the sense that they can ignore new rules that could improve the service quality. Therefore it is important to involve the RSA’s during the entire process of idea generation and selection. The RSA’s have participated in a brainstorming session. Moreover, the quick wins have been discussed with three RSA’s early in the process. Adaptations have been made for the quick wins based on the input of the RSA’s during this meeting. After this the results have been presented to all the RSA’s at a RSA meeting. It was interesting to see that the representatives of the RSA’s offered more resistance during the first meetings about implementing the call

back option within a short period of time. This is also a reaction that could have been expected since resistance is a natural part of the change process (Bovey & Hede 2001).

4.2 DEVELOPED OPTIONS

During the brainstorming sessions and external research several ideas have been generated. The generated ideas however, are still unstructured, as they belong to different sub problems of the problem area covered during the brainstorm. Therefore the second phase, the convergent phase, identifies structure and patterns to the generated ideas. The idea behind a morphologic chart has been used to structure the ideas. A morphologic chart helps to identify a solution space for a design by identifying the functions and means to realize those functions. This information is presented in a visually appealing and usefully organized form (Dym & Little 2004). In this case the functions are represented by the factors which affect the perceived service quality (presented in chapter 3).

All the generated solutions can be found in a structured manner in appendix H. In this appendix the source of the solution is also presented. When a solution is generated during a brainstorming session, the name of the group with which the solution was generated is presented.

Complaints about the RSA's' accessibility by phone have been made for a number of years. KLM wants to see these problems resolved as soon as possible. Moreover the trade unions want to see the accessibility by phone improved within a short time period. Therefore this chapter will focus on solutions which can be implemented in the short run, the so-called quick wins. Many of these quick wins have already been implemented during this study. Some of them will be implemented within two months.

The next step is to evaluate the ideas, based on assessing them with quantitative and qualitative measures (Vidal 2004a). The primary objective of the evaluation phase is not to kill ideas, but to identify their strengths and weaknesses (Titus 2000). The most important evaluation criterion is the appropriateness of an idea. Does it actually solve the problem? Moreover also the viability of the idea has to be evaluated (cost and time needed to implement idea) (Titus 2000). Since the focus of this research is to improve the perceived service quality as soon as possible, the quick wins have been identified first.

How complex and precise options are evaluated, depends on the type of decisions taken. Evaluation cost increase rapidly with complexity (Habicht et al. 1999). In this case the financial and organization impact are relatively low compared to the effect. Therefore no detailed evaluation is necessary. A quick win is a solution which (partially) solves a problem (has effect) and can be implemented within a short period of time. A solution has been selected as a quick win if it does not take (too much) time or money to implement, has high acceptance, feasibility and is useful. This is based on the checklist defined by Titus (2000). Usefulness is used in terms of efficacy (does it actually solve the problem?). When a solution is costly, it will not be implemented within a short period of time (like six months), because budget is needed to implement the solution (which requires permission). Moreover at this moment there is no budget due to the financial situation of KLM. When there is no acceptability, solutions cannot be implemented within a short period of time, because this will result in resistance. An option which causes resistance has to be thought trough well in advance and therefore needs more time. Moreover, an option has to be feasible. When it is technologically not possible to implement a solution a solution cannot be identified as a quick win. The scores of the alternatives can be found in appendix I.

The following quick wins have been selected:

- Flow chart
- Call back option
- Extra Informant
- Informant supervisor
- RSA capacity management tool

- FAQ
- No more central call center
- Change in opening hours
- Policy RSA
- Monitoring KPI's
- Case discussions
- Immediate satisfaction
- Forwarding emails

The section 4.3 will discuss the implemented quick wins. Section 4.4 will discuss the quick wins which still have to be implemented.

After selecting and implementing the quick wins, a session with the business analyst of P&A, a RSA and the manager of Rostering Services has been held to score all the options. As there were 200 solutions, detailed scoring was too time-consuming. Therefore a Multi Criteria Decision Analysis (MCDA) has been used with two criteria to identify viable options. When taking a decision multiple criteria have to be balanced against each other. MCDA helps to balance these criteria by scoring the alternatives for each criteria and comparing the total scores of solutions (Belton & Stewart 2001). George & Manos (2006) advise to use an impact effect matrix in order to evaluate ideas generated during a brainstorming session. As the criteria used to identify the quick wins are also embedded in these two criteria (usefulness for effect and all other elements for effort), effort and effect have been chosen as criteria to rate all the options against. An option that does not affect (improve) a certain issue is not a solution. Therefore effect has been chosen as one criterion. The participants had to give points based on the effect they think solution will have on the issue to which it belongs. The other criterion used is effort. Effort is a combination of several criteria: Costs, implementation time, acceptance (which will influence the implementation time as well). The participants could give a score between 1 and 5. Moreover, non realistic options were identified as well. The scores can be found in appendix J.

In this appendix all quick wins have scored eight (out of ten) or higher. This gives an indication that the quick wins have been well selected (especially, because different people have rated the options). Moreover, there were only three options (out of approximately 200 options) which had similar scores and have not been identified as quick wins yet:

- Educate Service Points so that they can take over questions from RSA during busy periods
- RSA Coach
- Use email as a medium to communicate recent information (news letter) to CA

These options have not been identified as quick wins, as they cannot be implemented in a short period of time. As these options have been selected in the MCDA it is a good idea to analyze how these options can be implemented in the future.

There are also some options with high effect (score 5), but with a low score for effort. These options are not easy to implement. However, as their effect is so high, it is important to analyze these options in further detail in the future. The following options which have not been mentioned before belong to this category:

- Specialisation agents (every agent has his own subject in which he has most expertise)
- Front office RSA's at P&A Service Point (these RSA's process visits and phone calls over there).
- Combine Pre-Assignment and RSA's
- Extra agents
- Analyze peaks, and schedule the number of agents based on these peaks. So if January is a busy month, make sure that there are extra agents available in January
- CA has to indicate subject of question in email. Based on this subject the email is routed automatically to a party (P&A Service Point or RSA's for instance)

As the focus of this research was on improving the (perceived) service quality in a short time period, the options selected above have not been worked out in detail. However in the recommendation/business case a vision of what Rostering Services should do after this research is presented.

4.3 QUICK WINS IMPLEMENTED

In this section the quick wins will be discussed. The following quick wins have already been implemented:

- Flow chart
- Call back option
- Extra Informant
- Informant supervisor
- RSA capacity management tool
- FAQ
- No more central call center
- Change in opening hours

4.3.1 FLOW CHART

During the observations and interviews it became clear that the CA's have insufficient knowledge about Rostering Services. They do not know the capabilities of Rostering Services and the differences between the parties. For instance, CA's send questions to RSA's about Plan & Go (specialization of P&A Service Point). By communicating the capabilities of Rostering Service (what questions are useless to ask and will receive no as an answer for certain) to the CA's less unnecessary questions will be posed and more CA's will pose questions to the correct party.

The transfer of knowledge is a process which is difficult to manage. There are different elements that have to be taken into account when communicating (transferring) knowledge.
The time, attention and capacity of the recipient (in this case the CA) to read a communicated text or diagram is limited (Burkhard 2004). At the moment different important elements about the roster system are already published on the site (by means of a large text). However, it is observed that CA's still pose a lot of questions about things that can be found on the website. This is probably due to the fact that the text is too long and therefore the limited time/attention factor is not well taken into account. By using a flow chart information can be presented in a way which will not take a lot of time to read. A picture is worth a thousand words is a widely known and widely believed statement in our culture. (Larkin & Simon1987). Theory and research have support the efficacy of images in learning (Aintsworth & Loizou 2003). By presenting the important elements in a flow chart the CA's will see immediately what the limitations of Rostering Services are and to which party they have to go to with their question.

Before designing a flow chart, it is also important to taken into consideration in what situation the chart will be used (Low 1993): The CA will see the diagram on the internet for the first time. It is an isolated open learning environment: No interaction about the diagram is offered, so the CA has to understand the diagram easily. A flow chart reduces complexity, which makes it easier to understand in an isolated environment (Burkhard 2004).

In this case a flow chart is used. Flow charts represent instructions for employees and are an alternative for prose (text) instructions. Decision moments are represented in a flowchart. There are several studies that show that people perform better in task solving jobs when using a flow chart (Krohn 1983). The greatest advantage of a flow chart is the communication strength. Flow charts are easy to use (Aguilar-Saven, 2004).

Flow charts reduce the number of words (compared to prose instructions). Easy distinction between relevant and irrelevant information is made. A large number of possibilities (contingencies) is presented in a simple format.
A flow chart consists of decision boxes, alternative path ways and action boxes. In this case the decision boxes represent the subject of the question. The alternative paths are presented with single lines which lead the CA from one decision box to another. The action boxes (CA has to contact a certain party) are presented in the end after the arrow.

The CA can take a look at the diagram each time he has a question about his roster. This way he knows whether it is useful to ask his question and to which party he has to go for his question. When making an image to communicate knowledge it is important to use meaningful symbols/colours which reflect prior knowledge of the user (Moore et al. 1996). The colours green and red are used for representing whether it is useful to pose the question. These colours are based on priori knowledge/experiences and are therefore used in a meaningful way in the diagram.

There are two separate flow charts. One flow chart shows the possible questions about the roster from week 1 to 5. The other flow chart represents the other questions (about holiday, reserve blocks, requesting flights). These categories are chosen based on observations. Moreover two RSA's have checked the diagram to see whether the correct categories have been represented in the diagrams in a correct manner. This can be seen as face validation; Experts (RSA's, Informants and the Management Team) have checked whether the diagram represents reality (Sargent 1994). The flow charts which are published on MY KLM can be found in appendix K and an English version of one flow chart is presented on the next page.

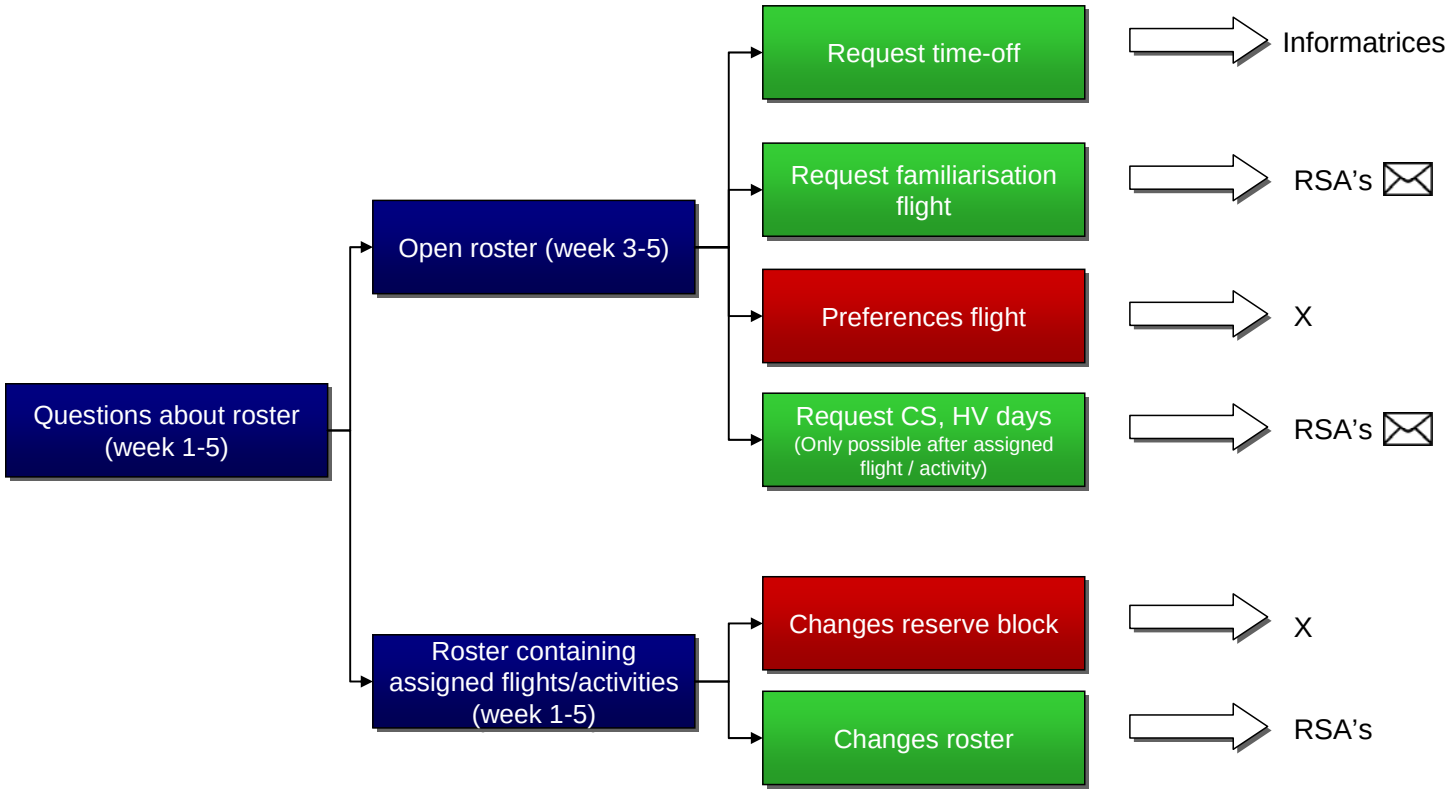

Figure 4-1: Example flow chart questions about roster for CA's

4.3.2 CALL BACK OPTION

The call back option has been generated during a brainstorming session with the representatives of the Management Team and also during the brainstorming session with the RSA's. The idea behind the call back option is that instead of having inbound calls from the CA's, only outbound calls will be made. Inbound calls are the calls initiated by a customer (CA). Outbound calls are initiated by the agents (RSA' s) (Aksin et al. 2007). Inbound calls are more difficult to manage, because the number of incoming calls per hour varies over time. The big advantage of having only outbound calls is the fact that Rostering Services is in control of the arrival pattern of calls. Therefore it is possible to separate the telephonic communication channel from visits and email. The RSA's are either calling back CA's or are processing emails and visits. So the only disruptions an RSA will encounter are the visits of CA's and UM's when processing emails. Fewer disruptions will positively influence the efficiency of the Rostering Services Agents.

The medical world experience problems with their appointment scheduling system, such as long waiting times, high rates of cancellations and no-shows. The medical world is interested in solving this problem by open access. In contrast to traditional systems the idea of open access is that most time slots are offered on the day of operation (Murray & Tantau 2000). So the trend of the medical world to solve accessibility problems is directed at the 'just-in-time' principle. The call back option is an opposite trend; instead of getting in contact by phone with a RSA immediately, a time slot reservation has to be made. At KLM accessibility problems are caused by fact that all communication channels arrive simultaneously. This cannot be solved by open access, as this does not streamline the communication channels. The call back option however does and therefore is a suitable option to solve this problem.

A call back option pilot has been launched between the second week of June until the end of July. The CA can make a telephonic appointment by calling the Informant. The CA will pose the question he would like to ask the RSA. After this there are three possible actions:

- The Informant can answer the question
- The Informant recommends the CA to send an email to his RSA
- The Informant will reserve a time slot for the CA.

An Informant is able to give general information to the CA which will result in the first action. There are some questions which can be processed more efficiently by mail, since these questions are not very complex and do not require a lot of interaction. Some examples of these questions are:

Could you split the last 8 days of my holiday?

Could I have a CS day at that date?

Moreover there are some questions for which a RSA is an intermediary for some departments of Planning and Assignment (like Pre-Assignment and manpower) and the CA's. The RSA's do not actually process the questions, since they do not have the required information.

I could not swap my holiday. Is it operationally possible to change my holiday date into my preferred date?

Could I have my JZ days at this date?

As discussed in section 2.3 the first question is processed by Man Power and the second question is processed by Pre-Assignment. The RSA forwards the email of the CA to these parties and sends the answers of the parties to the CA. Due to the efficiency of forwarding such questions, it would be recommended to CA's to send an email in such cases as well. This is also shown in the flow chart presented in subsection 4.3.1.

CA's with more complex questions will be given a time slot reservation. There will be a morning and an afternoon block in which a CA can reserve a time slot. The CA has to make the reservation 5 minutes before the block begins. The CA will be called back within the hours of the time slot. The time intervals for the time slots presented in the table below have been based on the arrival pattern of visits and the capacity. During busy periods of visitors, and lunch breaks no time slot has been scheduled. The arrival pattern is presented in appendix F.

As presented in Table 4-2 each day has 70 available time slots. As CA's called the RSA's in the past between the 0 and 30 times a day (see appendix F) 70 time slots ought to be sufficient for the call back pilot.

From	Number of RSA	Number of time slots
10:00-11:00	2	20
11:00-12:00	1	10
14:30-15:30	2	20
15:30-16:30	2	20
Total per day	7 RSA hours	70

Table 4-2: Time Slots

An excel file has been created in which the Informants can make the time slot reservations for the RSA. This file is presented in appendix M. In the excel sheet the following elements could be filled in:

- Employees number
- Telephone number
- Question
- Remarks
- Question handled

A more detailed description of the call back option can be found in the instructions created for the Informants and RSA's presented in appendix M

Advantages of the call back option

Due to the fact that the question is already written down in a form, a RSA will probably need less time to process the call.

Another advantage of the call back option is the fact that the CA's do not have to wait on the telephone until a RSA is available. Moreover in the current situation it is not possible to have telephonic contact with the RSA.

As discussed earlier telephone calls disrupts the processing of emails. A RSA has to stop processing email to answer the phone. After this the RSA has to look at the email again. He will probably have to reread the email and the beginning of his answer. This will result in efficiency losses. With the call back option there will be no disruptions due to incoming phone calls of CA's. The RSA's who are calling back CA's do not have to process questions received by other communication channels. Therefore communication specialization is possible as a result of the call back option.

The data presented in appendix F indicate that approximately 10-20% of the phone calls is not answered by the RSA's. It is plausible that this is caused by RSA's ignoring the phone during busy periods. With the call back option RSA's cannot ignore the phone anymore.

It has been observed that incoming phone calls affect the perceived work pressure of the RSA. This is also the reason why it has been decided by management to close the direct phone lines from CA's to RSA's in March 2009. With the call back option the RSA's are in control of the number of phone calls. There is a maximum number of phone calls per day.

Moreover, there will be no more disruptions due to incoming phone calls, which will probably decrease the work pressure as well.

Call back options viable option for small contact centers

In this section the call back option will be discussed as a viable option for other small contact centers.

In the case of Rostering Services, the call back option could be implemented within a short period of time, as CA's could make time slot reservations by calling the Informants. For other call centers it is possible to use internet as a medium for customers to request a telephonic time slot.

The call back option also makes it possible for a small call center to operate with less agents.

With an Erlang calculator, calculations have been made for a call center with the following characteristics

Number of calls per hour: 12
Duration calls: 5 minutes
Service level (number of phone calls answered within a time period): 80% within 30 seconds
Number of agents required: 3

When using a call back option, one agent (instead of three) would be sufficient, as twelve questions can be answered by one agent in an hour. Therefore a reduction of 67 % can be made in the number of required agents. The efficiency gain for large contact centers will be smaller. A contact center with 20.000 calls per hour will only reduce the number of agents with one (from 1667 to 1666). The efficiency advantage for small contact centers does not count for call centers which offer alternative work for unutilized agents.

Another advantage of the call back option for a small contact center in general is the possibility to have specialized agents in either communication channel or subject. When using a call back option it is possible that only one agent is calling back customers, and this agent does not have to process questions received by other communication channels. Moreover, when a time slot reservation is made it is possible to identify the type of question. Based on this identification, calls can be routed to agents with the most expertise about the subject of the question.

Strategic behaviour

The RSA's indicated that some CA's will probably try to pose extra questions when they have their RSA on the phone. Therefore the time slots have been made long compared to the average duration of a phone call. A time slot is 6 minutes and an average phone call is between the three and four minutes (KPN 2009). A RSA can explain that he has to call back other CA's as well, when more than six minutes are needed to answer all the questions posed by the CA. The CA has to make another telephonic appointment when he would like to ask his additional questions.

Moreover, it is possible that more CA's would like to contact the RSA by phone than before. In the current situation some CA's are reluctant to (personal) communication with the RSA, due to the accessibility problems. Therefore they do not contact their RSA. However, this resistance will be decreased by the call back option resulting in more calls. A comparison can be made with traffic jams. Whenever new infrastructure is being built to decrease traffic jams, the travel time resistance will decrease, which will result in a new generation of travellers (who would not have travelled when the new infrastructure had not been build) (Dijst & van Wee 2002).

4.3.3 EXTRA INFORMANT

The Informants are working from 07:00 until 19:00. During the weekend they are only called a few times a day. However as described in section 3.2.4 the number of calls received during a working day is sometimes higher than the maximum capacity of the Informants. Informants do not cost extra money for Rostering Services (as it is substituted work). However the working space capacity is limited and cannot give space for more than four Informants at the same time. By scheduling an extra Informant from 9:30 till 17:30 the available work space at the service center can be better utilized. The table below presents the number of available Informants during the day with and without an extra Informant.

	Current situation			Extra informants		
	Agents scheduled	Breaks	Agents working	Agents scheduled	Breaks	Agents working
Time						
7:00	1		1	1		1
7:30	1		1	1		1
8:00	1		1	1		1
8:30	3		3	3		3
9:00	3		3	3		3
9:30	3		3	4		4
10:00	3		3	4		4
10:30	3		3	4		4
11:00	4	Break 1	3	5	Break 1	4
11:30	4		4	5	Break 1 & 2	4
12:00	4	Break 2	3	5	Break 2	4
12:30	4		4	5	Break 2 & 3	4
13:00	4	Break 3	3	5	Break 3	4
13:30	4		4	5	Break 4	4
14:00	4	Break 4	3	5	Break 4 & 5	4
14:30	4		4	5	Break 5	4
15:00	3		3	4		4
15:30	3		3	4		4
16:00	3		3	4		4
16:30	1		1	2		2
17:00	1		1	2		2
17:30	1		1	1		1
18:00	1		1	1		1
18:30	1		1	1		1
19:00	1		1	1		1
Total Informant hours	32.5		30.5	40.5		36.5

Table 4-3: Scheduled Informants

As presented in the table above, there are in total six extra Informants' hours during the busiest time of the day. In Table 4-4 the number of questions that can be processed before and after the implementation of this quick win is compared.

	Process time 186 seconds	Process time 239 seconds	Process time 144 seconds
Max. questions processed entire day (4 Inf.)	590	459	763
Max. questions processed entire day (5 Inf.))	784	610	1013
Increase max of questions processed entire day	33%	33%	33%
Answer from 8:30 till 17:00 (4 informants)	513	399	663
Answer from 8:30 till 17:00 (5 informants)	619	482	800
Increase max of questions processed 8:30 till 17:00	21%	21%	21%

Table 4-4: Maximum capacity Informants with 4 and 5 Informants

The Erlang C and Erlang B formula are the most common tools used to estimate the needed workforce for contact centers (Garnett et al. 2002). The Erlang-C calculator can calculate the service level and the average waiting time. For the calculations presented in this section the Erlang C calculator of the 'Vrije Universiteit' Amsterdam has been used. The only data that have to be filled in are the average duration of a phone call and the number of agents (Koole & Mandelbaum 2002). The Erlang B formula does not take into account the fact that people can wait when they arrive and the server status is busy (Angus 1987). This will underestimate the number of calls. The Erlang C formula takes into account that when calls are being blocked (due to a busy server), a person can wait until an agent is available again. Therefore, the Erlang C formula is used in this study. This formula has helped to analyze the effect of having an extra Informant.

The Erlang C formula assumes that the arrival rate can be represented by a Poisson distribution, the process time by an exponential distribution and that all customers are identical. Abandonment is not taken into account in an Erlang C calculation (Brown et al. 2005). Since only a rough indication will be made on the increased accessibility of the Informants due to an extra Informant, it does not really matter that these elements are not taken into account.

The Erlang C model estimates the system performance over a short interval (half hour or hour) (Gans et al. 2003). In Table 4-5 the number of calls received during opening hours for three given call rates are shown. As presented in Figure 3-7, approximately 10% of the days received more than 300 phone calls a day. For these days the service level will be increased with 40% when the average process rate is 239 seconds. The waiting time is decreased from 358 to 53 seconds.

Calls received during opening hours	Calls received per hour (call rate)
186	22
323	38
408	48

Table 4-5: Calls received during opening hours for three different calls rates

Questions are not equally distributed over time, they cluster. In a typical distribution, when there are for example 3200 calls received in a day, 550 to 600 of them are received in the busiest hour (Angus 1987), which represents 17 to 18 % of the total calls received per day. There are no data available of the distribution of calls over time. Assuming that 17.5 % of the calls is received within the busiest hour, 32 calls are received during the peak hour of an average work day. More than ten percent of the days receive more than 275 calls. The peak hours will receive around 48 calls in such days.

Since the results are very sensitive for the process time of phone calls three different process times have been used: The average process time (over all the analyzed months), the highest average of one month and the lowest average of a month. As presented in Table 4-3 the number of available Informants has been increased from three to four. When 22 calls are received (average number of calls for a working day) and the average process time is used the waiting time is only 12 seconds.

Duration phone call 186 seconds							
Calls per hour	22	22	38	38	48	48	48
Agents	3	4	3	4	3	4	5
Service level (30 seconds) percentage	90%	98%	64%	88%	31%	69%	87%
Average waiting time (seconds)	12	2	77	15	247	38	9

Duration phone call 239 seconds							
Calls per hour	22	22	38	38	48	48	48
Agents	3	4	3	4	3	4	5
Service level (30 seconds) percentage	82%	95%	33%	73%	0%	41%	72%
Average waiting time (seconds)	35	7	358	53	infinite	174	38

Duration phone call 144 seconds							
Calls per hour	22	22	38	38	48	48	48
Agents	3	4	3	4	3	4	5
Service level (30 seconds) percentage	93%	99%	76%	92%	59%	84%	95%
Average waiting time (seconds)	5	1	24	5	32	11	2

Table 4-6: Service level for different durations and available agents

4.3.4 ACTIVE INFORMANT SUPERVISOR

In the current situation one RSA has already been assigned with the responsibility for scheduling the Informants. This RSA also sends new information to the Informants by email. Most of the time that is all the interaction there is. As mentioned before the Informants do not have a lot of interaction with the RSA's in general. When the RSA responsible for the Informants would supervise the Informants more effectively, the Informants would realize that they are actually very important for the service quality of Rostering Services. Therefore the second coordination mechanism described by Mintzberg (2003) should be used; direct supervision. One person (in this case one RSA) is responsible for the work of others, gives them instructions and makes sure that the service delivered is of sufficient quality. Therefore the number of incorrect answers given by the Informants will probably decrease in the upcoming period.

- Sitting together with the Informants on a regular basis for half an hour/hour to see how they are working, possibly hear their complaints about the system and to give them the opportunity to ask questions freely.
- Giving tips for processing phone calls
- Evaluating Informants (listening how they process phone calls)
- Showing relevant KPI's to Informants (Abandonment rate, Service level Informants) and triggering the Informants to perform at least according to the defined service level.
- Securing that Informants write down information needed to monitor KPI (are time slot reservations possible within 24 hours).

4.3.5 RSA CAPACITY MANAGEMENT TOOL

As described in section 3.2.3 it is important to gain insight in the number of RSA's available to process questions at each point in time during the day. Since capacity is the maximum output rate that can be achieved by a certain facility (Reid & Sanders 2007), more insight in the capacity of the RSA's has to be obtained. Such insight can only be obtained when all additional tasks and personal activities (dentist etc.) are also taken into account.
A tool has been made which can easily calculate the number of available RSA's for each point in time of a day. In appendix N a detailed description of the set-up of the capacity management tool can be found.

All weekly meetings are already presented in the calendar of the RSA's. The only information that has to be filled in are the number of agents scheduled each day and the number of agents scheduled to test the new roster system (which is going to be implemented in September 2009), the personal activities (since they are not recurrent) and other non recurrent appointments. The first two elements have to be filled in Table 4-7.

	8-12 june				
	Monday	Tuesday	Wednesday	Thurday	Friday
Agents working	8	7	9	9	8
PBS tester			2	2	2

Table 4-7: Agents scheduled and testing

The personal activities and other (non recurrent) appointments have to be filled in Table 4-8. All these appointments are presented in the shared calendar of the RSA's so they can be easily taken over.

Other tasks RSA's	Monday	Tuesday	Wednesday	Thurday	Friday
8:30					2
9:00		8	6	1	2
9:30		8	6	1	2
10:00					2
10:30				1	1
11:00				2	1
11:30				1	1
12:00	4	4	3	4	3
12:30	4	5	3	3	3
13:00		2			
13:30					
14:00	1	10			
14:30	1	10			
15:00	2	10			
15:30	2	10	1		
16:00		10	1		
16:30		10	1		
17:00		10	1		

weekly meeting
personal related activity, not recurrent
lunch
RSA related activity, not recurrent
testers available again

Table 4-8: Other activities RSA (third week of June 2009)

Microsoft Office Excel will calculate the available agents (for processing questions) for all points in time of a day. This will result in Table 4-9. With this tool it is possible to calculate the number of available RSA hours for each day. The capacity management tool provides better understanding of the effect of appointments (and the number of agents that have to attend the appointments) on the available RSA hours a day. For example: Tuesday afternoon the RSA's have a training day and therefore they will not be available. This results in only 30.5 available RSA hours during this day as presented in Table 4-8. Therefore the number of emails that has to be processed on Wednesday will probably be higher than normal. Since the RSA's have a meeting on Wednesday morning they have only 45 available RSA hours. If they could change the meeting to Thursday, the RSA's are able to process the number of emails better on Wednesday. Therefore the tool can help the RSA's (and their manager) to manage the capacity of the RSA's better (and ensure sufficient available RSA hours per day) and therefore influence the workload per day positively resulting in a higher service quality.

As discussed in section 3.2.3 it is advisable to have at least 48 available RSA hours on a regular workday. Not only is it important to manage the total available RSA hours per day, but the number of available RSA's at each point in time has to be managed as well, for instance, by using the capacity management tool.

Availability	Monday	Tuesday	Wednesday	Thurday	Friday
8:30	8	8	6	7	4
9:00	8	0	0	6	4
9:30	8	0	0	6	4
10:00	8	8	6	7	4
10:30	8	8	6	6	5
11:00	8	8	6	5	5
11:30	8	8	6	6	5
12:00	4	4	3	3	3
12:30	4	3	3	4	3
13:00	8	6	6	7	6
13:30	8	8	6	7	6
14:00	7	0	6	7	6
14:30	9	0	8	9	8
15:00	8	0	8	9	8
15:30	8	0	7	9	8
16:00	10	0	7	9	8
16:30	10	0	7	9	8
17:00					
Half hours	132	61	91	116	95
Total available RSA hours	66	**30,5**	45,5	58	47,5

Table 4-9: Availability of agents for processing questions

4.3.6 SMALL QUICK WINS

FAQ

By using Frequently Asked Questions (FAQ's) it is possible to present the answers of most posed questions. The CA can search directly for the answer to his question. Moreover the RSA can refer to the FAQ list whenever the CA's pose a question which is also presented in the FAQ list. The FAQ has been created in collaboration with the RSA's. They can be found in appendix 0.

Change in opening hours

The RSA's have a weekly meeting during which their office is closed. However, this is not published on the internet. Therefore it is possible that a CA comes to the crew centre especially for the RSA's while this department is closed. To prevent this, the opening hours of the RSA's have been adjusted and published on the internal internet site of KLM. The CA knows (and expects) in advance that the RSA department will open at 10:00 o 'clock instead of 8:30 and will not encounter a closed department anymore.

No more central call center

Some CA's call the central call center, when they would like to speak to their RSA. However, the central call center will always transfer the call to the Informant (and not the RSA). The Informant is also directly accessible. Therefore they are just an extra connection without an added value for Rostering Services or the CA's. The manager of the central call center also told that CA's sometimes complained that they were only transferred to the Informant.

This is why the CA's are recommended to call the Informants directly instead of calling the central call center. This will help to decrease the number of transferred calls, which will increase the accessibility by phone.

4.4 POTENTIAL QUICK WINS

The following quick wins have not been implemented yet and will be discussed in this section:

- KPI's
- Policy RSA
- Case discussions
- Immediate satisfaction
- Forwarding emails

4.4.1 KPI'S

At the moment no KPI's are defined for Rostering Services. However to see whether the options implemented improve the situation it is important to create KPI's and to monitor them.

It is important that a company builds an ongoing service quality research and is not just doing a study once a while. A study is a snapshot. However, by making several snapshots a pattern of change and deeper insight can be gathered (Berry et al. 1994). Since low perceived accessibility problem is such a big issue within Planning and Assignment in the current situation it is necessary to monitor the service quality on a regular basis.
The following KPI's have been identified for the various parties of Rostering Services and will be discussed in this section:

- Service level email (RSA's, P&A Service Point)
- Service level calls (Informants)
- Abandonment calls (Informants)
- Service level call back option (RSA's)
- Consistency check answers(longer term) (RSA's, P&A service Point and Informants)
- Satisfaction CA's

The number of questions received by Rostering Services is not a KPI (more questions do not mean that Rostering Services has performed better). However, it is important to measure the number of questions received, as most of the KPI's depend on this. Therefore this element will also be discussed in this subsection. The person responsible for monitoring the KPI's is presented between brackets.

Service level email (Policy RSA)
At MY KLM the service level of email is defined. Emails have to be answered within 48 hours. It is important to check whether this service level is obtained. The RSA's can check how old the emails are in their inbox. The RSA's state that all emails are answered within 48 hours. The Policy RSA only has to write down how many times the service level is not obtained within a month.

Service level calls (Informant supervisor**)**
The service level is calculated by KLM according to the following formula:

$$\frac{\text{Number of answered calls within service level}}{\text{Total number of offered calls}}$$

At this moment the telephonic service level (percentage calls answered within 20 seconds) of the Informants is very low. The service level target is typically between 20 and 30 seconds according to Gans et al. (2003). At this moment, a service level of 20 seconds is too ambitious for KLM. In Figure 4-2 the distribution function of the delays (time needed before an Informant picks up the phone) is presented. At this moment 70% of the calls are picked up within 1:50 minutes. Since an extra Informant is hired, the delays will (probably) decrease. A service level of 70% of the calls answered within 1 minute has been determined in consultation with the manager of Rostering Services. As discussed in section 3.2.4 the service level based on individual calls is higher than the service level based on an average of

calls per day. As there are no data available on an individual call level no estimation can be made for the current service level with a target level of one minute. It is the task of the Informant supervisor to trigger Informants to improve the service level (by for instance communicating data provided by KPN about the service level).

As the call back option is used for the RSA's, their telephonic service level is not measured. At this moment no data are measured by the KPN for P&A Service Point. It would be advisable to start measuring data for this as well. Especially when the new roster system (PBS) is going to be introduced, which will probably increase the number of questions received by P&A Service Point about the (new) roster program.

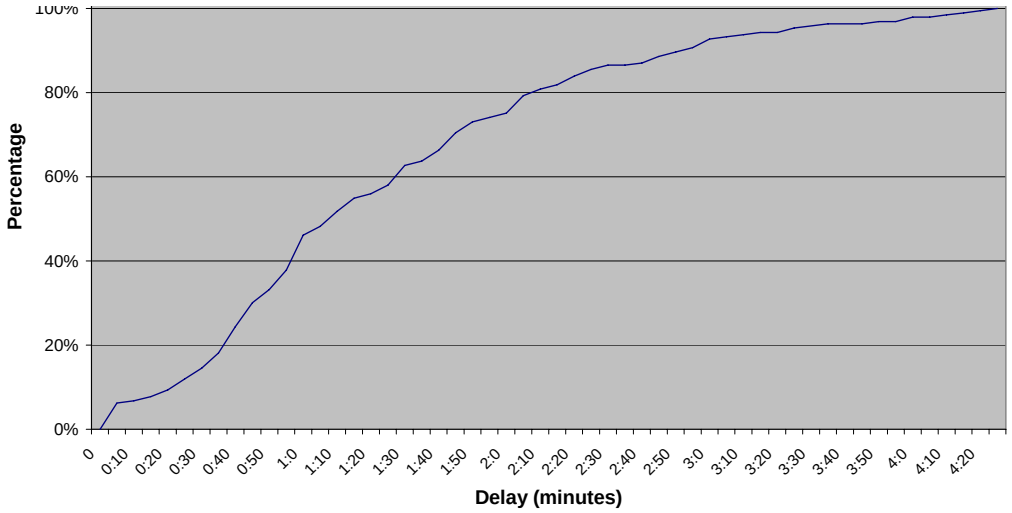

Figure 4-2: Distribution function delay Informants

Abandonment calls (Informant supervisor)
Callers that are put on hold and hang up the phone while waiting in the queue before being served have abandoned the queue (Robbins & Medeiros 2006). According to Feinberg et al. (2002) the abandonment rate is one of the major indicators for the satisfaction of customers. Therefore it is important to monitor the number of abandoned calls. The monthly KPN report presents the number of abandoned calls per day. The supervisor of the Informant has to analyze this report each month and communicate the abandonment rate to the Informants and policy RSA. At this moment between 20 and 30% of the calls are abandoned. At Sygnific (another call center of KLM) the target level of abandonment is defined to be below 10% (Diemen 2009). As 10% sounds reasonable it would be a good idea to aim for this target in the long term. It has been decided in consultation with the manager of Rostering Services that this has to be reduced to 15% or less within six months

Service level call back option (Informant supervisor)
The service level of the call back option has been defined in 4.3.2: the time between requesting a time slot and receiving an actual time slot has to be less than 24 hours. The Informants have to check for each reservation whether this is the case. When there is no time slot available for the CA within 24 hours the Informants have to write this down and report to this to the Informant supervisor. The Informant supervisor has to monitor the number of times the service level is not obtained within a month.

Satisfaction CA's (Manager Rostering Services)
At this moment KPI is already measured each year. CA's may give their opinion about Rostering Services in the MTO survey. The results of this survey have been previously presented a few times in this report.

Number of questions (Policy RSA)
The number of questions fluctuates per time period. As accessibility is dependent on this factor, it is important to measure it. By measuring the number of emails it is possible to see

whether certain implemented solutions have actually affected the number of emails. It is also possible to identify the peak periods by measuring the number of questions in a certain period of time. Last but not least, management being notified when the number of emails has permanently been increased can take suitable actions (like hiring extra agents).

Since the 1st of May CA's may only send emails to the RSA by using a web form. This way it is possible to count the number of emails send. It is also possible to see the employee number of the CA. Therefore the number of times a particular CA has sent an email to the RSA in a certain time period can be measured. When a CA has sent many emails in a time period, actions can be undertaken (like talking to the UM) so that the CA is alerted that it is not normal to ask such a number of questions.

The number of phone calls over a time period can be easily identified for the Informants and RSA's by the monthly KPN report. This report identifies the offered calls per day.
It is advisable to monitor the visits once in a while, to see whether this changes over time. This is less easy to measure than emails or calls. A ticket system used at the baker, CA's doing replacement work or an electric system can be used to measure the number of visits.

Consistency check answers (Implemented on the long term)
It is important that the service quality of Rostering Services is of sufficient level. The answers agents of Rostering Services give to CA's have to be of sufficient quality and given in a polite manner. As discussed in previous chapters, complaints have been made about the differences between given answers of the RSA's. Monitoring the service quality and consistency is sensitive. This cannot be implemented in the short term, since this will probably result in a lot of resistance from the RSA's. However in the long term it is important to monitor the service quality and consistency, as many complaints have been made by different parties about these factors. The service quality and consistency check can be monitored in different ways:

- Record phone calls, emails and compare them (substance and process): An individual can compare the answers (substance) and how the answers are given (process) between the agents. By using an evaluation form a score can be given for the answer of an agent.

- Case discussions: One of the quick wins that has already been discussed in more detail in 4.3. is discussing cases with the RSA's. This way the differences with the RSA's will probably decrease. While discussing cases the differences are also identified. Therefore it is possible to monitor the number of different answers and to see whether after a certain period of time the answers have become more aligned.

- Mystery shopper: Assessors visit a shop and pretend to be customers. The assessors check whether the service level is according to standards (Morrisson 1997). In this case a mystery caller could be used, who pose the same questions to various agents. This way it can be analyzed whether the answers are consistent. It is necessary that the mystery shopper has knowledge about the rostering system.

4.4.2 CASE DISCUSSIONS

When discussing cases each week or month, it is possible to check whether the answers of the RSA's are aligned. This may help to decrease the differences between the RSA's. The RSA's will learn from each other when analyzing how their colleagues deal with questions. By writing the answers of the cases in a handbook, new RSA's can be easier trained. It would be advisable discuss cases on a periodical basis (like once or twice a month).

4.4.3 POLICY RSA AND MONITORING KPI'S

As discussed earlier sometimes policies are implemented for which not all consequences have been taken into account. When a RSA is pro-actively involved in policy making this may be prevented. It would be advisable to assign this task to one RSA: the so-called Policy RSA.

When a manager of Planning and Assignment wants to consult a RSA he will always go to the Policy RSA. This Policy RSA could also be responsible for performing other tasks. It may be a good idea to create a Policy RSA who will monitor the KPI'S, use the capacity management tool described in section 4.3.5. Moreover the Policy RSA may be responsible for keeping up to date the KPI's and bringing up cases as described in section 4.4.2 for the plenary sessions. This RSA probably has to spend half a day per week on these activities.

4.4.4 IMMEDIATE SATISFACTION

Percentage of calls closed on first contact is next to abandonment rate the most important factor which influences the customers' satisfaction (Feinberg et al 2002). This will be referred to as 'immediate satisfaction' in this report. If agents of Rostering Services focus on immediate satisfaction, the perceived service quality can be improved. Moreover, when the question of a CA is fully answered the first time he contacts an agent, less additional questions have to be posed. This will reduce the total number of questions received by Rostering Services and therefore will increase accessibility.

4.4.5 FORWARDING EMAILS

As mentioned in chapter 2 some emails are posed to RSA's while they should have been posed to for instance P&A Service Point. Some RSA's answer these emails themselves, others redirect the CA or forward the email to the correct party. By forwarding the email the CA will learn that he did not pose the question to the correct party without punishing the CA by increasing the effort of posing an extra question.

4.4.6 IMPLEMENTATION PLAN

Meredith & Mantel (2006) present a linear responsibility chart representing responsibility, support, notification and approval roles for the subtasks of a project. In this case it is also important to divide responsibility for the implementation of the tasks to make sure that they are implemented within a short period of time. Other people have to monitor the quick wins with respect to time (schedule) and performance (is the quick win correctly implemented). The responsibilities and the monitoring people that have to be notified are presented in Figure 4-3. Since this project is not so complex, it was possible to use a simplified version of the responsibility chart (Meredith & Mantel 2006).

The responsibilities of the Manager of Rostering Services, Policy RSA and Informant supervisor have been described below. The Informant supervisor and the Policy RSA may be the same person. In such a case that person is responsible for the tasks described of the policy RSA and Informant supervisor.

Since the business analyst of Planning and Assignment and the Team Manager of Pre-Assigment have already been involved in several brainstorming sessions during this research, they have been assigned to check whether the manager of Rostering Services has performed the tasks presented in Figure 4-3.

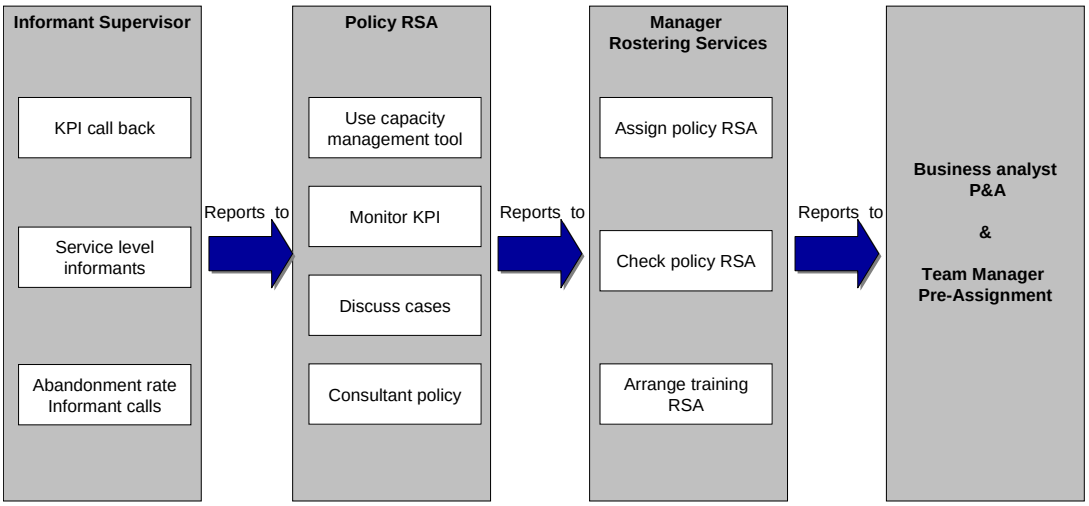

Figure 4-3: Persons responsible for implementation quick wins

Deadlines are fixed to the quick wins in consultation with the manager of Rostering Services. These are presented in Figure 4-4. The Policy RSA has to report the monitored KPI'S each month (since the KPN reports are monthly reports as well). This way the manager of Rostering Services is alerted early in the process whether the KPI'S are monitored well and whether the required service level is established.

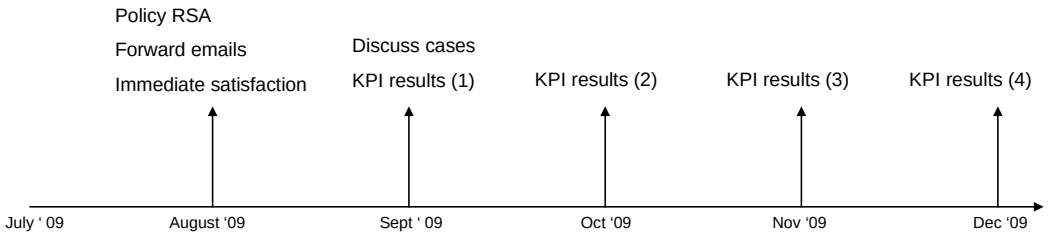

Figure 4-4: Deadline quick wins

4.5 PROBLEMS THEORETICALLY COVERED

As discussed in the previous chapter, most of the quick wins have already been implemented. In this chapter it will be analyzed what kind of issues will be solved when all quick wins are implemented and which issues still have to be resolved.

Personal accessibility
The extra Informant will improve Informants' accessibility by phone. The number of abandoned calls will (probably) be reduced. However, as the Informants first have to be accessed to get in contact with the RSA, the accessibility of the RSA by phone will also be indirectly improved.

The call back option will also improve accessibility by phone. At this moment it is not possible for a CA to get in contact with his RSA by phone. With the call back option this is possible. Moreover, the RSA's first could ignore the telephone whenever they were busy processing emails or helping visitors. This is not possible anymore with the call back option, since they are only calling CA's back at the given time slots.

Transfer question
The transfers have been reduced by the quick win which withdraws the central call center from the telephone chain. CA's are advised to call the Informant directly. Also by increasing the knowledge of the CA about the capabilities of the different agents (of Rostering Services)

CA's will more likely pose questions to the right party in the first place, which will decrease the number of transfers as well.

Differences between agents
Discussing cases in plenary meetings is a quick win which will decrease the differences between RSA's. However it would be advisable to look at other options as well to reduce differences between agents.

Changes in policy affecting rosters
No quick win has been implemented to decrease the changes in policies affecting the roster. A Policy RSA is a quick win which may be implemented within a short period of time. By implementing a policy RSA the consequences of decisions will be better taken into account pro-actively (before the decision is actually taken).

Incorrect answers
Complaints about incorrect answers mainly concerned the Informants. The Informant supervisor can help to decrease the number of incorrect answers. This supervisor will evaluate phone calls and go to the Informant several times a week to see how they are doing their job and to make it easier for them to ask questions.

Complaint	Quick win	Quick win	Quick win	Quick win
Personal accessibility	Call back option	Extra Informant	Capacity management RSA	*Immediate satisfaction*
Transfer calls	No central call center	Knowledge CA	*Forwarding emails to correct party*	
Differences agents	*Case discussions*			
Changes policy	*Policy RSA*			
Incorrect answer	RSA supervisor for Informant			
Customer friendliness				

Table 4-10: Quick wins per problem areas

Knowledge and expectations CA
There are two quick wins which will affect the knowledge and expectations of the CA's, namely the flow chart and the FAQ list. With the change in opening hours expectations of the CA's will be better managed. A CA can already see that the RSA's are not open at Tuesdays from 9:00 to 10:00 o 'clock in advance, so the chance that they will stand for a closed door will be decreased.

The complaints of the CA's described in chapter 3 are presented in the figure below. The blocks presented in blue are (partly) resolved by the quick wins.

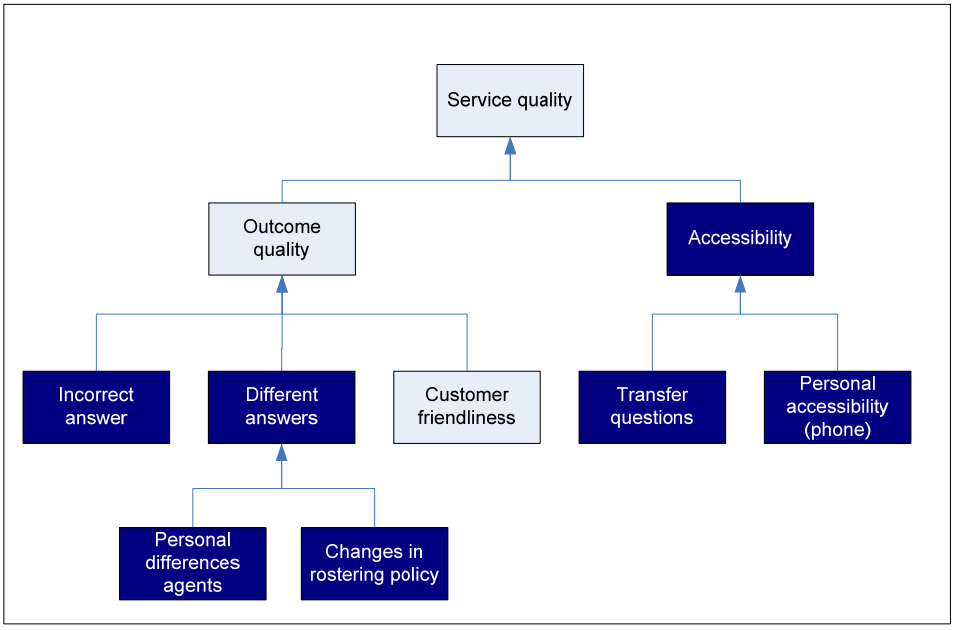

Figure 4-5: Problem areas theoretically covered by quick wins

No quick win has been implemented to make the agents more customer-friendly. In appendix H several options to make agents more customer-friendly have been identified. Training could help to learn how to be customer-friendly. Evaluation can help to create an incentive to process questions in a more customer-friendly way

4.6 CONCLUSIONS

Different options have been generated by brainstorming sessions, literature study and benchmarking. These options have been structured and the quick wins have been selected by scoring the options on costs, implementation time, acceptability, usefulness and feasibility. Most of the quick wins have already been implemented:

- Flow chart
- Call back option
- Extra Informant
- Informant supervisor
- RSA capacity management tool
- FAQ
- No more central call center
- Change in opening hours

The following quick wins still have to be implemented

- Policy RSA
- Monitoring KPI's
- Case discussions
- Forwarding emails
- Immediate satisfaction
- Case discussions

Most of the complaints made by the CA's about Rostering Services are (partially) covered by the quick wins. Only the customer friendliness of the RSA's is not positively influenced by the quick wins. This may be realized by training and evaluating the RSA's. Moreover combining parties of Rostering Services certainly will help to increase the accessibility, since the workload of larger contact centers are more stable.

5 EVALUATION

The quick wins and long term options recommended will be evaluated in this chapter. Representatives of all involved parties (RSA's, Informants, CA's, management) have been asked to give their opinion about the quick wins. The employee number of CA's that have participated in the call back option is registered. Therefore it was possible to send these people an email with some questions. This email is presented in appendix O. In this email also questions are posed about other quick wins which have been implemented (flow chart and FAQ).

5.1 FLOW CHART & FAQ

The flow chart and FAQ are quick wins which have been implemented to increase the knowledge of the CA's. Both have been published on My KLM. The flow chart is published on the section of the site in which the contact information of the Rostering Services parties is presented. A new section in the Planning and Assignment part of the website has been created for the FAQ. In the email survey, CA's were asked whether they have seen the FAQ/ flow chart. As there were not many reactions, the presented results only give a first indication about the success of the flow chart and FAQ. Table 5-1 presents the results of this survey

Question	Yes	No	Neutral
Respondent has seen FAQ	7	9	0
Respondent has seen flow chart	11	5	0

Table 5-1: Respondent which have seen FAQ or flow chart (n=17)

Less than 44% of the participants have seen the FAQ and 69% the flow chart. However, the number of respondents is limited. Moreover as these respondents have all participated in the call back option they are not representative for the entire population (99.5% of CA's did not participate in the pilot).

Most of the CA's reacted positively to the flow chart. One CA stated that it makes the structure of Rostering Services more clear. He was not aware that it is also possible to pose questions to other parties besides the RSA's. Other reactions also stated that it becomes clear to which party a question has to be posed due to the flow chart.

The reactions on the FAQ were rather neutral. Some CA's responded with ' clear' , while others reacted that the FAQ were mainly interesting for CA's who just started working. All reactions can be found in appendix O.

The Informants and RSA's were enthusiastic about the flow chart and FAQ. However both parties were sceptical whether the CA's will actually search, find and use these quick wins. In the employees' satisfaction MTO survey of 2009 almost 60% of the CA's stated that information cannot be easily found on MY KLM (Haas & Klunder 2009). It is important that the knowledge of the CA is increased, because this positively affects the (perceived) service quality. A good communication channel is needed to do this. Therefore MY KLM has to be improved. As there are also CA's who do not use a computer it is also advisable to use another type of communication channel.

5.2 CALL BACK OPTION

As only a call back option pilot is launched from July and August) it is important to analyze whether it is a good idea to implement the call back option at the end of July. The following Key Performance Indicators (KPI's) for the call back option have been defined:

Evaluation call back option

- Percentage of people that have been called back within time of time slot
- In accordance with the manager of Rostering Services the Service level of call back option has been indicated, which states that the time between requesting a time slot and receiving an actual time slot has to be less than 24 hours. It has to be checked whether this is the case.
- Time needed to call back CA's
- Number of emails (is the call back option a substitution for email)
- Satisfaction CA's (short email survey)

In the first three weeks of the pilot 45 time slot reservations have been made. In the first week ten time slot reservations have been made on Wednesday. This is the highest number of time slot reservations made on one day. As there are only three time slots reservations made (on average) per day, all calls have been made on time and time slot reservations could be made within 24 hours. The time needed to call back CA's was higher than expected. RSA's have indicated that approximately ten minutes were used per CA. However, the RSA's also stated that they took more time per phone call, since only two to five CA's had to be called back in an hour. It is assumed that the small number of time slot reservations has not affected the number of received emails.

All CA's who have participated in the pilot during these first three weeks have been sent an evaluation email. Seventeen CA's have responded to the evaluation email. One respondent did not fill in the entire survey. Therefore some questions only have sixteen responses. The results of this survey are presented in Table 5-2.

Question	Yes	No	Neutral
Satisfied time offered timeslots	13	4	
RSA sufficient time	16	1	
Improvement telephonic accessibility	15		2
Suggestions call back	6	10	
Suggestions tel. Accessibility	1	15	
CA prefers Phone	7		9

Table 5-2: Evaluation CA call back option (n=17)

The accessibility by phone has been improved by the call back option according to 94% of the respondents. Responses as 'I think it is a good alternative' and 'this is much better' have been given in the survey. In total six suggestions have been made to further improve the call back option. Some of these suggestions were: Possible to make a call back reservation by personal RSA by email, longer time slots, more time slots, possible to make a reservation for each time slot, Moreover only one CA made a suggestion to improve the accessibility by phone. This CA preferred to have a RSA directly accessible by phone. All suggestions made about the call back option and accessibility by phone can be found in appendix O

The RSA's are enthusiastic about the call back option. This could help to increase the satisfaction of CA's according to them. Moreover, CA's who are being called back react enthusiastic. The Informants are satisfied with the call back option as well. It is an extra possibility they can offer CA's when there are complaints. Also CA's who are very emotional or unreasonable can be offered a time slot reservation. This way the experts for these situations (the RSA's) can process these questions.

5.3 POLICY RSA , CAPACITY TOOL & CASE DISCUSSIONS

A RSA has been chosen as Policy RSA in the beginning of July. Management and the Policy RSA are enthusiastic about the idea behind the policy RSA. The Policy RSA will use the RSA capacity tool and implement the business cases.

During a meeting the idea behind the policy RSA and the case discussions has been presented. The RSA's reacted positively. The Policy RSA already had ideas for certain business cases and was positive in implementing this. After this meeting the Policy RSA stated that the other RSA's were positive about the idea behind the Policy RSA. However a few days later the Policy RSA indicated that there were some RSA's showing resistance towards a Policy RSA, because they prefer all RSA's to be equals.

The capacity management tool has been used by several RSA's. Some of them were convinced of the usefulness of the tool, while others were more skeptical. Management is enthusiastic about the tool and likes to see the tool utilized. The Policy RSA will be responsible for using the tool and taking adequate actions when the tool shows that the capacity is not sufficient. The Policy RSA sees the benefits of the tool and is positive about using it. The knowledge of RSA's about excel is limited. They know how to use the tool, but contacted the researcher whenever an error occurred due to a mistake. It is therefore important the Policy RSA knows who he can contact when problems occur or changes have to be made in the tool (like the business-analyst of P&A who is an expert in excel).

No cases have been discussed in meetings yet. So this cannot be evaluated. It can only be mentioned that the Policy RSA and management of P&A are enthusiastic. In the beginning the other RSA's showed different reactions. Some of them already stated that they do not need a business case, as their answers do not differ. In the meeting in which all quick wins have been presented the RSA's did not show any resistance towards the business case.

5.4 INFORMANT SUPERVISOR & EXTRA INFORMANT

An extra Informant has been scheduled since the second week of June. The results of the KPN report are presented in Table 5-3. In this table it is shown that approximately 20 % of the phone calls are abandoned (619 out of 2957 received calls). In chapter 3 it has been presented that the average abandonment rate is 30 %. However the number of offered calls of this month is below average (3795 is average). Moreover May only had 20% abandoned calls as well. Therefore it cannot be stated that the decrease in number of abandoned calls is due to the extra Informant. The service level presented below represents the number of calls answered within 20 seconds. This has increased almost 10 %.

Results extra Informant	June	Average
Offered calls	2957	3795
Abandoned calls	20%	30 %
Delay	3:15	3:06
Service level	37.87	28.34

Table 5-3: KPN data June 2009 (extra Informant implemented)

The informant supervisor has told that two Informants were sometimes taking a break together, which resulted in less capacity. It has to be analyzed whether improving the skills of the Informants (and being strict when they are taking a break together) can further decrease the number of abandoned calls.

Two Informants have been asked to give their opinion about the extra Informant and the Informant supervisor. They liked the idea of having an extra Informant, but did not like the fact that their breaks are already scheduled. They were neutral about the Informant supervisor.

5.5 CENTRAL CALL CENTER AND OPENING HOURS

One quick win proposed not to use the central call center anymore, because this call center always transfers the CA to the Informants. The central call center has been established by Rostering Services and Cabin Crew Management (CCM). Cabin Crew Management is the department of the Unit Managers. CCM is not enthusiastic about the fact that the central call center is not used by Rostering Services anymore. They preferred that CA's could call one call center when they would like to speak to the RSA's or the UM.

The manager of P&A, however, does see the benefits of not using the central call center anymore to contact Rostering Services. This will reduce the number of transferred calls which will probably increase the perceived service quality.

Changes in openings hours have been made in order to ensure that the plenary weekly meeting of RSA's falls outside the opening hours. Management and RSA's are positive about this quick win but they agree that this option will not improve the perceived service quality significantly as only a few CA's stand for an open door once in a while due to the plenary meeting.

5.6 KPI

The KPI's have been identified in consultation with the manager of Rostering Services. The defined KPI's have been discussed with the Policy RSA as he is responsible to monitor the KPI's. The Policy RSA only had problems with the KPI which identifies the consistency between the agents. The manager of Rostering Services also had some difficulties with this KPI and therefore it had already been decided not to monitor this KPI yet. As inconsistency has been an issue identified it is important to measure whether agents are giving consistent answers. When the new roster system is launched, it has to be invested how this KPI can be implemented. If the agents show resistance it has to be analyzed how this can be diminished.

5.7 IMMEDIATE SATISFACTION AND FORWARDING EMAILS

Both these quick wins are not implemented yet.

According to the Policy RSA the RSA's already focus on immediate satisfaction. However it is important that the importance of immediate satisfaction is communicated to all agents of Rostering Services. Agents have to focus whether they have answered a question completely the first time a question is posed by CA's.

The business analyst and manager of Rostering Services were positive about forwarding emails which should belong to another party. After a discussion the Policy RSA was convinced.

5.8 LONG TERM SOLUTIONS

Some long term solutions have also been identified in this research. As the options have not been worked out in detail in this research, only a brief evaluation of the involved parties about the solutions will be presented in this section. The options have not been evaluated with all RSA's as this could hinder the implementation track.

*RSA Coach (**outcome quality)***
The Policy RSA, manager of Rostering Services and business analyst of P&A were enthusiastic about the idea behind the RSA coach. However, the idea has to be worked out in more detail (by the Policy RSA for instance) before it can be implemented. It was decided that only new RSA's (who have been working for a few months) would receive a coach.

*Specialisation agent (**consistency answers)***
The Policy RSA was not positive about specialisation, because he was afraid that this would make RSA work boring. However he does agree that specialization will have positive effect on the consistency of answers.

Front office RSA's at P&A Service Point *(**accessibility)***
The Policy RSA was positive about this idea. However, he predicted that the RSA group will probably be less positive in the first instance (and show resistance). Therefore it is important that RSA's are involved in working out this idea to an actual plan. This resistance is probably

due to the fact that RSA's do not want to be seen as equals with agents from P&A Service Point.

*Flexible Pre-Assignment agents who can stand-in as RSA (**accessibility)***
The manager of Pre-Assignment has proposed this idea in a meeting. The manager of Rostering Services it positive, however it is important that the capabilities (skills for instance) of the 'flexible employees' of Pre-Assignment fit with the required RSA capabilities. According to the Policy RSA and Pre-Assignment this is not the case in the current situation. Therefore, when people are hired in the future at Pre-Assignment it would be advisable to pay attention whether a candidate also fulfils the required RSA capabilities.

*Extra agents **(accessibility)***
Management is not positive about this option, because it will cost money to hire extra agents. In the current financial situation of KLM it is not possible to hire extra agents. Also when the financial situation of KLM improves, it would be preferred to look first at solutions before hiring extra agents. Hiring extra agents is only an option when problems remain and there are no solutions left (which cost less money).

*Educate Service Points so that they can take over questions from RSA during busy periods (**accessibility)***
At this moment around five agents from P&A Service Point sometimes work for RSA as well. This option could be further expended. The Policy RSA, manager of Rostering Services and business-analyst were positive about this option. Time is needed to educate P&A Service Point. As they only work one week out of six more time is needed than if they would have worked more frequently.

*Schedule number of agents based on analyzed historical peaks **(accessibility)***
The Policy RSA, manager of Rostering Services and business analyst are positive about this option. However, data about the number of questions received over the year first has to be acquired. As the Policy RSA has to measure these data (for KPI) it will be possible to analyze whether trends exist in the number of questions received over the year. If this is the case it will be possible in the future to schedule the number of agents based on analyzed peaks.

*Routing email based on indicated subject by CA **(transferred questions)***
At this moment it is not possible to implement this option due to technical constraints. However, all parties are enthusiastic about this option. So it would be advisable to see whether it is possible to overcome these technical problems.

*Use email as a medium to communicate information (news letter) to CA **(knowledge CA)***
At this moment there are some problems with email communication. These first have to be resolved before email communication can be used.

6 CONCLUSIONS

This research has helped to identify the complaints made by CA's on Rostering Services which influences the perceived service quality. Though the organization thought that only accessibility problems had to be resolved, more factors have been identified which influence the perceived service quality. The following research question has been answered in this research.

How can the (perceived) service quality of Rostering Services for the Cabin Attendants be improved while taking into account the operational performance and operational cost?

By interviews, surveys, observations and data-analysis the factors which resulted in a low perceived service quality have been determined. These factors have been used to identify the quick wins. The implementation of a flow chart, call back option, extra Informant, informant supervisor, RSA capacity management tool, FAQ, removal of the central call centre, and finally a change in opening hours are the first steps towards a high perceived service quality.

As most of the quick wins have only been implemented since a month, it is too soon to present the results of the quick wins on the (perceived) service quality. However it was possible to make a first indication of the success of the quick wins. Most important conclusions following this indication are the following: Over 90% of the CA's who responded on the evaluation survey of the call back pilot stated that the accessibility by phone has been improved; the flow chart also received positive reactions of the respondents and other employees of KLM. However, it remains a problem that CA's are not satisfied with MY KLM, the internal website of KLM Therefore the effect of the flow chart and FAQ is limited. Another quick win which has not had sufficient effect is the appointment of an extra Informant. In the month of June the abandonment rate of Informants was 20%. The call back option has helped to improve the (perceived) accessibility by phone. Due to the fact the abandonment rate of Informants remains high, the telephonic accessibility level is still not sufficient.

There are also quick wins which have been identified but not implemented yet. In a few months time Policy RSA, monitoring KPI's, case discussions, immediate satisfaction and forward emails (to 'correct party') will be realised. These quick wins will help to improve the outcome quality and accessibility. No quick win has been identified to improve the customer friendliness of the agents. However there are solutions identified to improve the customer friendliness of agents, such as training for example.

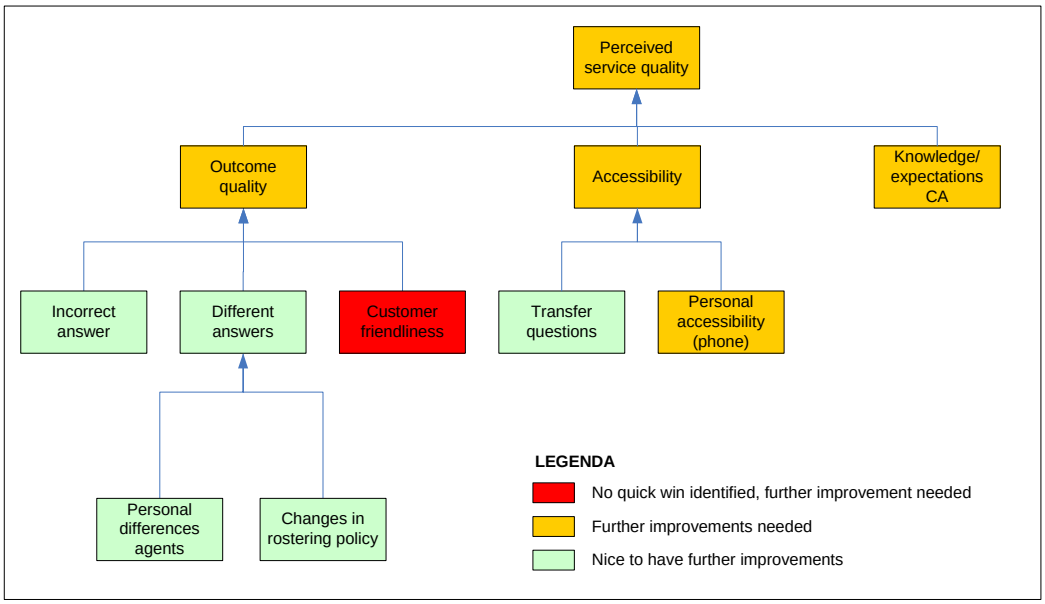

Figure 6-1: Indication problems covered by quick wins and further improvements needed

In Figure 6-1 the factors which influence the perceived service quality is presented. Though a successful first step has been made to improve the perceived service quality, not all problems are resolved after all quick wins are implemented. In this research the following long term solutions have been identified to increase the perceived service quality:

- Educate Service Points
- RSA Coach
- Use email as a medium to communicate recent information (news letter) to CA
- Specialisation agents (subject)
- Front office RSA's at P&A Service Point
- Flexible Pre-Assignment agents
- Extra agents
- Schedule number of agents based on analyzed historical peaks.
- Routing email based on indicated subject by CA

After the implementation of the new rostering system (PBS) which will be introduced in September 2009 the results of the quick wins on the (perceived) service quality have to be evaluated. When further improvement is needed the above mentioned options have to be worked out in more detail and it has to be analyzed whether implementation is possible.

7 RECOMMENDATIONS

In this chapter the recommendations based on this research will be made first. These recommendations are on a lower aggregated level. The second section present recommendations made based on overall observations during six months of the researcher. These recommendations are all on a higher aggregated level.

7.1 QUICK WINS AND IDENTIFIED LONG TERM SOLUTIONS

Extra Informant
One of the implemented quick wins was to hire an extra Informant. KPN data showed that one out of 3 calls for the Informants are abandoned. It is possible that the abandonment rate is not sufficiently reduced in spite of the extra informant. In such a case detailed data about the arrival rate of the Informants has to be analyzed. According to the Informants there are points during the day which are much busier than others. It is advisable to observe the arrival distribution of call of the Informants by requesting a detailed KPN report. This way it can be analyzed which points of time during the day are the busiest and how the schedule of the informants has to be adjusted to cope with the number of incoming calls during each point of the day. Moreover when Informants cannot cope with the number of questions received, an extra workspace has to be created, which makes it possible to add an extra Informant.

MY KLM
In the employees' satisfaction MTO survey of 2009 almost 60% of the CA's stated that information cannot be easily found on MY KLM (Haas & Klunder 2009). It is important that the knowledge of the CA is increased, because this positively affects the (perceived) service quality. A good communication channel is needed to do this. Therefore MY KLM has to be improved. As there are also CA's who do not use computers it is also advisable to use other types of communication channel.

KPI P&A Service Point
At this moment no telephonic data is measured for P&A Service Point. It would be advisable to start measuring this data. This way management will be notified when the telephonic accessibility of P&A Service Point becomes a problem. As a new roster system (PBS) will be launched in September it is important to monitor the number of questions as soon as possible. This way the department may adequately react on a change in the number of questions.

Evaluation quick wins and further improvement
As most quick wins have only been implemented since a month it is not possible to evaluate their effects on the (perceived) service quality. The first indications however show that this research has successfully made the first step to increase the (perceived) service quality. The results of the implemented quick wins have to be evaluated after a longer period of time to see which issues need further attention. Even after successfully implementing all quick wins there is still room for further improvements. In this research long term solutions have been identified to increase the perceived service quality. After the implementation of PBS these options have to be worked out in more detail and it has to be analyzed whether implementation is possible.

Customer friendly agents
The quick wins identified, cover all complaints except for customer-friendliness of agents. Training could help the RSA's to learn how to become more customer-friendly. As the agents have to process more phone calls due to the call back option, such training could also help the agents how to process phone calls.

7.2 ORGANIZATIONAL STRUCTURE AND EMPLOYMENT

This research has focused mainly on short term improvements that Rostering Services may implement to enhance the (perceived) service quality in the near future. Also long term options have been identified which could help to further improve the service quality in the longer run. In this section the researcher will give her recommendations not so much as a result of scientific research, but much more on the basis of her overall observations during her six months stay at KLM. This section emphasizes the organization structure and employment issues of Rostering Services as this directly affects the service quality.

7.2.1 TURNOVER RATE

Turnover rate is a measure for the average length of employment of employees. The turnover rate of employees influences the service quality of a contact center (Cheong et al. 2008). A high turnover rate will result in agents with less knowledge and skills, which will decrease the service quality. Therefore it is important to keep agents (when they are motivated and good employees) at Rostering Services as long as possible.

Some RSA's work fulltime, while others combine activities of a RSA and a CA. KLM policy defines that the latter RSA's are only allowed to work for a period of four years as a RSA. This policy has certainly a negative effect on the quality of the department, as RSA's who work for a longer period will have better skills and knowledge compared to a new agent.

All agents from P&A Service Point combine their specific activities of P&A Service Point with their work as a CA. At this moment they work at P&A Service Point one week every six weeks. Therefore many agents are needed to operate P&A Service Point. If more agents work a higher percentage at P&A service Point less agents are required to operate P&A Service Point. This also means that less agents have to be educated and managed. Moreover, as agents are working for more weeks at P&A Service Point, their experience and thus knowledge will also increase.

Informants are CA's that temporarily perform alternative work when they are not able to fly. On average such CA's work for five months as Informants which means that the Informants' turnover rate is high. This has a negative influence on the service quality. Therefore dependent on the budget and number of questions received (which will be discussed in sub section 7.2.3) it is advisable to replace the Informants with full time dedicated employees. The Informants work the same number of days according to their contract as CA's. This is not always a full time contract. It is recommended to employ Informants with an 80-100% contract. Otherwise more Informants are needed, which will take more time for the Informant supervisor to manage. Moreover, when an Informant only works two days a week it will take longer before a person is fully trained and he may probably never reach the same output as an Informant with an 80 to 100% contract.

7.2.2 COMBINING P&A SERVICE POINT AND RSA'S

At this moment there are three different parties within Rostering Services. To benefit from economies of scale it could be helpful to combine these parties into one larger party (Koole & Mandelbaum 2002). Large contact centers have a workload which is more predictable than the workload of small contact centers (Whitt 1999). Therefore combining parties will increase prediction of demand (number of questions posed).

For CA's it is difficult to know to which party they can address their questions. During this research for instance, it became clear that many CA's have never heard of P&A Service Point. Moreover CA's complain about the fact that their questions are transferred to other parties. If a CA has to deal with only one party, which can answer all questions of the CA, these problems can be reduced. It will be clear for a CA which party he has to address to. Accrdingly questions do not have to be transferred to another party anymore.

The new rostering system, Personal Bidding System (PBS), which will be launched in September 2009, shall affect the number of questions received by the parties of Rostering Services. It is therefore possible that P&A Service Point receives many questions (and accordingly has accessibility problems), while the RSA's do not have to answer a lot of questions. When P&A Service Point is combined with the RSA's this problem will not occur. The RSA's have more knowledge about PBS than the P&A Service Point and therefore RSA's are (more) capable to answer all questions received by P&A Service Point.

Besides combing P&A Service Point and RSA's it is also a possibility to use employees from Pre-Assignment as flexible capacity (stand-ins). Employees from Pre-Assignment will have certain days in which they are less busy due to PBS. During these days they can help the RSA's. Additional advantages of this exchange are the increase of interaction between these parties and therefore resulting in an increase of knowledge of both parties. Furthermore the function of Pre-Assignment will become more interesting by more diversity of the work increasing motivation and decreasing turn over rate.

7.2.3 INFORMANTS

In this research it has been indicated that the service quality of the Informants is below the accepted standard at this moment. This is for instance due to their insufficient knowledge and skills. As discussed in section 7.2.1 a cause for the lower service quality could be the fact that the turnover rate of Informants is too high. Moreover as Informants are doing (obliged) replacement work it is possible that Informants are less motivated in doing their job. Because of these reasons it could be advisable to see whether Informants are still needed in the future or whether their activities may be done by other parties. In the current situation it is not possible to replace the Informants with full-time employees, because there is no budget to do so. The Informants receive approximately 400 phone calls per day, and this number of phone calls cannot be added to the workload of an already existing party without reducing the overall accessibility of Rostering Services.

Dependent on the number of questions received it is also possible that the role of Informants is changed into that of a receptionist. They are responsible for picking up the phone and making time slot reservations for the RSA's. Moreover they are also responsible for transferring the calls to available agents of the adequate party. In the future, dependent on the budget and number of questions received, it has to be decided whether it is necessary to keep the activities of the Informants in a separate group. Therefore this section will discuss the different possible scenarios and the organization structure of the activities for the Informants for these scenarios.

At this moment there are two uncertainties affecting Rostering Services:

- The economic crisis
- Influence of PBS on number (and type) of questions received at Rostering Services

The economic crisis negatively affects the operational and financial situation of KLM. Less flights are scheduled resulting in a decrease in sales. Therefore at this moment the budget of all departments of KLM is downsized. No employees are hired, and investments cannot easily be made. Therefore there is no budget for Rostering Services to hire extra agents, or to invest in advanced technologies. When the financial position of KLM will improve, such measures should be re-considered.

PBS is going to be launched in September. PBS includes more possibilities for a CA to assure his preferred roster himself. CA's can clearly state their wishes and the roster program will optimize these requests for all CA's. When this does not work out for a CA, he can try to request his preferred roster for the same week again at a later moment. As a result of these new possibilities, CA's will probably reduce contact with the RSA's. CA's are able to process certain questions themselves, for which they prior to PBS needed a RSA. P&A Service Point is assigned to answer questions about the program. As this program is new for the CA's and more complex compared to Plan & Go the number of questions received by P&A Service Point will (probably) increase. CA's could voluntary participate in live testing of PBS. During this test phase the number of questions received by P&A Service Point has increased. It is

uncertain how the number of questions will develop when PBS is launched. The number of questions received by all parties of Rostering Services has to be monitored in order to take adequate actions.

The number of questions as well as the budget of Rostering Services can be high or low. The combination of these two uncertainties results in four scenarios. An analysis has been made which actions have to be taken in these four different scenarios. On the horizontal axe the available budget of Rostering Services is presented and on the vertical axe then numbers of questions posed by CA's. The result is presented in Table 7-1 and will be discussed below.

Number of Questions	Budget: Low	Budget: High
High	Combine P&A Service Point with RSA's. Add Flexible Pre-Assignment agents if necessary. Use Informants and Informant supervisor. Analyze possibility to change Informant into receptionist *(1)*	Combine P&A Service Point with RSA's. Add Flexible Pre-assignment agents if necessary. Hire a few extra agents when this would enable to replace Informants *(2)*
Low	Combine P&A Service Point with RSA's. Replace Informants with agents from P&A Service Point and RSA's. *(4)*	Combine P&A Service Point with RSA's. Replace Informants with agents from P&A Service Point and RSA's. *(3)*

Table 7-1: Scenario-analysis

(1) In a situation in which the budget is low and the number of questions high, it is not possible to hire extra agents. Therefore the Informants have to remain in such a situation. The Informant supervisor will try to increase the skills and knowledge of the Informants. It has to be evaluated whether this works and whether this is not too much time-consuming for the Informant supervisor. If the implementation of the Informant supervisor did not lead to the desired effect, it would be advisable to analyze whether it is possible to change the function of the Informant into a receptionist. In both cases it is also advisable to create a workspace for the Informants/receptionist in the same room as the RSA's. If this is not possible they should at least have their workspace as near as possible on the same on the same floor.

(2) When budget is high and the number of questions is high as well, it is recommended to replace the Informants by agents of P&A Service Point and RSA's and hire extra agents. Dependent on the types of questions received (complex or not complex) an extra RSA or P&A Service Point agent has to be hired. Agents working for a longer period will provide better service than the Informants do. Moreover Rostering Services will have fewer parties which will decrease the complexity of Rostering Services for the CA's.

(3, 4) When the number of questions is low (and budget is high or low) it would be advisable to replace the Informants with agents from P&A Service Point and RSA's. This will reduce the complexity of Rostering Services for the CA's as there are only two parties instead of three. Moreover, also the problem of Informants giving incorrect answers and having insufficient skills will be resolved in such a situation.

7.2.4 INTERACTION

If it is decided not to combine the parties of Rostering Services it is important that interaction of the parties will be increased. The most ideal situation would be to have all parties of Rostering Services situated on the same floor. This would make it easy for parties to interact which will decrease the number of incorrect answers given. Also workload can be balanced when one party has a higher workload than the other. This would enhance the overall service quality of Rostering Services.

In the current situation the parties of Rostering Services are all situated on different floors. It has to be analyzed whether it is possible to create one shared workspace. It is difficult to create one shared floor/room for the parties of Rostering Services in the short term because there is not sufficient room at the Crew Centre. Therefore it has to be investigated whether it is possible to switch location with other parties in order to obtain a room which can accommodate all agents of Rostering Services. Should this not be possible, it could also be an idea to combine a certain number of front-office agents from P&A Service Point and RSA's in one room, and back-office agents from P&A Service Point and RSA's in another room.

8 REFLECTION

In this chapter a reflection is made on the research project. This reflection will elaborate on the research method, research process and implementation.

8.1 RESEARCH METHODS

In this section the choices in research methods during the different phases of the research will be evaluated. A reflection will be made on the research methods used and research methods not used in this research.

8.1.1 ANALYSIS PHASE

The analysis phase contained different research methods. Interviews, observations and data-analysis were used to analyze the current rostering system, the possible causes for complaints made by the CA's and other reasons (like knowledge/expectations) why the perceived service quality is low. It was important to have a good understanding of how the rostering system works before analyzing the possible causes of complaints. Observations and interviews have been very helpful for me to determine the rostering system.

After analyzing the Rostering System I made a conceptual model to represent the Rostering System. I have considered different Business Process Modelling techniques like Interaction Model and Petri-net, IDEF0 and Object-Oriented modelling. As the interaction behind the process was not complex and there were many processes, each with different interactions between the parties, I have chosen against an Interaction Model. I did not make a Petri-Net model, because such a model consists of many building/decision blocks. Therefore in my opinion Petri-Net models would not have helped me to create a clear overview of the rostering system. IDEF0 consists of only a few building blocks which can present the processes of an organization. Moreover P&A consists of parties responsible for different processes, which form an input and output for the other party. IDEF0 helped me to model this relationship in a clear manner. I also wanted to model the interaction between the parties of Rostering Services since this research has focused on this interaction. I wanted to model the different routes a CA could take to get an answer to his question. After research and consulting my TU supervisors I did not find a suitable method to represent this. In the end I used a combination of SADT and object-oriented modelling.

Surveys and interviews were used to analyze the complaints made by CA's about Rostering Services. I started with the surveys. The results of the surveys gave me an indication how many CA's have complaints about the accessibility of Rostering Services. For me it was surprising to see that a survey with three hundred respondents said less about the actual complaints than 20 interviews. All the people that were interviewed had to fill in the survey in advance. The answers given in the survey sometimes gave an entirely different impression (more negative) than the answers of the CA during the interview. People for instance filled in answers negatively in the survey, but during the interview they were quite positive. Therefore I think it would have been better if I would have focused more on assessing the interviews instead of the surveys. It would also have been better if I started interviewing to get a feeling about the complaints made and constructed a survey based on the results of these interviews. This survey could assess how many people actually have these complaints.

The factors which influence the complaints made by CA's about Rostering Services have been assessed by observations, interviews and data-analysis. During field study with the different parties possible causes for the complaints have been identified. Due to the limited time of this research project the RSA's have only been observed four times for half a day. It is possible that some factors have been observed a few times by coincidence and other factors have not been observed at all, as they did not occur during those days. As I have discussed my findings, made during the observations, with employees of KLM this risk has been reduced.

Data-analysis has also helped me to identify the possible causes for the complaints made by the CA's. By taking a look at the data provided by the KPN, for example, it became clear to me that the number of scheduled Informants was not sufficient to cope with the number of questions. I already indicated in the first month that approximately 30% of the calls of the Informants were abandoned. However, I did not calculate to see whether the capacity of the Informants was sufficient to cope with the demand. This is a pity, because it would have been possible to hire an extra Informant sooner in the process and analyze the effects. Therefore it would have been better if I had started the data-analysis earlier in the process. A queueing model could have helped me to obtain these results, as this calculates whether the capacity is sufficient to cope with the number of questions received. This is also the case for the RSA's.

In this case the Erlang C model is used to calculate the advantage of having an extra Informant. There are also other methods to calculate the number of agents required. Due to the fact that the aim of using the Erlang C method was to indicate how big the advantage is of an extra Informant, it is not necessary to make precise calculations. Moreover there is no data available of the distribution arrival rate, so it would not make any sense to use a more precise model, since such a model requires precise data. However, when accurate predictions are required, it would be advisable to gather data about the distribution function of the call arrivals and use another model which incorporates abandonment as well. In the current situation approximately 20 to 30 % of the calls received by Informants are abandoned, so this is not an element that can be left out without affecting the results.

I first wanted to build a simulation model to create solutions for the accessibility problem of Rostering Services. As a simulation model needs a large amount of data I already started gathering data in the beginning of my research. After two months I discovered that the accessibility problem was a result of many other problems. For many of these problems a simulation model was not an adequate method to analyze the problem in further detail. Moreover building a simulation model is very time-consuming and even after spending a lot of time in constructing a simulation model it remains possible that the constructed model does not represents reality well. In this case all needed calculations and analysis could be made in Microsoft Excel. Simulation models are also built to convince management of certain options. As management was already convinced of all options which could have been modelled in a simulation model this argument did not apply either. Therefore it was decided not to construct a simulation model. Most of the data gathered for the simulation model has been used in calculations made in Microsoft Excel. However some data have been gathered in more detail than needed and some data have not been used at all. It would have been better if I would have started gathering data later on to prevent this problem and thereby prevent the waste of time.

8.1.2 GENERATING IDEAS

During the analysis phase I discovered several issues/problems of Rostering Services and already started inventing ideas to solve these problems. During the midterm meeting I presented ten ideas which were all viable options. It was recommended to me to search for more solutions and use a scientific method to do this. I used literature study, brainstorming and benchmarking to generate solutions. After utilizing these methods over 200 ideas have been generated. In the end thirteen quick wins have been selected and nine options have been recommended to be worked out in the future and analyze whether implementation is possible. It can be concluded that it was useful to use the research methods to generate ideas and that this has resulted in more and better ideas.

Brainstorming is an option which generated most options in a short time. An additional advantage of brainstorming is the involvement of the different actors. The representatives of the Management Team of Planning and Assignment were suddenly extra enthusiastic about the research and did not mind investing extra time for other sessions. The RSA's also started to be more open for solutions to certain problems.

My first idea was to organize a GDR session to brainstorm with the various participants from different groups. However, as solutions also had to be generated for some sensitive problems

concerning outcome quality for instance, I decided to organize several brainstorming sessions with various parties instead of organizing one brainstorming session. The biggest advantage of GDR sessions is the fact that many parties can write down ideas simultaneously and anonymously. In this case only four participants were used for each session, as no persons were available per group. With four participants it is not possible to hold anonymous sessions, even with GDR. Writing down ideas simultaneously can also be realized by brainstorming with pen and paper. Therefore no GDR session has been used. I used brainwriting as a method for brainstorming. In literature I found out that when participants can write down their ideas during a brainstorming session, the problem of production blocking can be overcome.

In the first session participants had to write down their ideas on a sheet of paper which then was passed on. It was very time-consuming to discuss the ideas plenary, because they had to be rewritten on a whiteboard. Therefore it was not possible to plenary discuss all the ideas during that session. In the second session the participants had to write down three ideas on a paper full with post-its and pass the paper on to their neighbour. When all ideas were written down, the post-its could be moved around on the white board. So it was not necessary to write all the ideas down. Still the plenary discussion was very time-consuming. Especially, since the respondents only had two hours available in their time schedule for the brainstorming session. Therefore the brainstorming session only contained the divergent phase (generation of ideas) and ideas have not been rated during the brainstorming sessions. This left me with many unstructured unrated ideas which could have been solved by just taking more time for the brainstorming session. I structured the ideas based on morphologic charts.

When structuring ideas I found out that some problem areas of the morphologic chart did not have many options. This is probably due to the fact that the brainstorming session only had one main topic (accessibility, outcome quality or knowledge CA) and the participants were not encouraged to think about solutions to solve different problem areas within a main topic. I think it could have been helpful if I had defined all the problem areas before the brainstorming session. This would have made it possible to structure the generated ideas during the brainstorming meeting by using a morphologic chart containing these problem areas. This way I could have forced the participants to think of solutions for all problem areas.

Benchmarking with other call centers was very useful for generating solutions, especially in the beginning as it opened my eyes for certain aspects such as the fact that training is normal for agents and controlling inflow email too. However, most of the benchmarks were with call centers of a much larger size. Different elements that are incorporated in such call centers are not viable for Rostering Services due to its small size.

Literature study was less useful to generate ideas in this research. It was very time-consuming and has not resulted in good ideas which had not come up during the brainstorming sessions or benchmarking.

8.1.3 SELECTING IDEAS

As mentioned in the previous section, approximately 200 solutions have been generated by this research. There were too many solutions and too little time to rate all these solutions with the participants during the brainstorming session. Therefore I first rated all the solutions myself by scoring them on cost, implementation time, acceptability, usability and feasibility. I only assigned yes or no scores to the alternatives. When an option scored positive on all the elements it was identified as a quick win. I scored these options and discussed the results with the manager of Rostering Services. Approximately ten quick wins have been identified this way.

After this, viable long term solutions had to be filtered as well. Due to the fact that all options had to be rated and time was limited, the options have only been rated for effectiveness and effort. If several rating sessions would have been held, it would have been possible to score the options against several criteria. When an options scored low on effort it is not clear why this is the case. It is possible that the implementation costs are high, or the implementation

time for instance. Cost is a larger constraint than implementation time, especially in the current financial situation of KLM. It therefore is a pity that this distinction has not been made.

I used MCDA to score the options because of its simplicity and time needed to perform the analysis. I have considered Analytic Hierarchy Process (AHP). This method compares different options against each other. Therefore its scores are more consistent compared to MCDA. However this would mean that option A would be compared with option B and C and D etc. After this option B also had to be compared with C, D etc., and option C with D. This would mean that it would take much time to make such an analysis. Moreover, in this case it was not necessary to chose between the options as there are almost no solutions which compete against each other and several options can be implemented simultaneously. Therefore comparing the solutions is not needed.

In the end I have scored all the options twice. Once for selecting the quick wins (based on five criteria, in cooperation with the manager of Rostering Services) and once reflecting to select options which are not quick wins (based on three criteria, with business analyst, RSA and manager Rostering Services). It could have saved time if I would have scored all options with the latter group in the first place.

8.2 RESEARCH PROCESS

My thesis started with finding solutions for the accessibility problems of the RSA's. The first articles I read about accessibility problems directed me to solving this problem with data-analysis and a simulation model. However, after my kick-off I was encouraged to dig deeper into the problem. I did this by observations during field study and interviewing parties of Rostering Services and other parties of Planning and Assignment. In this phase I discovered that the accessibility problem was the result of many other problems. For many of these problems a simulation model was not an adequate method to analyze the problem in further detail. I had to adjust my plans and instead of trying to solve the problems by a simulation model I suddenly had to organize several brainstorming meetings. After my brainstorming session I heard for the first time that it was important that actions could be taken as soon as possible to improve the perceived service quality. Therefore I focused on the quick wins and started implementing them.

For me it was quite a surprise to see how dynamic my research was. It was necessary to adjust the scope and plan of approach several times during the research to ensure that adequate aspects were being analyzed. Though I have been disappointed that it was not necessary to build a simulation model, I can look back at my research and say that every step taken has been of added value for KLM and TU Delft. This would not have been the case if I would have followed the original plan.

In the second part of my research (after the midterm meeting) I have selected the quick wins. Before focusing on the long term solutions I started implementing the quick wins. As KLM had to take actions to improve the (perceived) service quality they were enthusiastic to see quick wins implemented. Implementing quick wins was very time-consuming and it was therefore not possible to analyze the long term solutions at the same time. In the end it was possible to evaluate the quick wins as they were already implemented in June (six weeks before the final report had to be handed in. So it was a big advantage that I started analyzing the long term solutions later. However, the long term solutions have not been described in the same detail as the quick wins.

My first planning was to finish my master thesis the third of July. Actually I finished at the beginning of August, so one month later. The plan presented in the research proposal has been followed until the midterm meeting. After this meeting it has been decided that a simulation model was not needed and brainstorming sessions had to be organized. Implementing the quick wins was time consuming during the second phase of the research project. Therefore the planning has been adjusted.

8.3 IMPLEMENTATION OF QUICK WINS

Since the RSA's perceived high work pressure at the beginning of my research, they were not always open to my observations, analyses and ideas. Therefore I had to involve them in the research as much as possible and listen to their ideas about the problem as well. During different RSA meetings I gave them updates about my research. I also asked for their help when making flow charts and FAQ. However, the call back option was something that would change their process. I had already mentioned the idea once in a meeting, just as an idea. During the brainstorming session they came up with the call back option themselves. However after the brainstorming session some RSA's still were against the call back option. Due to small practical problems indicated by these RSA's the call back option was almost not going to be implemented in the short term anymore. By having two meetings with some representatives of the RSA's, listening to their objections and designing the call back option together in further detail it was possible to overcome the resistance. When the manager announced that the call back option was going to be implemented within two weeks during the general RSA meeting even none of the RSA's objected. I do not think this could have happened without the involvement of RSA's in the previous stages, so I am more convinced of process management than ever before.

8.4 CONCLUSIONS

It can be concluded that most steps undertaken have been of added value for the research. Some steps were of less added value. This was due to the dynamic nature of the research and the inexperience of the researcher. The end result of the research however has not been affected by this.

9 ABBREVIATIONS

KLM

CA = Cabin Attendant
CCM = Cabin Crew Management
CS = Compensatie saldo (compensation days)
HV = day off received when employee is older than 50
JE = Jaarverlof Extra = extra annual leave
JZ = Jaarverlof Ziek = sick during annual leave
JV = Jaarlijks Verlof = annual leave
IM = Integration Manager
OD = Oude dagen
PBS = Personal Bidding System (new roster system)
P&A = Planning and Assignment (Rostering Service is department of P&A)
P&G = Plan & Go (software rosterprogram)
RS = Rostering Services
RSA = Rostering Service Agent
SP = (P&A) Service Point
SC = Service Center
UM = Unit Manager (manager of group CCM's)
VV = Verzoek vlucht (request counter)

OTHER

BPM = Business Process Model
DO = Day of Operation
GDR = Group Decision Room
CPS = Creative Problem Solving
FAQ = Frequently Asked Questions
KPI = Key Performance Indicator
MCDA = Multi Criteria Decision Analysis

TRANSLATION

Informant = informatrice

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APPENDICES

A. MEANS-ENDS ANALYSIS

In Figure A-1 the means-ends analysis of this problem is presented. A means-ends analysis can help to determine the scope of a project (Enserink et al. 2004).
This level influences the different steps that have to be taken during a research. The overall objective is to satisfy/motivate CA's. The quality of the roster influences the quality of service provided by CA's. Rostering Services helps to improve this quality. CA's can contact them to ask for changes in their roster. Increasing the perceived service quality of Rostering Services will also increase the satisfaction of people with their roster and in the end result in satisfied/motivated CA's. There are also other possibilities to have satisfied motivated CA's. During this research however, the focus will be on increasing the perceived service level. The client is the manager of Rostering Services, so she is interested in how this perceived quality can be improved. This is the only manner of Rostering Services to increase the number of satisfied and motivated CA's. Other actions to improve this have to be done by other parties and therefore will not be analyzed during this research.

It is also possible to focus solely on the service quality or even a lower level accessibility. There is not a lot of knowledge about the actual complaints of the CA's. Moreover, the different blocks influence each other. For instance when the knowledge of CA's is not sufficient, a lot of CA's will pose unnecessary questions. These unnecessary questions can result in a lower accessibility. Therefore increasing the perceived service quality of Rostering Services is chosen as the goal of this project.

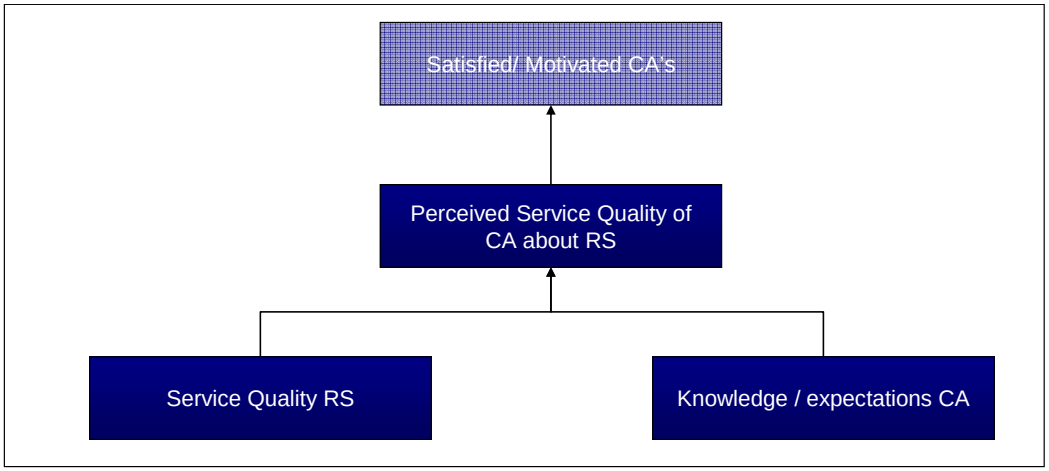


Figure A-1: Means-ends Analysis

B. IDEF0 MODEL

IDEF0 models are used to represent the functional part (processes or activities) of an organization. An IDEF0 model consists of different activity boxes. The input and output of such an activity box, or process is presented with arrows going in- and out of the box. The control or constraint element of an activity (in which protocols are presented for example) is presented with an arrow which goes in the box from above. The arrows which are flowing into the box from above represent the mechanism needed to perform an activity (Presley & Liles 1995) . In Figure B-1the different elements of an IDEF0 model are presented.

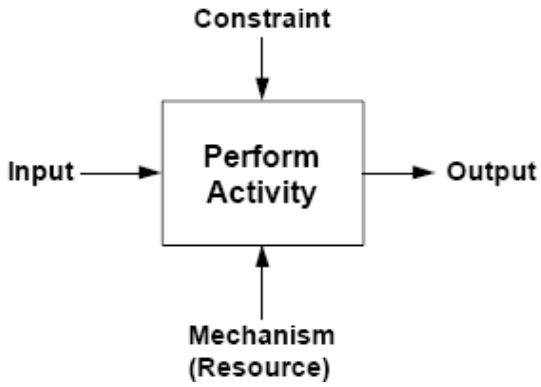


Figure B-1: Elements IDEF0 Model

In this IDEF0 model below for example, the KLM protocol is a control arrow. The arrow coming from below presents the elements (like human beings or machines) needed for the activity, but which will not be transformed during the process. In this case the Rostering Services parties are needed to process questions, but they will not be transformed during the activity.

In the figure below it is shown how the activities of the parties of Planning and Assignment are dependent of each other. The output of the activities of Man Power and scheduling are the input for Pre-Assignment and Rostering. The activities for the latter parties are both input for the RSA's. The RSA can be seen as the front-office for Planning Assingment.

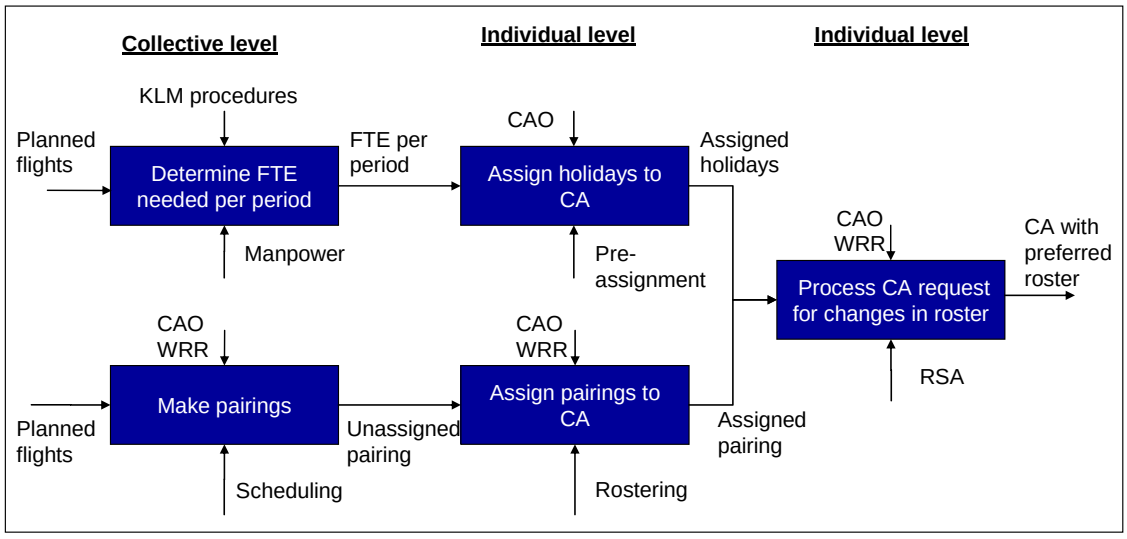


Figure B-2: IDEF0 model Planning and Assignment

Figure B-3 presents how a question arrives at Rostering Services and the different actions which can take place to process a question.

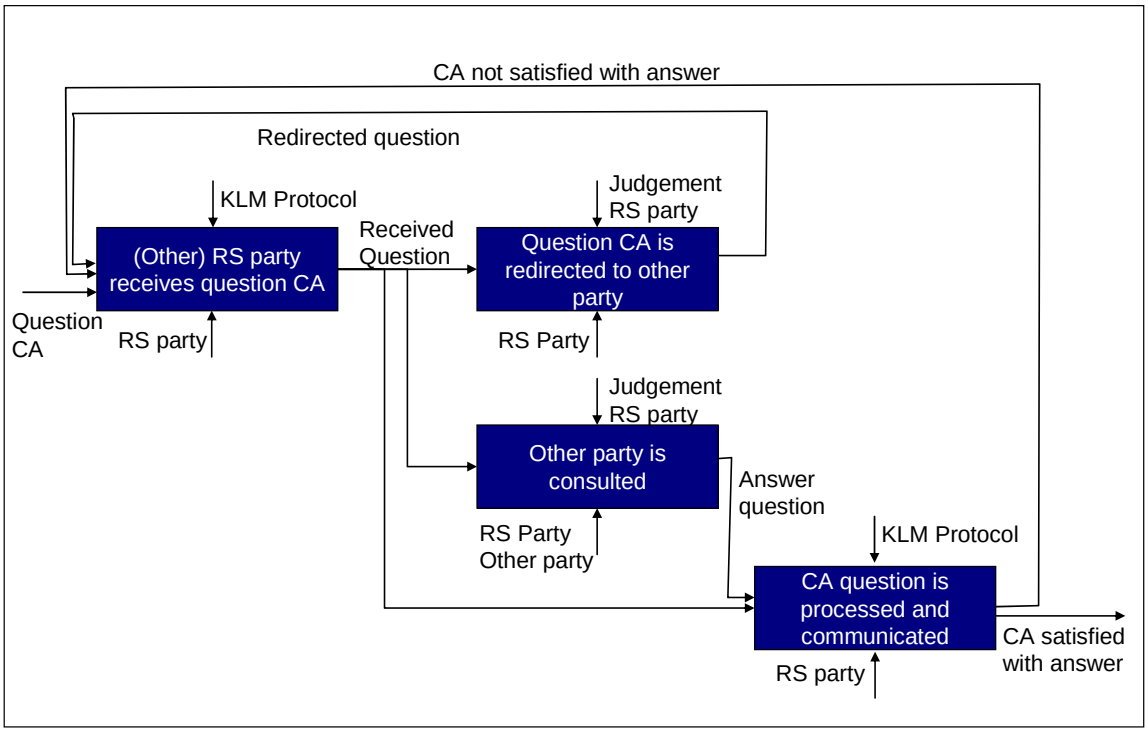


Figure B-3 IDEF0: Questions processed at Rostering Services

C. SURVEY

The setup of the survey elaborates on the questions and answer categories of the questionnaire, as well as the location where the questionnaires are handws out.

The questionnaire had to be short. Otherwise the CA's would not be willing to fill in the survey. Moreover CA's also have to check in for their flight, so they do not have a lot of time to fill in the questionnaire. All the questions are fitted into one page.

During one periode (one month) CA's have been asked to fill in the survey at the ' CAPPdag' (*CA Pure & Professional)* and at the Crew Centre. A ' CAPPdag' is a day where 200 to 300 CA's (only CA's) get different workshops, hear different speeches and can go to an information market. The Planning and Assignment department had a stand on the information market at the end of the day. In the first place, this day was seen as an excellent opportunity to ask CA's questions. Most of the CA's, however were tired and did not want to fill in a form. After 2 CAPPdays, only 100 surveys were collected. This is why the surveys were also distributed at the Crew Centre. At this location the CA's check-in before they go on a flight. In the Crew Centre several CA's are waiting before they can check-in. So this is a good opportunity to ask them whether they want to help this study by filling in the questionnaires. The surveys are filled in by a group of respondents at the same time. The advantage of this is the high responsive rate and the ability to check whether the employees have filled in the survey correctly and completely (Baarda & de Goede 2001). Also an extra explanation is possible when CA's do not fully understand a question. The respondents were chosen at random. Due to the fact that the survey does not take a lot of time, most respondents were willing to fill in the form. So, a random population was drawn from the CA's.

The questionnaire was a fixed format type of questionnaire. This means that the respondents could only choose between a predefined set of categories (Bentley & Whitten 2007). The advantage of such a format is that the questionnaires can be processed more easily. The questionnaire included multiple choice questions and ranking questions.

The first question of the questionnaire was about the contact frequency a CA has with the departments of Rostering Services. This was the most general question and therefore the most suitable question to begin with (Baarda & de Goede 2001). After this question, questions about the RSA were posed. The CA had to score the accessibility of the RSA for phone, email and visits. They could choose between 5 categories (bad, medium, neutral, good and excellent). Due to the fact that not every CA uses all the different communication channels a neutral category is necessary. Moreover, when you only try to contact a department once a year it is very likely that you do not assess the accessibility good or bad, but neutral.

When respondents fill in that they think the accessibility of a certain communication channel of a department is bad or mediocre, they have to give points to the categories what causes this negative opinion. The can divide 10 points over the following categories:

- Transfer calls
- Waiting time
- Cannot speak to RSA, in need of personal contact RSA
- Accessibility not possible outside office hours
- Different, namely…

In the different categories the respondent can fill in his own reason of the negative accessibility. In an Australian study about the customer satisfaction of call centers it was concluded that the following variables irritates customers when they are calling a call center (Bennington et al. 2000).

- Lack of personalized service/individualized service
- Having to wait on the telephone

- Uncaring communication
- Getting the run around
- The complexity of the telephone service
- Unreliable information and service.

The chosen categories in the survey are based on these categories. Uncaring communication and getting the run around are combined in the transfer calls. Unreliable information is not added, because this has nothing to with accessibility. In the CAPdays of August a survey about the accessibility of the RSA's was also held. In this survey also people had to give their opinion about the accessibility of the different communication channels per department in a multiple choice. When they assessed this accessibility negatively they were asked to give a reason for this negative assessment with an open question. The answers of these open questions were also an inspiration for the chosen categories.

The respondents had to divide 10 points over the categories mentioned above. They could choose to give all the points to one category, or spread them out over different categories. Due to the fact that the maximum number of points is determined, the CA was forced to make a trade-off between the categories. Otherwise they could have scored all the different categories high, because they wanted that everything to be improved.

RESULTS

Frequency contact	RSA	Informants	P&A Service Point
Never	38	65	122
< 2 a year	70	78	71
2-5 a year	140	94	29
1-3 a month	28	19	9
> 3 a month	13	2	0
Total	289	258	231

Figure C-1: Frequency contact Rostering Services

In the table above it is shown how many times the CA contacts the different parties of Rostering Services according to the CA. The RSA is contacted most. Almost 50% of the CA's contact the RSA 2-5 times a year. Almost 70 respondents did not fill in anything for the frequency of P&A Service Point. It could be that this is because these respondents do not visit P&A Service Point. If this is the case, than 200 of the 300 respondents never visit P&A Service Point. And another 70 respondents visit P&A Service Point less than twice a year.

When looking at the opinion of the CA's regarding the different communication channels, it can be concluded that the accessibility by phone is perceived lowest. Almost 50% of the respondents is not satisfied with this accessibility and has rated it bad or mediocre. The mail accessibility however is rated much better.

Accessibility RSA	Phone	Mail	Visit
Bad	25%	1%	3%
Mediocre	26%	5%	8%
Neutral	30%	8%	36%
Good	19%	50%	45%
Excellent	0%	35%	8%
Frequency	257	280	239

Figure C-2: Perceived accessibility RSA's

Before concluding that the accessibility by phone is negatively assessed by the CA's, it is interesting to analyze what the relationship is between the frequency of contact and the rating. This can be seen in the picture below:

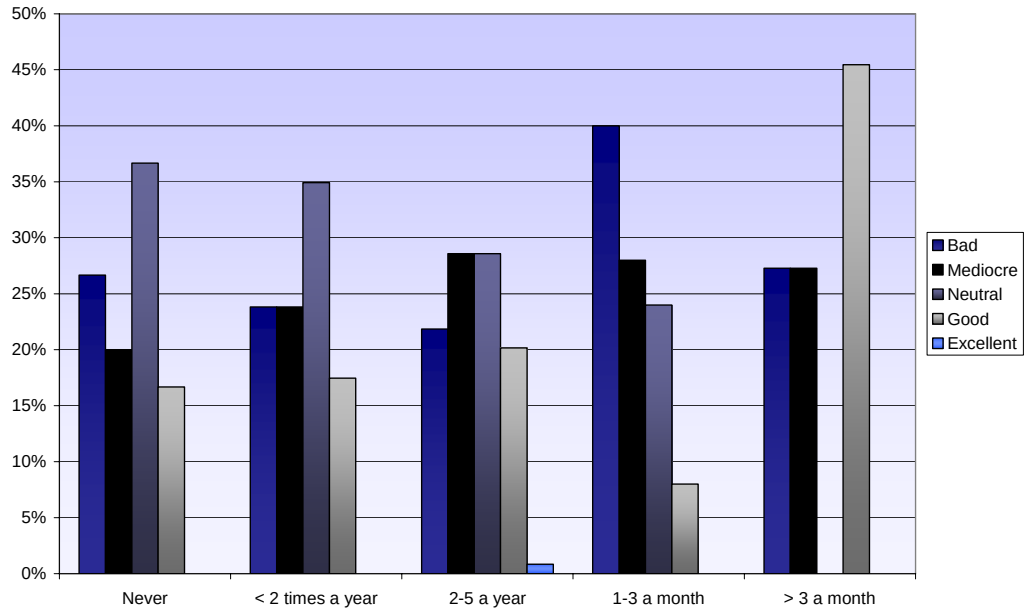


Figure C-3: Frequency contact in combination with accessibility phone

The category bad telephonic accessibility ranges between the 22 % and 27% for the first three categories. However, 40% of the CA's that contact the RSA's 1-3 times a month have assessed the telephonic accessibility as bad. The category good telephonic accessibility ranges between the 17 and 20% for the first categories. In the 1-3 month category only 8% have assessed the telephonic accessibility as good, while at the last category more than 45% of the respondents were satisfied with the telephonic accessibility. The differences between these ratings are probably caused by the fact that there are far less respondents in the last two categories; 28 (out of 257) for category 1-3 a month and only 13 (out of 257) for the > 3 a month category. This makes these categories more sensitive for variation in ratings.

Whenever a respondent assessed the accessibility of a communication channel negatively, they were asked to divide a number of 10 points to 5 possible reasons. In the table the different frequency per score is presented. Thirty respondents have given a 10 for personal contact. The total score is calculated by multiplying the frequency of the score with the score and summing up these outcomes up for each category. The total score of personal contact is the highest. CA's like to get in touch with their RSA personally, which is not easily possible according to them. Sometimes CA's have private reasons why they would like to make a change in their schedule. For them it is important to contact their RSA personally at such moments. In the table below it is shown that transferred calls and waiting times have almost the same scores (respectively 283 and 299). The frequency of the scores for these elements is around 75% of the frequency of personal contact (79-84 respondents have given scores to these categories compared to 119 for personal contact). However, the end score is less than 50% of personal contact (283-299 for transferred calls and waiting time, 682 for personal contact). So it can be concluded that when CA's are making a trade-off between personal contact and transferred calls or waiting time, personal contact wins. The score of opening hours and different reasons are the lowest. The 'different' category, was an open answer, where CA's could fill in the answer themselves.

Score RSA	Transferred calls	Waiting time	Personal Contact	Opening hours	Different
1	9	10	11	10	0
2	19	22	11	12	5
3	22	22	15	12	1
4	7	8	6	4	1
5	13	11	21	6	0
6	2	3	11	1	0
7	1	2	4	0	0
8	1	0	9	0	1
9	0	0	1	0	1
10	5	6	30	2	4
Frequency	79	84	119	47	13
Score	283	299	682	142	74

Figure C-4: Scores per categories

Below you can see the results of P&A Service Point. As you can see not many respondents were negative about P&A Service Point. The large amount of neutral CA's is probably due to the fact that not many people go to P&A Service Point for their questions. One third of the CA's did not fill in anything about their opinion of the different P&A Service Point communication channels.

P&A Service Point	Phone	Mail	Visit
Bad	2%	2%	0%
Mediocre	7%	2%	3%
Neutral	54%	64%	45%
Good	34%	26%	37%
Excellent	4%	6%	15%
Frequency	197	179	195

Figure C-5: Perceived accessibility P&A Service Point

Informants	Phone
Bad	1%
Mediocre	9%
Neutral	29%
Good	56%
Excellent	6%
Frequency	258

Figure C-6: Perceived accessibility Informants

Only 10 percent of the respondents were negative about the accessibility of the Informants. However, data about the (telephonic) service level of the different parties show that the service level of the Informants is much lower than the service level of the RSA's. The service level is dependent on the number of calls answered, the delay (waiting time) of the calls and the number of calls abandoned (KPN 2008). While the average service level of the different RSA teams in one month is 69.4, the service level of the Informants is 37.79 (see table below). From the KPN data you would expect that the telephonic accessibility of the Informants would be assessed more negatively than the telephonic accessibility of the RSA's.

KPN service level Dec 08	Calls offered	Calls abandoned	% Abandoned	Service level
RSA	272	11	4%	69.40
Informants	2389	732	31%	37.79

Figure C-7: Service level determined by KPN

Calls offered and answered according to KPN data	Februari		March		April		May	
	Offered	answered	Offered	answered	Offered	answered	Offered	answered
RSA	188	159	407	310	428	361	248	214
INFORMATRICES	4574	2827	5623	3100	4304	2804	4076	2530

Figure C-8: Calls offered and answered RSA's and Informants

ENQUÊTE BEREIKBAARHEID RSA'S, P&A SERVICEPOINT EN INFORMATRICES

Onderzoek voor afstudeeropdracht van Liselot Goudsmit op bereikbaarheid Rostering Services

Hoe vaak had u met een van de volgende afdelingen contact de afgelopen periode?	**RSA**	**Informatrices**	**P&A servicepoint**
Nooit	☐	☐	☐
< 2 keer per jaar	☐	☐	☐
2- 5 keer per jaar	☐	☐	☐
1- 3 keer per maand	☐	☐	☐
> 3 keer per maand	☐	☐	☐

Bereikbaarheid RSA's	**Slecht**	**Matig**	**Neutraal**	**Goed**	**Uitstekend**
Telefoon	☐	☐	☐	☐	☐
Mail	☐	☐	☐	☐	☐
Inloop	☐	☐	☐	☐	☐

Indien **slecht** of **matig** beantwoord op vorige vraag: Verdeel **10 punten** over onderstaande categorieën. Je mag 10 punten aan 1 categorie geven of ze verdelen over meerdere categorieën.Een hoge score betekent dat die categorie veel heeft bijgedragen aan uw antwoord (slechte/matige bereikbaarheid) op vorige vraag.

Meerdere keren doorverbonden voor ik RSA spreek	☐
Lang in de wacht bij andere partijen voor ik RSA spreek	☐
Ik krijg RSA niet te spreken/behoefte persoonlijk contact RSA	☐
Bereikbaarheid buiten kantooruren niet mogelijk	☐
Anders, namelijk …….	☐

Bereikbaarheid P&A Servicepoint	**Slecht**	**Matig**	**Neutraal**	**Goed**	**Uitstekend**
Telefoon	☐	☐	☐	☐	☐
Mail	☐	☐	☐	☐	☐
Inloop	☐	☐	☐	☐	☐

Indien **slecht** of **matig** beantwoord op vorige vraag: Verdeel **10 punten** over onderstaande categorieën. Je mag 10 punten aan 1 categorie geven of ze verdelen over meerdere categorieën.Een hoge score betekent dat die categorie veel heeft bijgedragen aan uw antwoord (slechte/matige bereikbaarheid) op vorige vraag.

Duurt lang voordat ik contact krijg met juiste persoon	☐
Ik sta lang in de wacht	☐
Bereikbaarheid niet 24-7 mogelijk	☐
Anders, namelijk …….	☐

Bereikbaarheid Informatrices	**Slecht**	**Matig**	**Neutraal**	**Goed**	**Uitstekend**
Telefoon	☐	☐	☐	☐	☐

Indien **slecht** of **matig** beantwoord op vorige vraag: Verdeel **10 punten** over onderstaande categorieën. Je mag 10 punten aan 1 categorie geven of ze verdelen over meerdere categorieën.Een hoge score betekent dat die categorie veel heeft bijgedragen aan uw antwoord (slechte/matige bereikbaarheid) op vorige vraag.

Ik sta lang in de wacht	☐
Bereikbaarheid niet 24-7 mogelijk	☐
Anders, namelijk …….	☐

D. OBSERVATIONS: QUESTIONS PARTIES

The RSA's have collected their received email in a special map. This way the different emails could be analyzed. In total 455 emails have been read and categorized. The emails that have been read were from different periods, to ensure that the categories were not biased by a certain period. For instance, in the beginning of February a lot of questions were asked about the CAPPdays (an information day for CA's), as these days were organized in February.

Question type (email RSA)	Percentage
Request days off	16%
Request flight	16%
Information question	16%
Thank you email	14%
Holiday requests	10%
Education	9%
P&A Service Point	8%
Reserve Block	7%
Recent things (locked days, CAPPdays)	4%
Total	455

Table D-1: Subjects questions emails

The general questions of the information questions could also have been answered by the Informants.

Observations Informants (70 questions observed)

- 10 % of the questions received by the Informants are redirected to P&A Service Point
- 20% of the questions received by Informants are redirected to RSA
- 5% of questions RSA is consulted
- 50% of questions are directly answered.

Observations RSA (133 questions observed)

Questions for RSA	Consulted	Redirected
UM	6%	2%
Pre-Assignment	5%	0%
Rostering	2%	0%
Manpower	2%	0%
RM	1%	0%
P&A Service Point	0%	2%
MY KLM	0%	2%
Total	14%	5%

Table D-2: Questions received RSA

In total there were 74 requests made within the 133 questions. 34% of these requests were denied.

Observations P&A Service Point (26 questions)

Since P&A Service Point receive less questions per hour, only 26 questions have been analyzed. Since during the interviews no complaints have been made about P&A Service Point it was not necessary to analyze this party in more detail. The two times in which P&A Service Point has been observed, no accessibility problems have been indicated. Moreover the accessibility of P&A Service Point

- 8 times redirected, of which 3 times to the RSA,
- 2 times another party consulted (RSA and Pre-Assignment)

E. DATA ACCESSIBILITY INFORMANTS

In the table below the range of number of calls is presented. In the fourth column of this table the distribution function is presented. This shows that approximately 50 % of the days receive between 0 to175 calls.

Range calls	Frequency	Percentage	Distribution
0	0	0%	
25	30	15%	15%
50	0	0%	15%
75	4	2%	17%
100	11	5%	22%
125	25	12%	35%
150	23	11%	46%
175	16	8%	54%
200	18	9%	63%
225	16	8%	71%
250	22	11%	82%
275	14	7%	89%
300	9	4%	93%
325	4	2%	95%
350	4	2%	97%
375	1	0%	98%
400	1	0%	98%
425	2	1%	99%
450	1	0%	100%
475	1	0%	100%
Total	202	100%	

Table E-1: Number of questions received by Informants

F. DATA ACCESSIBILITY RSA's

ARRIVAL QUESTIONS

Email

Since the first of May CA's have to pose their question by a web form. A positive advantage of this is the fact that data can be easily gathered. In the table below the number of emails received by the RSA's are presented. In February the number of received emails per day has also been gathered. This is presented in Figure F-1. The numbers presented in this table also take into account the number of emails received from other parties. Therefore Figure F-2 is needed to compare the two different time periods. As shown in this table, less than 20% of the emails are posed by another party than the CA. This means that the average number of emails in the period in May does not exceed 201. So in the presented week in February the RSA's received much more emails than in the period of May. Some CA's reply via the web form and others do not reply via web forms. It is possible that this causes the difference between the number of emails received in February and May. To make sure that the workload estimation is not too low the two scenario's will use 300 and 350 number of emails.

CA questions	Week 1	Week 2	Week 3	Week 4	Average
Monday	156	217	216	142	183
Tuesday	173	160	210	176	180
Wednesday	174	142	150	168	159
Thursday	162	182	91	166	150
Friday	140	165	108	109	131
Saturday	62	67	38	49	54
Sunday	89	84	70	79	81

Table F-1: Questions CA posed by email to RSA

Emails RSA	Emails	Percentage
CA	2155	83%
Other parties	433	17%
Total	2588	100%

Table F-2: Emails send by different parties

February	Mails received RSA
Monday	110
Tuesday	258
Wednesday	320
Thursday	388
Friday	312
Saturday	91
Sunday	45

Table F-3: Mails received February

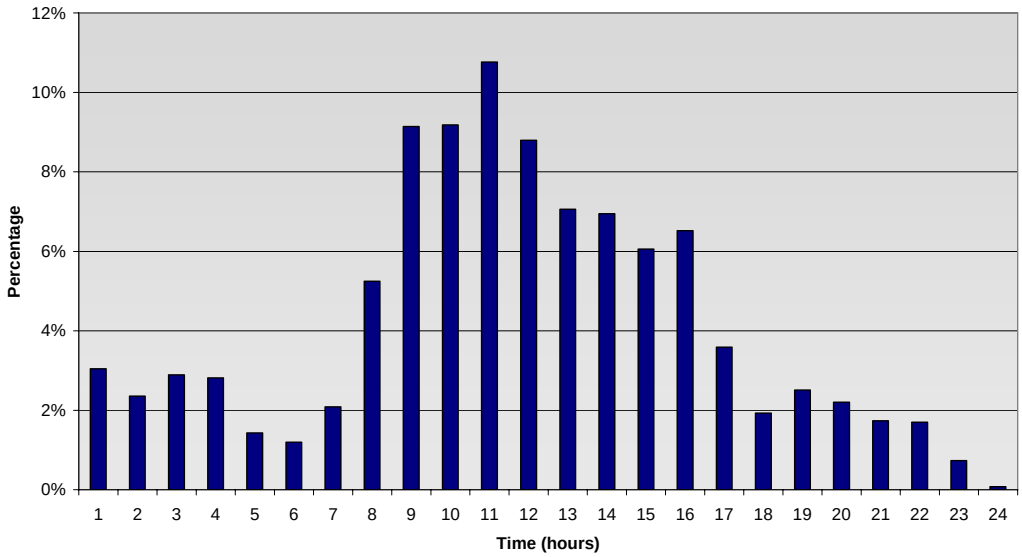


Figure F-1: Mail arrival pattern over the day

In the table above the points in time in which emails are sent to the RSA's is presented. In total 32 % of the emails are send outside office hours. This means that these CA's could not visit or call the RSA's in the current situation. The fact that 14 % of the emails are sent between 01:00 and 06:00 AM can be explained by the fact that CA's are traveling to destinations in another time zone.

Visits

There have been two different measuring periods. The largest period has been in April 2008. During 3 weeks the number of visitors has been measured during this period. The number of visitors has also been observed during a period of almost 2 weeks in February. These measurements were more accurate since the points of time were measured of the visitors instead of the number of visitors per hour. However the observers were not measuring the number of visitors from 08:30 till 17:00 (opening hours RSA). Therefore the data has been adjusted.

Weeknr	mo	tu	wed	thur	fri
17	96	91	79	73	86
18	83	71			67
19	82	78	71	90	73
20				83	100
Average	87	80	75	82	81.5

Table F-4: Number of visitors

In the table below the number of visitors in February are presented. The average number of visitors is around 20 higher compared to the average number of visitors in February. Thursday the 12th has been chosen as a representative day for the model.

Day of week	Date	Starting time	End time	Visitors	Adjusted visitors
Thursday	12	11:00	16:19	60	93
Friday	13	8:30	14:30	60	94
Monday	16	9:00	15:15	81	121
Tuesday	17	9:00	16:45	77	85
Wednesday	18	8:15	14:39	77	111
Monday	23	11:00	16:42	85	109
Thursday	26	9:00	15:00	67	107
Friday	27	8:00	11:42	29	

Table F-5: Observed visitors February 2009

Based on the data presented in Table F-6 some of the days have been adjusted by adding the average number of visitors of the time period that is not observed during that day.

Day of week	Date	08:30-11:00	09:00-11:0	14:30-16:45	15:00-16:45	16:15-16:45
Thursday	12					
Friday	13	29	21			
Monday	16					
Tuesday	17			25	23	6
Wednesday	18	31	23			
Monday	23			42	41	12
Thursday	26		12			
Friday	27	13	10			
Average		24	17	34	32	9

Table F-6: Observations visitors divided different parts of day

	9	10	11	12	13	14	15	16
Monday	13%	13%	19%	11%	6%	15%	**18%**	**5%**
Tuesday	21%	9%	15%	13%	13%	13%	**8%**	**7%**
Wednesday	15%	15%	21%	10%	17%	9%	**9%**	**5%**
Thursday	11%	16%	19%	11%	14%	16%	**9%**	**4%**
Friday	18%	12%	13%	10%	18%	14%	**9%**	**6%**
Average	16%	13%	17%	11%	14%	14%	**11%**	**5%**

Table F-7: Distribution visits over time (April)

As presented in the table above the number of visitors is between the 11 and 17 % between 09:00 and 16:00. Only 5 % of the total number of visitors is received between 16:00 and 17:00. Therefore these visitors will not be taken into account in the following model.

When the RSA have received 98 visitors between 09:00 and 16:00 there are 100/7 = 14 visitors per hour. The average process time is 5 minutes and 14 seconds. There are 7-8 RSA's present most of the times to process questions. However during lunch there are only 3 to 4 RSA"s available. During this hour the accessibility is therefore the lowest.

Calls

In Figure F-2 the number of calls received per day is presented. The number of calls received ranges between 0 and 30.

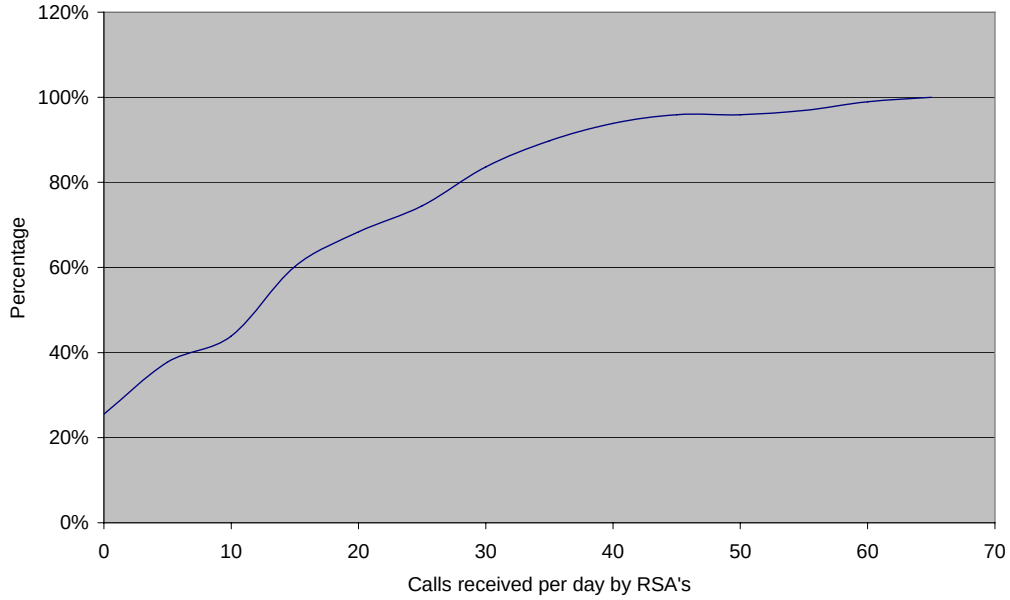


Figure F-2: Distribution function number of calls received by RSA

PROCESS TIME

Mail

Due to the fact that the RSA's did not like it when the process time of their emails would be timed, it has been measured how many emails are answered during a certain time period. The results are presented in the table below:

Time frame (minutes)	Number of emails	Average (minutes)
30	6	5:00
30	5	6:00
30	15	2:00
15	5	3:00
45	18	2:30
30	8	3:45
15	4	3:45
30	4	2:30
15	6	7:30
30	7	4:20
30	6	5:00
30	5	6:00
Average		4:20

Table F-8: Observations process time email

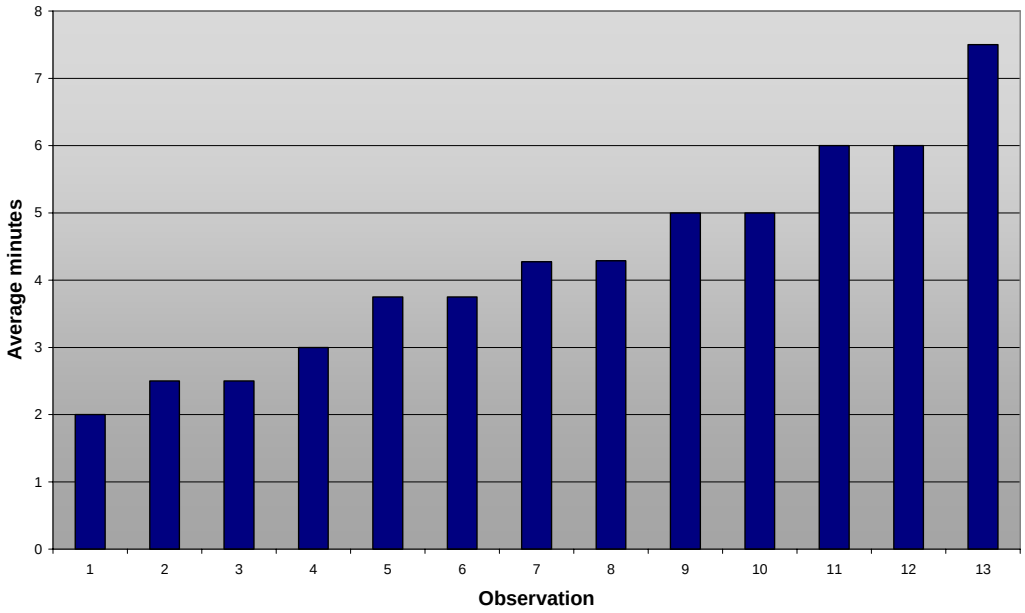


Figure F-3: Observations process time email

As shown in the figure above a straight line can be drawn from the observation with the smallest average number of minutes to the observation with the most number of minutes. This is also the case for a uniform distribution function. Therefore a uniform distribution will be used to represent the process time for emails: Uniform (2,8) will represent the process time of emails.

Visit

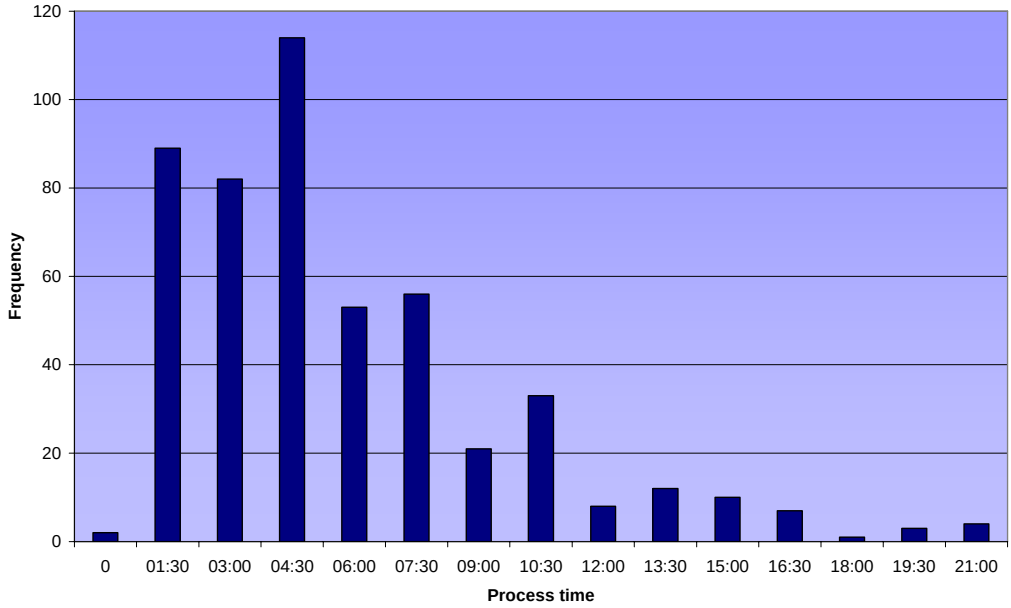


Figure 0-1: Duration visit

Calls

	Calls	Answered	Duration	Calls including pinks	Calls answered including pink	Percentage calls answered
February 2008	188	159	2:25	235	198.75	85%
March 2008	395	300	2:47	493.75	375	76%
April 2008	428	361	3:21	535	451.25	84%
November 2008	92	83	2:13	115	103.75	90%
December 2008	264	234	2:58	330	292.5	89%

Table 0-1: Arrival and duration phone calls

G. QUEUEING THEORY

In this appendix calculations will be made to analyze whether the RSA capacity is sufficient to cope with the number of questions over the day. Moreover the waiting times for calls and visitors is estimated by using the Erlang C model.

Date (Feb)	Day of week	Number of emails
4	Wednesday	322
5	Thurday	389
6	Friday	313
7	Saturday	92
8	Sunday	84
9	Monday	219
10	Tuesday	400
11	Wednesday	314
12	Thursday	197
13	Friday	102
14	Saturday	50
Average workday		282
Average weekend day		75

Table G-1: Number of emails

In the table above it is shown that the on average 282 emails are received at a workday, and 75 emails received at weekend days. First an analysis will be made to see whether there is sufficient number of agents scheduled to cope with the busiest periods of time. Therefore 600 emails for Monday and 450 emails for the other days have to be answered.

The RSA's should be able to answer 450 emails over the day on Monday and 600 emails on Monday. As agents also need breaks (toilet breaks, lunch etc.), it is assumed that they can only process 10 questions per hour. When the process time is 5 minutes, agents have already processed 10 questions in 50 minutes. This means that each agent would be unproductive 10 minutes per hour, resulting in (10 minutes * 8.5) 85 minutes per day. Lunch is 30 minutes, so almost an hour per RSA per day is assumed to be unproductive.

Day of week	Date	Starting time	End time	Visitors	Adjusted visitors
Thursday	12	11:00	16:19	60	93
Friday	13	8:30	14:30	60	94
Monday	16	9:00	15:15	81	121
Tuesday	17	9:00	16:45	77	85
Wednesday	18	8:15	14:39	77	111
Monday	23	11:00	16:42	85	109
Thursday	26	9:00	15:00	67	107
Friday	27	8:00	11:42	29	

Table G-2: Number of visitors (February 2009)

The maximum number of received visitors in the table above is 121. In the period February – May 2009 the RSA's did not receive any phone calls from the CA's. They did however receive phone calls from other parties related to the roster. No data are available on the number of phone calls received by other parties. Therefore the RSA's have been asked to estimate the number of phone calls. The numbers were between 5 – and 15. As the number of phone calls received per person is also dependent on the number of RSA's working, 15 calls would probably be received in a situation in which fewer agents are working. Therefore it is assumed that 10 phone calls are received per agent, which means that 100 phone calls are received by the RSA's per day. The average phone call takes approximately 3 minutes. As there is no indication about the distribution of phone calls over time, the distribution of visitors is used. At

this moment 6 minutes is used as process time for visitors. This means that 100 phone calls of 3 minutes take the same amount of time as 50 visits. Both visits and phone calls cannot wait some hours like email

In contrast to email communication, visits and calls have to be processed as quickly as possible. Therefore an analysis has been made based on how long CA's have to wait when a certain number of calls and visits arrive. This has been done by using an Erlang C model. In paragraph 4.3.3 it has been described why and how an Erlang C model can be used. The highest number of visits and calls received in an hour is 30. Most points over the day receive between 20 and 30 visits and calls per hour (see also Table G-4).

	30 visits and calls		20 visits and calls	
Number of agents	Average waiting time (seconds)	Service level (30 seconds)	Average waiting time	Service level (30 seconds)
3	infinite	0	160	59%
4	83	53%	31	85%
5	43	80%	7	95%
6	12	92%		

Table G-3: Service level for process time of 6 minutes.

The actual average process time of visits is 5 minutes. When this is used to calculate the service level with a certain number of agents 5 agents already have a service level of 90% (answered within 30 seconds) and an average delay of 16 seconds.

Besides lunch and plenary meetings at least 6 agents are scheduled most of the time. Therefore the waiting time of visits and phone calls should not be too high.

As visits and calls should be served before emails (as emails do not have to be processed immediately) first a calculation has been made about the needed capacity to process visits and calls. Table G-4 shows the number of arrived calls/visitors which is processed over the day. Table G-5 shows the capacity needed to process calls and visitors. The remaining RSA capacity can be process emails.. The service level of emails defines that emails have to be answered within 24 hours. Therefore an indication of the number of emails answered per hours is of sufficient detail. Table G-6 -Table G-9 indicate the number of emails not processed by RSA's. The numbers presented indicate how many emails still have to be processed. When the numbers become negative it means that there are no emails left to process. The column in which the numbers become negative with the minimal number of agents is yellow, because this indicates the minimal number of agents needed to process all emails within 24 hours.

In Table G-7 it is presented that an average day can already be successfully operated with 6 agents. However, agents also have additional tasks. These tasks combined take maximal 8 hours (dependent on visitors) and therefore it is assumed that 7 agents are required for an average day. As presented in Table G-8 even 551 emails are possible to operate for the agents (9, and therefore when additional tasks are included 10 agents are required).

By using queuing theory it is analyzed that the accessibility problems are not caused by insufficient agent scheduling per day (as it is aimed to schedule 10 RSA's per day)

Number of visitors & calls processed (n = 181 process time = 6 min.)		1	2	3	4	5	6	7	8	9	10	Number of RSA's
Time	Visitors	10	20	30	40	50	60	70	80	90	100	Maximum questions processed
9:00	29	19	9	-1	-11	-21	-31	-41	-51	-61	-71	
10:00	23	13	3	-7	-17	-27	-37	-47	-57	-67	-77	
11:00	30	20	10	0	-10	-20	-30	-40	-50	-60	-70	
12:00	20	10	0	-10	-20	-30	-40	-50	-60	-70	-80	
13:00	25	15	5	-5	-15	-25	-35	-45	-55	-65	-75	
14:00	25	15	5	-5	-15	-25	-35	-45	-55	-65	-75	
15:00	20	10	0	-10	-20	-30	-40	-50	-60	-70	-80	
16:00	9	-1	-11	-21	-31	-41	-51	-61	-71	-81	-91	

Table G-4: Number of visitors not processed (above average)

Number of emails processed (n= 449 process time = 6 min)		1	2	3	4	5	6	7	8	9	10	Number of RSA's
Time	New emails received	10	20	30	40	50	60	70	80	90	100	Maximum questions processed
17:00 - 07:00		135	135	135	135	135	135	135	135	135	135	
8:00	24	154	149	144	139	134	129	124	119	114	109	
9:00	41	195	190	184	169	154	139	124	109	94	79	
10:00	41	236	231	218	193	168	143	118	93	68	43	
11:00	48	284	279	266	231	196	161	126	91	56	21	
12:00	40	324	319	296	251	206	161	116	71	26	-19	
13:00	32	356	351	323	268	213	158	103	48	-7	-62	
14:00	31	387	382	349	284	219	154	89	24	-41	-106	
15:00	27	414	409	366	291	216	141	66	-9	-84	-159	
16:00	30	443	428	375	290	205	120	35	-50	-135	-220	
17:00												

Table G-5: Number of emails not processed (number of received emails is above average)

Number of emails processed (n= 284 process time = 10 min)			1	2	3	4	5	6	7	8	9	10	Number of RSA's
Time	Number of emails	New emails received	6	12	18	24	30	36	42	48	54	60	Maximum questions processed
17:00 - 07:00	85		85	85	85	85	85	85	85	85	85	85	
8:00	100	15	97	94	91	88	85	82	79	76	73	70	
9:00	126	26	123	120	116.4	107.4	98.4	89.4	80.4	71.4	62.4	53.4	
10:00	152	26	149	146	138.2	123.2	108.2	93.2	78.2	63.2	48.2	33.2	
11:00	183	31	180	177	169.2	148.2	127.2	106.2	85.2	64.2	43.2	22.2	
12:00	208	25	205	202	188.2	161.2	134.2	107.2	80.2	53.2	26.2	-0.8	
13:00	228	20	225	222	205.2	172.2	139.2	106.2	73.2	40.2	7.2	-25.8	
14:00	248	20	245	242	222.2	183.2	144.2	105.2	66.2	27.2	-11.8	-50.8	
15:00	265	17	262	259	233.2	188.2	143.2	98.2	53.2	8.2	-36.8	-81.8	
16:00	284	19	280.4	271.4	239.6	188.6	137.6	86.6	35.6	-15.4	-66.4	-117.4	
17:00													

Table G-6: Number of emails not processed (average number of received emails, high process time)

Number of emails processed (n= 284 process time = 6 min)			1	2	3	4	5	6	7	8	9	10	Number of RSA's
Time	Number of emails	New emails received	10	20	30	40	50	60	70	80	90	100	Maximum questions processed
17:00 - 07:00	85		85	85	85	85	85	85	85	85	85	85	
8:00	100	15	95	90	85	80	75	70	65	60	55	50	
9:00	126	26	121	116	110	95	80	65	50	35	20	5	
10:00	152	26	147	142	129	104	79	54	29	4	-21	-46	
11:00	183	31	178	173	160	125	90	55	20	-15	-50	-85	
12:00	208	25	203	198	175	130	85	40	-5	-50	-95	-140	
13:00	228	20	223	218	190	135	80	25	-30	-85	-140	-195	
14:00	248	20	243	238	205	140	75	10	-55	-120	-185	-250	
15:00	265	17	260	255	212	137	62	-13	-88	-163	-238	-313	
16:00	284	19	278	263	210	125	40	-45	-130	-215	-300	-385	
17:00													

Table G-7: Number of emails not processed by RSA over time (average day)

Number of emails processed (n= 551 process time = 6 min)			1	2	3	4	5	6	7	8	9	10	Number of RSA's
Time	Number of emails	New emails received	10	20	30	40	50	60	70	80	90	100	Maximum questions processed
17:00 - 07:00	166		166	166	166	166	166	166	166	166	166	166	
8:00	195	29	190	185	180	175	170	165	160	155	150	145	
9:00	245	50	240	235	229	214	199	184	169	154	139	124	
10:00	296	51	291	286	273	248	223	198	173	148	123	98	
11:00	355	59	350	345	332	297	262	227	192	157	122	87	
12:00	404	49	399	394	371	326	281	236	191	146	101	56	
13:00	443	39	438	433	405	350	295	240	185	130	75	20	
14:00	481	38	476	471	438	373	308	243	178	113	48	-17	
15:00	515	34	510	505	462	387	312	237	162	87	12	-63	
16:00	551	36	545	530	477	392	307	222	137	52	-33	-118	
17:00													

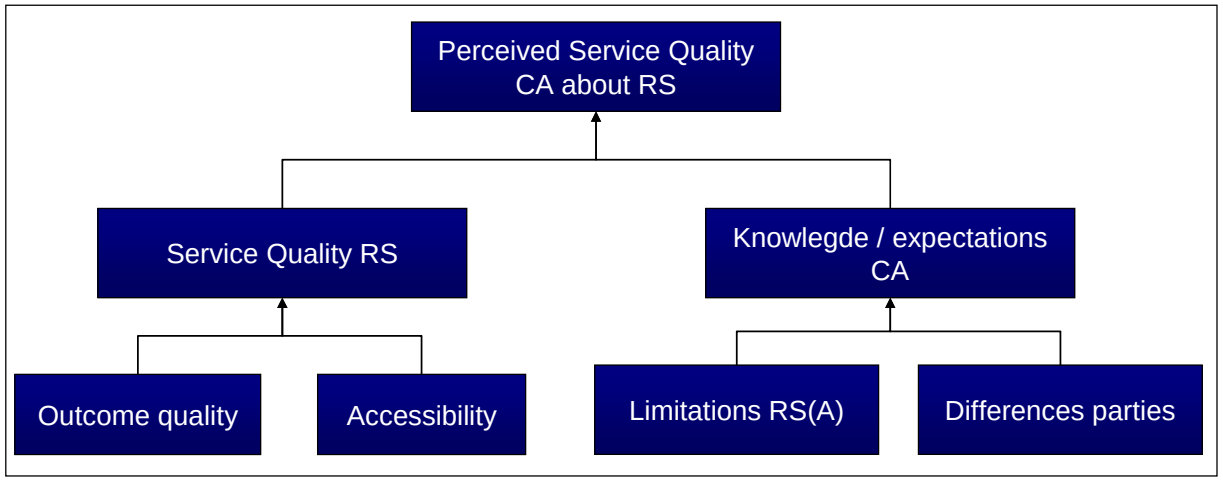
Table G-8: Number of emails not processed on a Monday (number of received emails is above average)

Number of emails processed (n= 449 process time = 10 min)			1	2	3	4	5	6	7	8	9	10	Number of RSA's
Time	Number of emails	New emails received	6	12	18	24	30	36	42	48	54	60	Maximum questions processed
17:00 - 07:00	135		135	135	135	135	135	135	135	135	135	135	
8:00	159	24	156	153	150	147	144	141	138	135	132	129	
9:00	200	41	197	194	190.4	181.4	172.4	163.4	154.4	145.4	136.4	127.4	
10:00	241	41	238	235	227.2	212.2	197.2	182.2	167.2	152.2	137.2	122.2	
11:00	289	48	286	283	275.2	254.2	233.2	212.2	191.2	170.2	149.2	128.2	
12:00	329	40	326	323	309.2	282.2	255.2	228.2	201.2	174.2	147.2	120.2	
13:00	361	32	358	355	338.2	305.2	272.2	239.2	206.2	173.2	140.2	107.2	
14:00	392	31	389	386	366.2	327.2	288.2	249.2	210.2	171.2	132.2	93.2	
15:00	419	27	416	413	387.2	342.2	297.2	252.2	207.2	162.2	117.2	72.2	
16:00	449	30	445.4	436.4	404.6	353.6	302.6	251.6	200.6	149.6	98.6	47.6	
17:00													

Table G-9: Emails not processed (many emails, high process time)

H. GENERATED OPTIONS

In this section the different options produced during the brainstorming session and external research will be presented. The options are structured based on the figure below. First the options that could enhance the outcome quality will be discussed. After this the alternatives to improve accessibility will be discussed. The last part of this appendix will focus on the generated options for the knowledge/expectations of the CA.



Outcome quality

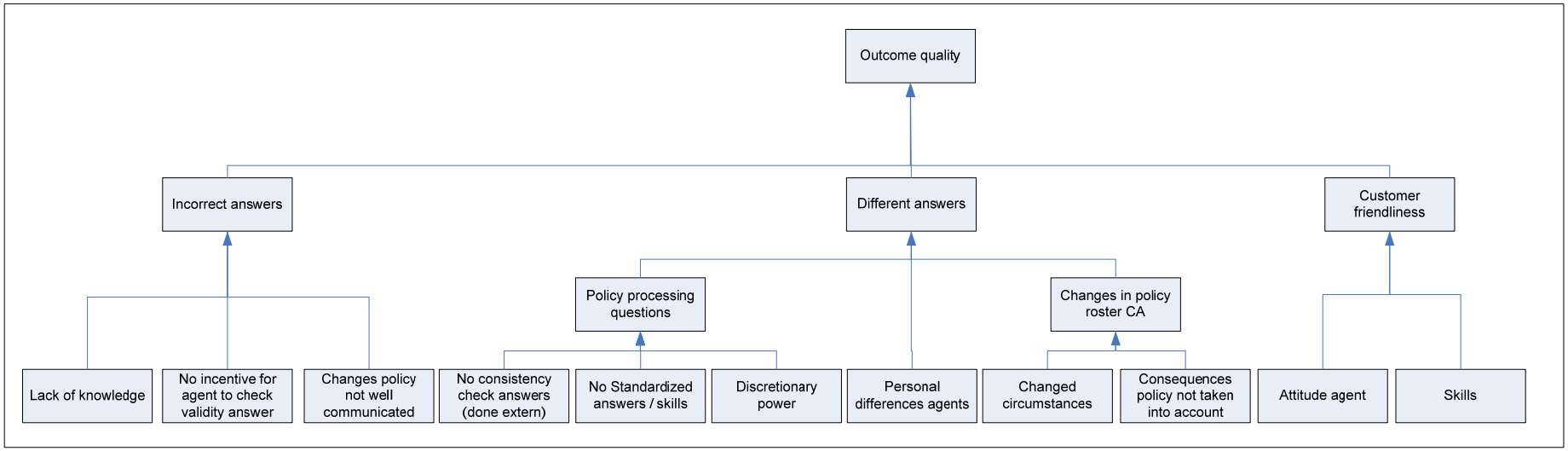


Figure H-1: Outcome quality factors

In the figure above the factors which influence outcome quality as discussed in chapter 3 are presented. In this section the generated solutions belonging to the different factors will be presented.

Incorrect answers

During the first phase of this research it has been analyzed that incorrect answers are sometimes given by parties of Rostering Services. This is due to three possible reasons: Not all agents are aware of a change in policy; there is insufficient interaction between the parties of Rostering Services and in particular the Informants and the other parties; the basic knowledge of some agents, Informants in special, is not sufficient. There are different means which will help to make sure that these issues will be reduced:

FUNCTIONS	MEANS					
Communication policy *(Changes policy not well documented)*	Guidelines policy on site, accessible for everybody	Policy RSA	Do not change policy anymore			
Interaction parties Rostering Services *(no incentive agent to check validity answer)*	No more Informants	Combine Informant and P&A Service Point	Front office RSA at P&A Service Point	Informant in same room RSA's	Informant supervisor	Let parties walk along with other parties
Increase basic knowledge *(lack of knowledge)*	Training (knowledge)	Book with business cases for new agents	Agents have to pass a test before they can start working	Exchange RSA and Pre-Assignment	Meetings with Crew Control, Pre-Assignment and RSA's	Longer period before RSA is officially prepared (ingewerkt)

Different answers

During the analysis phase it became clear that there were complaints made by different parties about the inconsistent answers of agents.

FUNCTION	MEANS					
Checken consistency answers	Mystery caller (asks same question to all agents)	Pick random sample email and evaluate answer with evaluation form	Record random phone call and evaluate it with evaluation form	One agents checks all complex questions	New RSA has to walk along all the different RSA's.	RSA buddy check answer of his teammate. As a team responsible for quality answer
	Discuss business cases on a periodically basis	Change work place once in a while, to sit next to another person	Walk along with each other sometimes	RSA corrects UM so that they give consistent answers as well		
Standardize answers	Store grey area emails and use their answer as an example	Book with business cases	Knowledge database with all emails	Create standard answer for emails	Part of answer for email is automatically generated	
Standardize skills	Training (skill focus)	Discuss business cases on a periodically basis	Coach	Do not answer questions longer than 15 minutes	Specialization based on communication channels	Content specialization
Personal differences agents	Automated agents	Questions that take more than 10 minutes are directed to special agent	Part of answer for email is automatically generated			
Consequences policy taken into account prior in policy decision-making	Policy RSA					

Customer friendliness agents

The last part which influences the outcome quality is the customer friendliness. Due to the interdependence between training and attitude of agent, these two elements will not be treated separately in the table below.

FUNCTION	MEANS				
Change attitude agent to a customer-friendly agent	Training (focus on skills)	Evaluation mails/phone calls on customer friendliness	Ask reactions CA's	Training to learn how to type fast	

ACCESSIBILITY

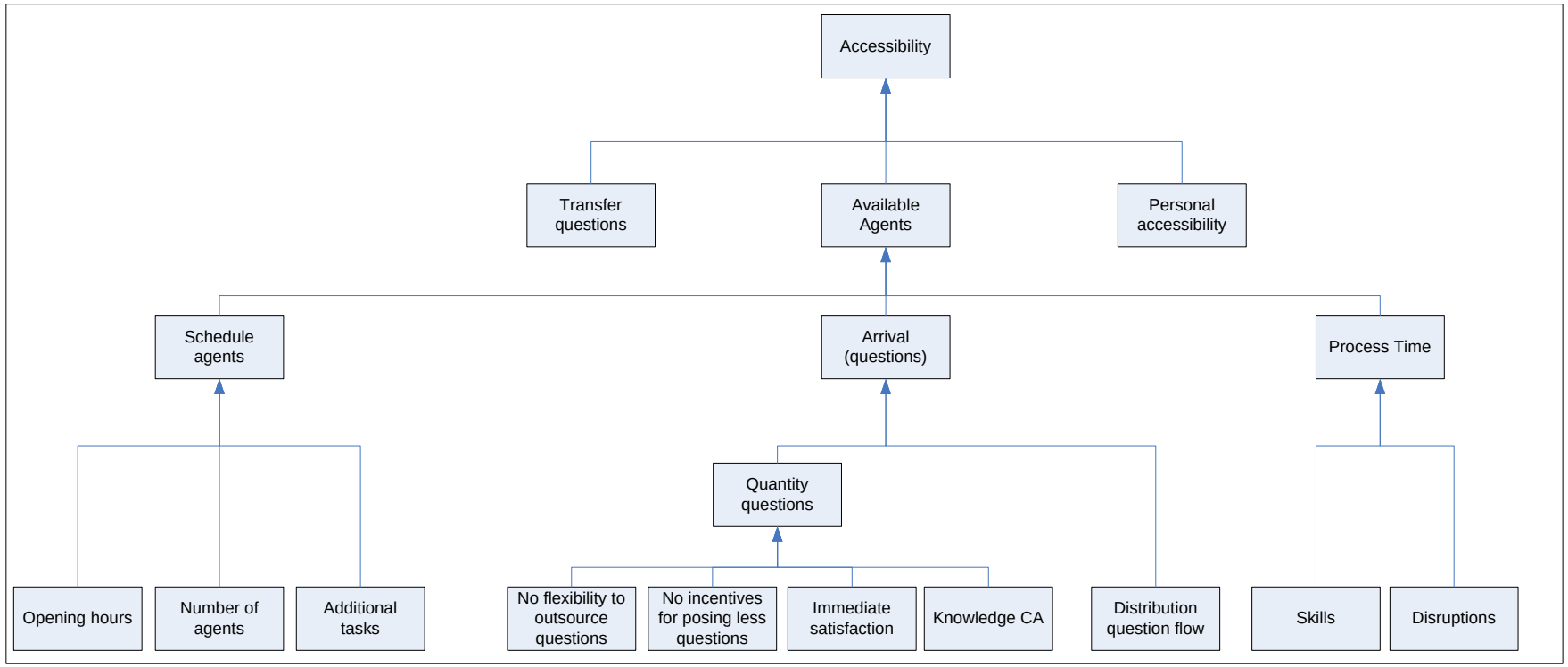


Figure H-2: Accessibility factors

Schedule agents: When there are no agents available, the questions cannot be processed. The RSA's also perform other tasks like coordinating the Informants and P&A Service Point. When a RSA has to perform more additional tasks, he will have less time to process calls. Fin

FUNCTION	MEANS					
Opening hours	More days in week	More hours per day				
Other tasks agents	Always one person accessible during RSA meetings	One person responsible for all extra tasks RSA's	Planning extra tasks agents outside opening hours			
Number of agents	Schedule number of agent dependent on estimated questions	Increase number RSA's	Increase number of Informants	No more RSA teams (no dedicated RSA)	Better insight capacity RSA by capacity management tool	Combine Pre-Assignment and RSA's

Process Time: The process time determines how many questions an agent can process in a certain time period. When an agent can process more information the accessibility will be increased while using the same number of agents.

FUNCTION	MEANS				
Skills	Type training	Standardize skills			
Synchronized communication channels *(No disruptions)*	One communication channel per agent per time period	Call back option via internet	Call back option via Informants	Front office (phone and visit) / back office (email)	

Questions: When the number of questions an agent has to process decreases, the accessibility will increase. The knowledge of the RSA's will be discussed in a separate section.

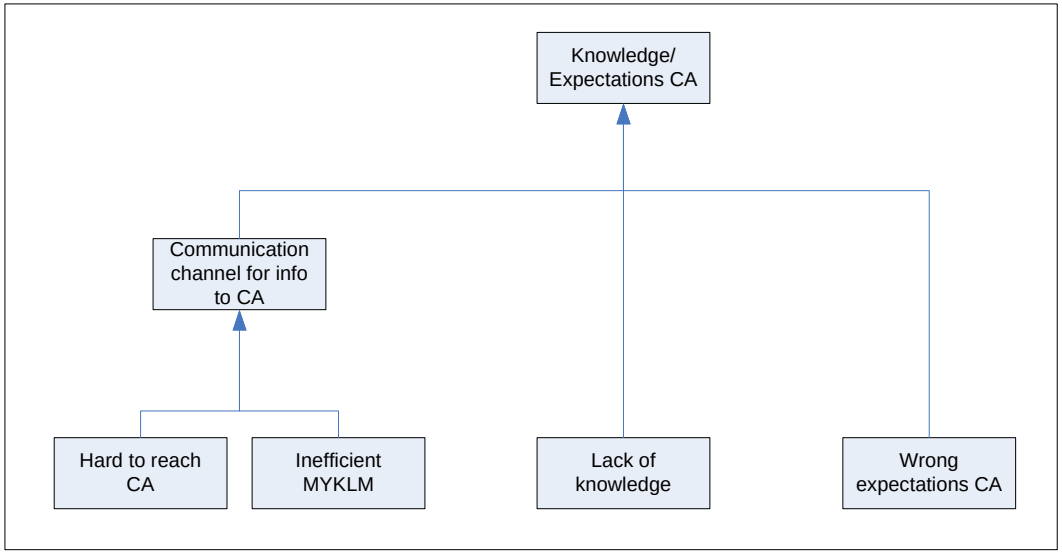
FUNCTION	MEANS					
Outsource questions	CA can treat more questions himself	Easy questions for SP, difficult questions for RSA	Based on question, automatic generated answer	IVR to answer standard questions	Educate SP agents to answer questions	Combine Pre-Assignment and RSA's
Incentives for posing less questions	Paid 0900 number which has to be dialled to get in contact with RSA	Maximum number of questions per time period	People who ask unnecessary questions are being corrected by UM	Give ABS days to people who did not pose questions	Give a joker day to people that did not pose questions	
Way of processing	Immediate satisfaction	Forwarding email/refer to other party when question is posed to wrong party	Do not answer questions which are also clearly published on the site			
Distribution questions	Agreements visiting hours UM	Agreement visiting hours Carmen Rosters	Telephone opening hours			

Transfer calls and personal accessibility: These two factors are less complex compared to available agents. Therefore they will be discussed in one table.

FUNCTION	MEANS					
Minimum transfer calls	No more central call center	RSA's directly accessible per phone (no more Informant)	Emails routed by subject email to correct party	Call is routed by ICD		
Personal accessibility	Possibility to phone RSA again (call back option)	Chatting	Skype	SMS	Video conferencing	Channel Management (easy questions email. Complex phone)

Knowlegde/Expectations agents

The knowledge of the CA will also affect the expectations. Therefore these two elements are taken together during this study.
The knowledge can be improved by improving existing communication channels, or adding other communication channels. Moreover the information communicated can also be adjusted



FUNCTION	MEANS					
Use other communication channels (less hard to reach CA)	Film	Cabin ready	Cabin journal	Briefing pursers	Posters	Reference card
	Forum	Book	Mail signature (out of office reply with information)	CAPP day	Big TV screen with information at crew centre	Email
	Training	Mail box	SMS	Twitter	Promotion change of location SP	Website
	E-learning module roster system					
Improve MY KLM	A-Z search function	Links to information	News P&A on inflight site	Clear structure	Do not change MY KLM too much	
Lack of knowledge	FAQ	Background knowledge P&A	Differences parties	Possibilities changes rosters (and also impossibilities)	Add Basic principles of using computer	Add instructions MY KLM to training
Expectations CA	Openings hours (meetings outside opening hours)	Busy peaks of time periods	Knowledge CA			

I. SELECTING QUICK WINS

Outcome quality

INCORRECT ANSWERS		Cost	Time	Usefullness	Acceptance	Feasibility
COMMUNICATION POLICY						
Veranderingen en richtlijnen policy op interne site, waar alle agents makkelijk bij kunnen	Brainstorm MT members 2009	1	1	1	1	1
Een beleids RSA (alle veranderingen in beleid worden pro-actief hem of haar gecommuniceerd)	Brainstorm MT members 2009 & Brainstorm RSA's 2009	1	1	1	1	1
Beleid van te voren vaststellen en niet meer veranderen	Brainstorm MT members 2009	1	1	1	?	?
INSUFFICIENT INTERACTION PARTIES ROSTERING SERVICES						
Informatrices opheffen	Brainstorm MT members 2009	1	?	?	1	1
Informatrice als telefoniste bij RSA zetten	Brainstorm RSA's 2009	1	1	1	?	1
Informatrice en P&A Service Point combineren	Brainstorm MT members 2009	?	?	1	1	1
Informant supervisor	Brainstorm MT members 2009	1	1	1	1	1
Aantal RSA's bij P&A Service Point zetten die inloop en telefoons beantwoorden (front-office RSA's)	Brainstorm RSA's 2009 & Brainstorm MT Members 2009	?	?	1	?	1
Afdelingen bij elkaar laten meekijken	Brainstorm RSA's 2009	?	1	1	1	1
INCREASE BASIC KNOWLEDGE						
Recurrent Trainingen	Brainstorm MT members 2009	?	1	1	?	1
Inwerktraject met toets en dan pas los gaan	Brainstorm MT members 2009	1	?	1	?	1
Instructieboek met business cases for agents	Brainstorm MT members 2009	?	?	1	?	1
RSA en Assignment uitwisselen (RSA naar Pre-Assignment)	Brainstorm MT members 2009	1	1	1	?	1
Driehoeksoverleg RSA/Assignment/CC	Brainstorm RSA's 2009 & Brainstorm MT Members 2009	1	?	1	1	1
Nieuwe RSA's langer inwerken	Brainstorm MT members 2009	?	?	1	1	?

Legenda

Already (planned) to be implemented

Quick win

DIFFERENT ANSWERS		Cost	Time	Usefullness	Acceptance	Feasibility
CHECKEN CONSISTENCY ANSWERS						
Een agent die alle complexe antwoorden checkt.	Brainstorm MT members 2009	1	?	1	?	1
Mystery shopper (one person asks same questions to several agents)	Benchmark Sygnyfic 2009	?	1	1	?	1
Record random phone calls and evaluate them with evaluation form	Benchmark Sygnyfic 2009	1	1	1	?	1
Pick random emails and evaluate them with evaluation form	Benchmark Sygnyfic 2009	1	1	1	?	1
RSA's die UM corrigeren, waardoor antwoorden weer meer op 1 lijn liggen	Brainstorm MT members 2009	1	1	1	?	?
RSA's wisselen per plek	Brainstorm MT members 2009	1	1	1	?	1
Nieuwe RSA laten meelopen met iedereen en kijken of diegene verschillen ziet	Brainstorm MT members 2009	1	1	1	1	1
Vaker naast elkaar zitten (meelopen), zodat je bij de andere af kan kijken	Brainstorm MT members 2009	?	1	1	?	1
Buddy's checkt quality van het antwoord. (samen verantwoordelijk voor alle antwoorden)	Brainstorm MT members 2009	1	1	1	?	1
Cases bespreken in overleg (bijv. Top 5 vragen)	Brainstorm MT members 2009	1	1	1	1	1
STANDARDIZE ANSWERS						
Standaard antwoord mailtjes: Antwoord protocol van Anneleen breder maken en uitrollen	Brainstorm MT members 2009	1	1	?	?	1
Knowledge database (all answers of emails in a database).	Timbrell et al. 2004	?	?	1	1	1
Boek met business cases/indeelkennis	Brainstorm MT members 2009	1	?	1	1	1
Mailtjes bewaren (grijs gebied) met antwoord als voorbeeld (net als bij rechtzaken)	Brainstorm MT members 2009	1	1	?	1	1
Deel van email wordt automatisch (op basis van bepaalde termen in vraag) gegenereerd	Benchmark Customer Care KLM (2009) & Buseman et al (2000)	?	?	1	1	1
PERSONAL DIFFERENCES AGENTS (LIKE CREATIVITY)						
Automated agents	Barbuceanu et al. 2004	?	?	1	?	1
Deel van email wordt automatisch (op basis van bepaalde termen in vraag) gegenereerd	Benchmark Customer Care KLM (2009)	?	?	1	1	1
Standardize skills to get everybody on a higher level	Brainstorm MT members 2009	1	?	1	1	1
Vragen langer dan 10 minuten naar specialist die beter complexe vragen kan beantwoorden	Brainstorm MT members 2009	1	1	1	1	1
STANDAARDIZE SKILLS						
Training (skill focus)	Brainstorm MT members 2009	?	?	1	1	1
Cases bespreken in overleg (bijv. Top 5 vragen)	Brainstorm MT members 2009	1	1	1	1	1
Specialization based on communication channel	Gans et al. 2003	1	1	1	?	1
Iedereen specialiseert in een vakgebied (inc. backup)	Brainstorm MT members 2009	1	?	1	?	1
Coach	Brainstorm MT members 2009	1	1	1	?	1
Vragen langer dan 15 min niet meer helpen (standaard regels maken)	Brainstorm MT members 2009	1	1	1	?	1
CONSEQUENCES POLICY TAKEN INTO ACCOUNT PRIOR TO POLICY DECISION MAKING						
Een beleids RSA (alle veranderingen in beleid worden pro-actief hem of haar gecommuniceerd)	Brainstorm MT members 2009 & Brainstorm RSA's 2009	1	1	1	1	1

CUSTOMER FRIENDLY AGENTS		Cost	Time	Usefullness	Acceptance	Feasibility
CHANGE ATTITUDE AGENT TO A CUSTOMER FRIENDLY AGENT						
Ask reactions Cabin Attendants	Brainstorm MT members 2009	1	1	?	?	1
Training communicatie	Brainstorm MT members 2009	?	1	1	1	1
Gesprekken / email discussie tapen en plenair terugkijken	Brainstorm MT members 2009	1	1	1	?	1
Alle RSA's op type les (Wanneer persoon sneller typt stuur hij beleefdere mailtjes)	(Brennan & Lockridge 2006)	?	?	1	1	1

Legenda

Already (planned) to be implemented

Quick win

Accessibility

SCHEDULE AGENTS		Cost	Time	Usefullness	Acceptance	Feasibility
OPENING HOURS						
Ruimere openingstijden	Brainstorm RSA's 2009 & Brainstorm MT Members 2009	1	1	1	?	1
7 dagen per week open	Brainstorm RSA's 2009	?	1	1	1	1
TAKS AGENTS						
Altijd 1 RSA op de afdeling tijdens overleg en P&A sessies	Brainstorm RSA's 2009	1	1	1	?	1
One RSA responsible for all alternative tasks RSA's	Brainstorm Morphologic chart Liselot Goudsmit 2009	1	1	1	?	1
Plan extra tasks outside office hours	Brainstorm Morphologic chart Liselot Goudsmit 2009					
NUMBER OF AGENTS						
Extra RSA's	Brainstorm MT Members 2009	?	1	1	1	1
Extra Informant(s)	Brainstorm MT Members 2009	1	1	1	1	1
Increase insight capacity management RSA and spread available RSA hours more equally over week	Brainstorm Goudsmit	1	1	1	1	1
geen dedicated RSA meer (panda's)	Brainstorm MT Members 2009	1	1	1	?	1
De bezetting afstemmen op pieken	Brainstorm MT Members 2009	1	?	1	?	1

PROCESS TIME		Cost	Time	Usefullness	Acceptance	Feasibility
SKILLS						
type cursus RSA	Brainstorm MT Members 2009	?	?	1	1	1
Standardize skills	Brainstorm MT Members 2009	1	?	1	1	1
SYNCHRONIZING COMMUNICATION CHANNELS						
Front/back office	Brainstorm RSA's 2009 & Brainstorm MT Members 2009	?	?	1	1	1
Inschrijven via internet op terugbelmogelijkheid	Brainstorm MT Members 2009	?	?	1	1	1
Inschrijven voor terugbel mogelijkheid via informatrices	Brainstorm MT Members 2009	1	1	1	1	1
Per agent maar 1 communicatiemethode voor een bepaalde tijdsperiode	Brainstorm MT Members 2009	1	1	?	?	1

TELEPHONIC ACCESSIBILITY		Cost	Time	Usefullness	Acceptance	Feasibility
INCOMING AND OUTGOING PHONE CALLS						
Terugbel mogelijkheid (voice mail inspreken en dan terugbellen bijv.)	Brainstorm RSA's 2009	?	?	1	1	?
FOCUS ON INCOMING CALLS						
Telefonisch spreekuur ('s ochtends and 's middags ivm werktijden CA)	Brainstorm RSA's 2009 & Brainstorm MT Members 2009	1	?	?	1	1
Hotline voor CA's	Brainstorm RSA's 2009	1	?	?	1	1
bel RSA per panda per dag	Brainstorm RSA's 2009	1	1	?	1	1
ONLY OUTBOUND CALLS						
Call back option	Brainstorm RSA's 2009 & Brainstorm MT Members 2009	1	1	1	1	1

Legenda

Already (planned) to be implemented

Quick win

QUESTIONS RECEIVED PER DAY (FOR ROSTERING SERVICES AGENTS)		Cost	Time	Usefullness	Acceptance	Feasibility
Kennis CA verhogen, zodat minder onnodige vragen gesteld worden	Brainstorm RSA's 2009	1	?	1	1	1
OUTSOURCING PROCESS QUESTIONS						
CA's meer handelingen zelf verrichten, waardoor er minder vragen ontstaan	Brainstorm MT Members 2009	1	1	1	1	1
Splitsing makkelijke/moeilijke vragen (service Point/RSA's)	Brainstorm MT Members 2009	1	1	1	1	1
Service Pointers meer opleiden om meer info te kunnen geven	Brainstorm MT Members 2009	?	?	1	?	1
Computer vragen programma	Brainstorm RSA's 2009	?	?	1	1	1
IVR (Interactive Voice Response) to answer standard questions	Gans et al. 2003 & Brainstorm MT Members 2009	?	?	1	1	1
POSITIVE EN NEGATIVE INCENTIVES TO POSE QUESTIONS						
Betaalde RSA telefoon (0900)	Brainstorm RSA's 2009 & Brainstorm MT Members 2009	?	?	1	?	1
Maximaal aantal contactmomenten voor CA met RSA per week/maand	Brainstorm RSA's 2009 & Brainstorm MT Members 2009	?	?	1	1	1
Mensen die vragen stellen om niks aan laten spreken door UM/Manager Rostering Services	Brainstorm MT Members 2009	1	1	1	?	1
Positieve prikkels (joker dag, ABS teller voor mensen die weinig of geen vragen stellen)	Brainstorm MT Members 2009	1	?	1	?	1
WAY OF PROCESSING QUESTIONS						
Immediate satisfaction als grondbeginsel (zodat men niet meer reageert)	Brainstorm MT Members 2009	1	1	1	1	1
Als mensen bellen met vraag dat op site staat, niet antwoord geven maar verwijzen naar de site	Brainstorm CA 29-04-09	1	1	1	?	1
Mail niet antwoorden, maar doorsturen naar de juiste persoon/afdeling	Brainstorm RSA's 2009 & Brainstorm MT Members 2009	1	1	1	1	1
DISTRIBUTION QUESTIONS						
Agreements visiting opening hours for Unit Managers	Bosdag RSA's dec 2008	1	1	1	?	1
Agreements visiting opening hours Carmen Rosterers	Bosdag RSA's dec 2008	1	1	1	?	1

AMOUNT OF TRANSFER CALLS		Cost	Time	Usefullness	Acceptance	Feasibility
Do not use central call center anymore. Promote people to call directly to the informants instead	Brainstorm Morphologic chart Liselot Goudsmit 2009	1	1	1	1	1
Specialisatie dmv keuzemenu /aangeven in mail en op basis daarvan mail routen naar een agent	Brainstorm MT Members 2009	?	?	1	1	1
Informatrices opheffen en RSA's direct bereikbaar voor CA	Brainstorm MT Members 2009	1	?	?	1	1
ACD (Automatic Call Distributor) to route calls. Call is routed to idle agent with required skill	Gans et al 2003 & Brainstorm MT members 2009	?	?	1	1	1

PERSONAL ACCESSIBILITY		Cost	Time	Usefullness	Acceptance	Feasibility
Chatting	Gans et al. 2003 & Brainstorm MT Members 2009	?	?	1	1	1
Skype	Brainstorm MT Members 2009	1	?	1	?	1
SMS diensten aanbieden	Brainstorm RSA's 2009	?	?	?	1	1
Communicate by video conferencing	Brainstorm MT Members 2009	?	?	?	1	?
Vragen weer per telefoon beantwoorden (dmv can terugbel optie bijv.)	Brainstorm MT Members 2009	?	?	1	?	1

Legenda

Already (planned) to be implemented

Quick win

Knowledge CA

COMMUNICATION CHANNEL TO COMMUNICATE INFORMATION TO CA		Cost	Time	Usefullness	Acceptance	Feasibility
OTHER COMMUNICATION CHANNELS						
Filmpje (van bijv. Alle overige afdelingen van P&A)	Brainstorm CA 2009	?	?	1	1	1
Briefing pursers gebruiken om info door te spelen	Brainstorm CA 2009	1	1	1	?	1
Cabin ready	Brainstorm CA 2009	1	?	1	?	1
Posters	Brainstorm CA 2009	?	?	1	1	1
Marketing P&A Service Point wanneer ze naar nieuwe ruimte gaan	Brainstorm CA 2009	?	?	1	1	1
Quick reference card	Brainstorm CA 2009	?	?	1	1	1
CAPP dag (vaker laten voorkomen, eens in de 3 jaar bijv.)	Brainstorm MT Members 2009	?	?	1	1	1
Elke mail Signature (out of office reply) waarop de FAQ staan.	Brainstorm MT Members 2009	1	1	1	?	1
RSA nieuws vaker/beter beschikbaar voor crew via email service	Brainstorm MT Members 2009	1	1	1	?	1
P&A TV onderdeel in cabinejournaal	Brainstorm MT Members 2009 & Brainstorm CA 200	?	1	1	?	1
P&A TV (infoscherm service point / bmc)	Brainstorm MT Members 2009	?	?	1	1	1
E-leaning module creeren over roosters en (ont) mogelijkheden	Brainstorm CA 2009	?	?	1	1	1
Postvakjes	Brainstorm CA 2009	?	?	1	1	1
RSA nieuws vaker/beter beschikbaar voor crew via sms service	Brainstorm RSA's 2009	?	?	1	1	1
Informatie Boekjes (in P&A Service Point ruimte)	Brainstorm RSA's 2009 & Brainstorm CA 2009	?	?	1	1	1
Publikaties op alternatieve manier (P&A twitters)	Brainstorm CA 2009	?	?	1	1	1
Verplichte trainingsessies organiseren (Skill RSA)	Brainstorm MT Members 2009 & Brainstorm RSA's 2	?	?	1	?	1
Forum voor crew waar er vragen gesteld kunnen worden en beantwoord daar crew (web z.o)	Brainstorm CA 2009	?	?	1	1	1
IMPROVE MY KLM						
zoekopties a-z updaten	Brainstorm CA 2009	1	?	1	1	1
Duidelijk overzicht/structuur MYKLM in een oogopslag	Brainstorm CA 2009	1	?	1	1	1
Nieuwsbulletin van P&A op Inflight pagina	Brainstorm MT Members 2009	?	?	1	1	1
MY KLM niet te vaak veranderen.	Brainstorm CA 2009	1	1	1	?	1
Veel beter info op MYKLM via boom en dus links naar informatie	Brainstorm MT Members 2009	1	?	1	1	1

LACK OF KNOWLEDGE		Cost	Time	Usefullness	Acceptance	Feasibility
FAQ (emailen, postvak, website)	Brainstorm CA 2009 Brainstorm RSA's 2009	1	1	1	1	1
Duidelijk communiceren welke afdeling waarvoor is met manier van bereiken en openingstijden	Brainstorm CA 2009	1	1	1	1	1
Quiz (bijv. In Cabin Ready of My KLM), waarbij punten te verdienen zijn en CA eindigt met profiel)	Brainstorm CA 2009	1	?	?	1	1
Trainingen geven voor CA's die niet met computer om kunnen gaan	Brainstorm CA 2009	?	?	1	1	1
Training Plan & Go uitbreiden in cursus en ook instructies geven over MYKLM	Brainstorm CA 2009	?	?	1	1	?
Achtergrond kennis P&A (bijv. gepresenteerd in een filmpje)	Brainstorm CA 2009	?	?	1	1	1
EXPECTATIONS/ATTITUDE CA		Cost	Time	Usefullness	Acceptance	Feasibility
Als mensen bellen met vraag dat op site staat, niet antwoord geven maar verwijzen naar de site	Brainstorm CA 2009	1	1	1	?	1
Vaste openingstijden publiceren (overleg nooit in openingstijden)	Brainstorm RSA's 2009	1	1	1	1	1
Increase knowledge CA	Brainstorm CA 2009	1	?	1	1	1
Jaaroverzicht maken publiceren van piekmomenten	Brainstorm MT Members 2009	1	?	1	1	1

Legenda

Already (planned) to be implemented

Quick win

J. SELECTING (LONG TERM) SOLUTIONS

Outcome quality

INCORRECT ANSWERS	Effort	Effect	Total
COMMUNICATION POLICY			
Veranderingen en richtlijnen policy op interne site, waar alle agents makkelijk bijkunnen	2	3	5
Een beleids RSA (alle veranderingen in beleid worden pro-actief hem of haar gecommuniceerd)	5	5	10
Beleid van te voren vaststellen en niet meer veranderen			
INSUFFICIENT INTERACTION PARTIES ROSTERING SERVICES			
Informatrices opheffen	5	1	6
Informatrice als telefoniste bij RSA zetten	1	4	5
Informatrice en P&A Service Point combineren	2	3	5
Informant supervisor	4	4	8
Aantal RSA's bij P&A Service Point zetten die inloop en telefoons beantwoorden (front-office RSA's)	2	5	7
Afdelingen bij elkaar laten meekijken	4	3	7
INCREASE BASIC KNOWLEDGE			
Recurrent Trainingen	1	4	5
Inwerktraject met toets en dan pas los gaan	3	3	6
Instructieboek with business cases for agents	2	3	5
RSA en Assignment uitwisselen (RSA naar Pre-assignment)	3	4	7
Driehoeksoverleg RSA/Assignment/CC	3	2	5
Nieuwe RSA's langer inwerken	4	1	5

CUSTOMER DIRECTED AGENTS	Effort	Effect	Total
CHANGE ATTITUDE AGENT TO A CUSTOMER DIRECTED AGENT			
Ask reactions Cabin Attendants	3	4	7
Training communicatie	2	4	6
gesprekken / email discussie tapen en plenair terugkijken	2	3	5
Alle RSA's op type les (Wanneer persoon sneller typt stuur hij beleefdere mailtjes)	2	2	4

Legenda

- Already (planned) to be implemented
- Quick win
- Irrealistic option
- Recommended option

DIFFERENT ANSWERS	Effort	Effect	Total
CHECKEN CONSISTENCY ANSWERS			
One agent die alle complexe antwoorden checkt.	1	3	4
Mystery CA (asks same questions to agents)	2	3	5
Record random phone call and evaluate them with evaluation form	1	3	4
Pick random emails and evaluate them with evaluation form	2	2	4
RSA's die UM corrigeren, waardoor antwoorden weer meer op 1 lijn liggen	1	2	3
RSA's wisselen per plek	5	2	7
Nieuwe RSA laten meelopen met iedereen en kijken of diegene verschillen ziet	2	4	6
Vaker naast elkaar zitten (meelopen), zodat je bij de andere af kan kijken en centraal bespreken	2	4	6
Buddy's checkt quality van het antwoord. (samen verantwoordelijk voor alle antwoorden)	2	2	4
Cases bespreken in overleg (bijv. Top 5 vragen)	4	5	9
STANDARDIZE ANSWERS			
Standaard antwoord mailtjes: Antwoord protocol van Anneleen breder maken en uitrollen	3	4	7
Knowledge database (all answers of emails in a database).	1	3	4
Boek met business cases/indeelkennis	3	3	6
Mailtjes bewaren (grijs gebied) met antwoord als voorbeeld (net als bij rechtzaken)	2	3	5
Deel van email wordt automatisch (op basis van bepaalde termen in vraag) gegenereerd	1	4	5
PERSONAL DIFFERENCES AGENTS (LIKE CREATIVITY)			
Automated agents			
Deel van email wordt automatisch (op basis van bepaalde termen in vraag) gegenereerd	1	3	4
Standardize skills to get everybody on a higher level	2	4	6
Vragen langer dan 10 minuten naar specialist die beter complexe vragen kan beantwoorden	2	4	6
STANDARDIZE SKILLS			
Training (skill focus)	2	4	6
Cases bespreken in overleg (bijv. Top 5 vragen)	5	5	10
Specialization based on communication channel	1	1	2
Iedereen specialiseert in een vakgebied (inc. backup)	1	5	6
Coach	4	4	8
Vragen langer dan 15 min niet meer helpen (standaard regels maken)	2	2	4
CONSEQUENCES POLICY TAKEN INTO ACCOUNT PRIOR TO POLICY DECISION MAKING			
Een beleids RSA (alle veranderingen in beleid worden pro-actief hem of haar gecommuniceerd)	5	5	10

Accessibility

SCHEDULE AGENTS	Effort	Effect	Total
OPENING HOURS			
Ruimere openingstijden	1	3	4
7 dagen per week open	1	3	4
TASKS AGENTS			
Altijd 1 RSA op de afdeling tijdens overleg en P&A sessies	2	3	5
One RSA responsible for all alternative tasks RSA's	1	2	3
Plan Extra tasks outside opening hours	2	3	5
NUMBER OF AGENTS			
Extra RSA's	1	5	6
Extra Informant(s)	5	4	9
Increase insight capacity management RSA and spread available RSA hours more equally over week	3	5	8
Combineren Pre-Assignment en RSA's	1	5	6
geen dedicated RSA meer (panda's)	2	3	5
De bezetting afstemmen op pieken	2	5	7

Legenda

- Already (planned) to be implemented
- Quick win
- Irrealistic option
- Recommended option

QUESTIONS RECEIVED PER DAY (FOR ROSTERING SERVICES AGENTS)	Effort	Effect	Total
Kennis CA verhogen, zodat minder onnodige vragen gesteld worden	2	4	6
OUTSOURCING PROCESS QUESTIONS			
CA's zichzelf meer handelingen zelf verrichten, waardoor er minder vragen ontstaan	3	4	7
Splitsing makkelijke/moeilijke vragen (service Point/RSA's)	2	4	6
Service Pointers meer opleiden om meer info te kunnen geven	4	4	8
Computer vragen programma	1	3	4
Combineren Pre-Assignment en RSA's	1	5	6
IVR (Interactive Voice Response) to answer standard questions	1	3	4
POSITIVE EN NEGATIVE INCENTIVE QUESTIONS			
Betaalde RSA telefoon (0900)			
Maximaal aantal contactmomenten voor CA met RSA per week/maand	1	4	5
Mensen die vragen stellen om niks aan laten spreken door UM/Manager Rostering Services/RSA	3	2	5
Positieve prikkels (joker dag, ABS teller voor mensen die weinig of geen vragen stellen)	1	2	3
WAY OF PROCESSING QUESTIONS			
Immediate satisfaction als grondbeginsel (zodat men niet meer reageert)	4	4	8
Als mensen bellen met vraag dat op site staat, niet antwoord geven maar verwijzen naar de site			
Mail niet antwoorden, maar doorsturen naar de juiste persoon/afdeling	5	3	8
DISTRIBUTION QUESTIONS			
Agreements visiting opening hours for Unit Managers	1	3	4
Agreements visiting opening hours Carmen Rosterers	3	1	4

Legenda

- Already (planned) to be implemented
- Quick win
- Irrealistic option
- Recommended option

TELEPHONIC ACCESSIBILITY	Effort	Effect	Total
INCOMING AND OUTGOING PHONE CALLS			
Terugbel mogelijkheid (voice mail inspreken en dan terugbellen bijv.)	2	4	6
FOCUS ON INCOMING CALLS			
Telefonisch spreekuur ('s ochtends and 's middags ivm werktijden CA	3	3	6
Hotline voor CA's	5	1	6
bel RSA per panda per dag	2	2	4
ONLY OUTBOUND CALLS			
Call back option	4	5	9

PROCESS TIME	Effort	Effect	Total
SKILLS			
type cursus RSA	2	3	5
Standardize skills	2	4	6
SYNCHRONIZING COMMUNICATION CHANNELS			
Front/back office	2	4	6
Inschrijven via internet op terugbelmogelijkheid	1	4	5
Inschrijven voor terugbel mogelijkheid via informatrices	4	4	8
Per agent maar 1 communicatiemethode voor een bepaalde tijdsperiode	4	3	7

AMOUNT OF TRANSFER QUESTIONS	Effort	Effect	Total
Do not use central call center anymore. Promote people to call directly to the informants instead	5	4	9
Specialisatie dmv keuzemenu /aangeven in mail en op basis daarvan mail routen naar een agent	1	5	6
Informatrices opheffen en RSA's direct bereikbaar voor CA	2	2	4
ACD (Automatic Call Distributor) to route calls. Call is routed to idle agent with required skill	1	4	5

PERSONAL ACCESSIBILITY	Effort	Effect	Total
Chatting	2	2	4
Skype	2	2	4
SMS diensten aanbieden	2	2	4
Communicate by video conferencing	1	2	3
Vragen weer per telefoon beantwoorden (dmv can terugbel optie bijv.)	4	5	9

Knowledge/expectations CA

COMMUNICATION CHANNEL TO COMMUNICATE INFORMATION TO CA	Effort	Effect	Total
OTHER COMMUNICATION CHANNELS			
Filmpje (van bijv. Alle overige afdelingen van P&A)	2	3	5
Briefing pursers gebruiken om info door te spelen	2	4	6
Cabin ready	3	4	7
Posters	4	3	7
Marketing P&A Service Point wanneer ze naar nieuwe ruimte gaan (zodat weer meer mensen P&A Service Point leren kennen)	4	3	7
Quick reference card	3	3	6
CAPP dag (vaker laten voorkomen, eens in de 3 jaar bijv.)	2	3	5
Elke mail Signature (out of office reply) waarop de FAQ staan.	4	2	6
RSA nieuws vaker/beter beschikbaar voor crew via email service	5	3	8
P&A TV onderdeel in cabinejournaal	1	4	5
P&A TV (infoscherm service point / bmc)	2	3	5
E-leaning module creeren over roosters en (on) mogelijkheden	2	3	5
Postvakjes	2	3	5
RSA nieuws vaker/beter beschikbaar voor crew via sms service	1	2	3
Informatie Boekjes (in P&A Service Point ruimte)	2	3	5
Publikaties op alternatieve manier (P&A twitters)	2	2	4
Verplichte trainingsessies organiseren (Skill RSA)			
Forum voor crew waar er vragen gesteld kunnen worden en beantwoord daar crew (web z.o)	2	2	4
IMPROVE MY KLM			
zoekopties a-z updaten	1	4	5
Duidelijk overzicht/structuur MYKLM in een oogopslag	2	3	5
Nieuwsbulletin van P&A op Inflight pagina	4	2	6
MY KLM niet te vaak veranderen.			
Veel beter info op MYKLM Via boom en dus links naar informatie	2	3	5

Legenda

- Already (planned) to be implemented
- Quick win
- Irrealistic option
- Recommended option

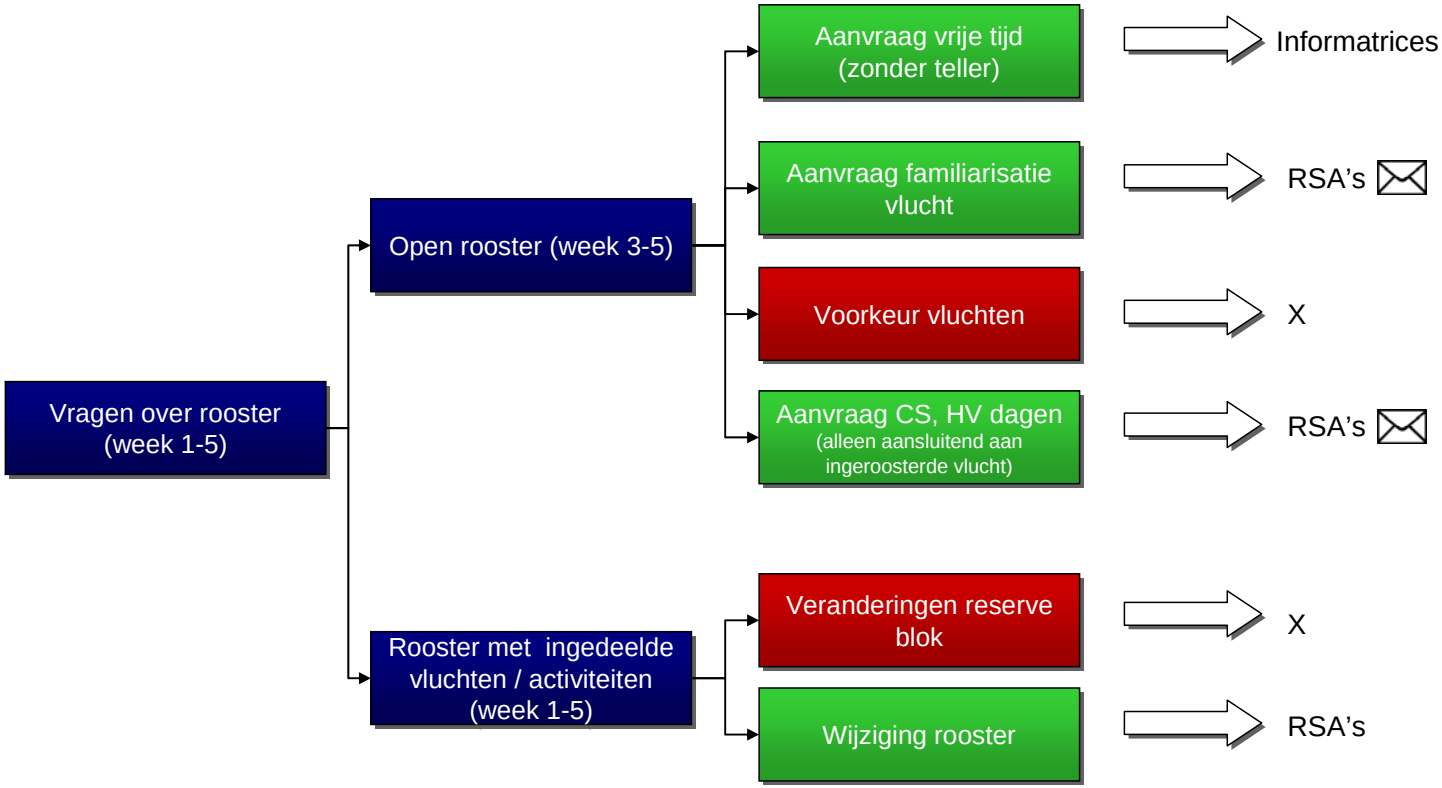
LACK OF KNOWLEDGE	Effort	Effect	Total
FAQ (emailen, postvak, website)	5	3	8
Duidelijk communiceren welke afdeling waarvoor is met manier van bereiken en openingstijden	5	3	8
Quiz (bijv. In Cabin Ready of My KLM), waarbij punten te verdienen zijn en CA eindigt met profiel)	2	2	4
Trainingen geven voor CA's die niet met computer om kunnen gaan	1	3	4
Training Plan & Go uitbreiden in cursus en ook instructies geven over MYKLM	3	3	6
Achtergrond kennis P&A (bijv. Gepresenteerd in een filmpje)	2	2	4

EXPECTATIONS/ATTITUDE CA	Effort	Effect	Total
Als mensen bellen met vraag dat op site staat, niet antwoord geven maar verwijzen naar de site			
Vaste openingstijden publiceren (overleg nooit in openingstijden)	5	3	8
Increase knowledge CA	1	4	5
Jaaroverzicht maken publiceren van piekmomenten	2	2	4

Legenda

- Already (planned) to be implemented
- Quick win
- Irrealistic option
- Recommended option

K. FLOW CHART

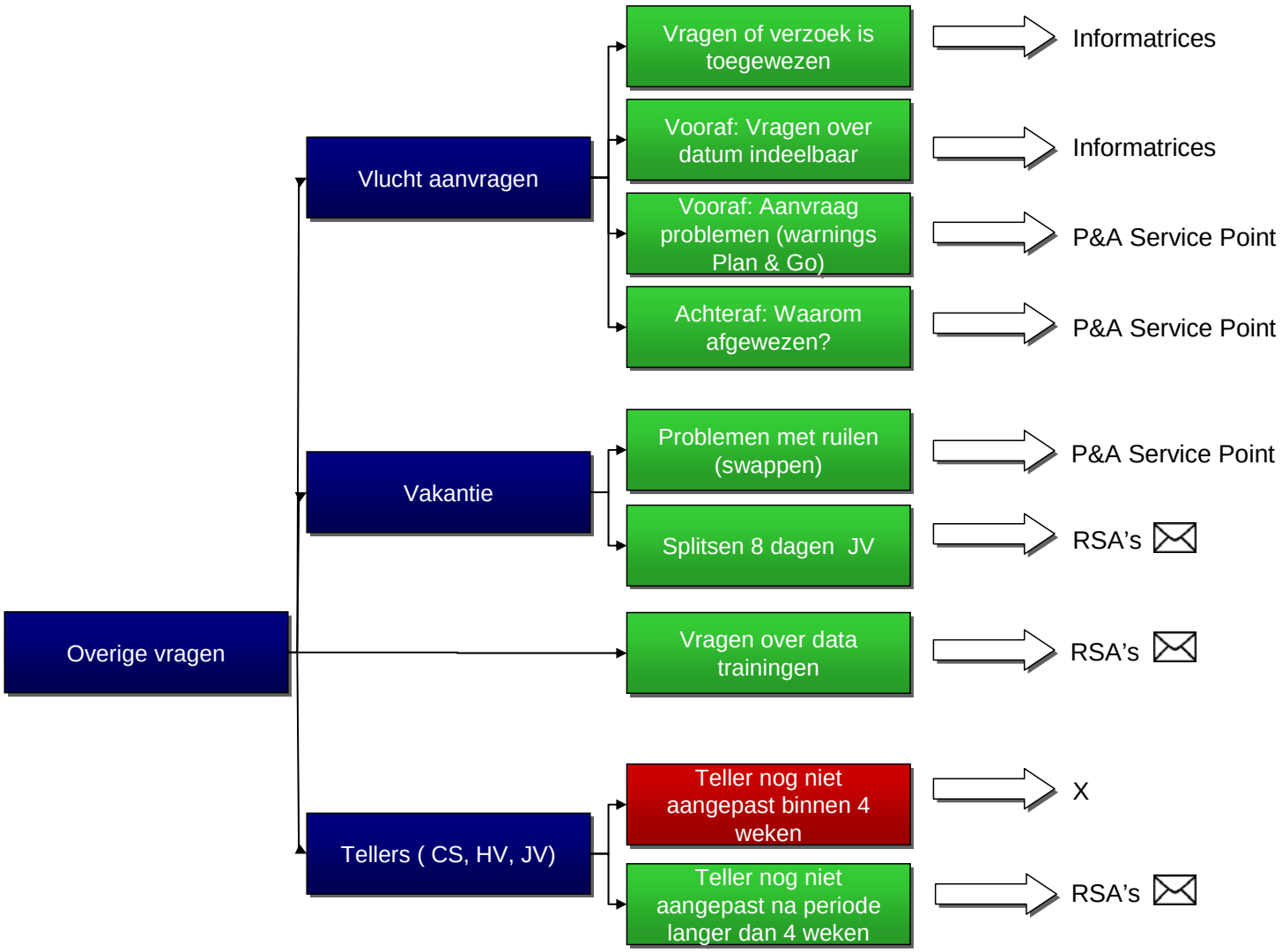


RSA's **alleen** direct bereikbaar via email en inloop.
Telefonisch wordt vraag voor RSA via informatrice afgehandeld.

Aanpassing niet mogelijk

Vraag kan gesteld worden (*operationele, financiele en sociale consequenties wegen mee in de beoordeling van jouw vraag*).

Er wordt geadviseerd voor dit type vraag een email te sturen naar de RSA


Overige vragen
Vlucht aanvragen
Vakantie
Tellers (CS, HV, JV)
Vragen of verzoek is toegewezen
Vooraf: Vragen over datum indeelbaar
Vooraf: Aanvraag problemen (warnings Plan & Go)
Achteraf: Waarom afgewezen?
Problemen met ruilen (swappen)
Splitsen 8 dagen JV
Vragen over data trainingen
Teller nog niet aangepast binnen 4 weken
Teller nog niet aangepast na periode langer dan 4 weken
Informatrices
Informatrices
P&A Service Point
P&A Service Point
P&A Service Point
RSA's
RSA's
X
RSA's

L. FAQ

1) Hoe vraag ik een reserve blok aan?
Het aanvragen van een reserveblok gaat buiten de RSA's om. Dit kan je doen via MY KLM, op de pagina Inflight Services > Planning and ASsignment > PBS & nieuwe reservestelling vind je het ' formulier reserve stelling'. Met dit formulier kun je vanaf nu de reserveblokken aanvragen.

2) Kan ik mijn ingedeelde RT Blok uit mijn rooster halen of verplaatsen?
Je kunt wel aangeven wanneer je wel een reserveblok wilt. Helaas kan je niet aangeven wanneer je geen reserveblok wilt hebben. De blokken die niet zijn aangevraagd worden op een gegeven moment ingezet door Carmen bij collega's met de laagste tellerstand indeelbaar. De enige tip die wij nog kunnen geven is: Vraag vooral zelf op tijd blokken aan zodat je teller er in ieder geval goed voor staat.

3) Hoe vraag ik een CS dag aan?
CS dagen kunnen worden aangevraagd in aansluiting op je bestaande rooster. Los in de ruimte is dus niet mogelijk. Indeling van CS dagen is afhankelijk van ruimte en publicatie. Is de ruimte er wel, dan kunnen we de CS dag al op voorhand voor je plaatsen. Is de ruimte er niet, dan hebben we alleen de mogelijkheid om een CS dag voor je aan te vragen. Carmen bepaald 2 weken van tevoren of er voldoende ruimte is. Let wel, reeds door KLM ingedeelde dagen kunnen niet op eigen verzoek worden teruggedraaid.

4) Hoe verplaats ik mijn JV?
Je kan je ruilverzoek invoeren in holiday planning door een swapverzoek te plaatsen. Dit is mogelijk tot 8 weken voor aanvang van je JV of voor aanvang van je gewenste datum. Na deze sluitingsdatum zal door de desbetreffende afdeling nog een keer handmatig gekeken worden of er binnen de ruimte mogelijkheden zijn om alsnog je swapverzoek waar te maken.

5) Waarom is mijn vluchtverzoek afgewezen?
Het zou kunnen dat je niet hebt voldaan aan de verzoekenregeling. Heb je:

- rekening gehouden met het verlopen van je andere types
- aansluitend aangevraagd
- minimaal 6 (100%), 7 (80%), 9 (67%), 12 (50%) dagen opengelaten

Let wel: bij niet Europa vliegende moet het rooster tijdens het peilen wel
dichtgebouwd kunnen worden met bestaande vluchten. In principe behoor je bij ieder afgewezen verzoek een reden te krijgen. Neem contact op met P&A Service Point (per mail of telefoon) indien dit niet het geval is, of als de reden onduidelijk is.
E-mailadres: P&AServicepoint@klm.com. Telefoonnummer: 020-6498610.

6) Waarom is mijn time-off verzoek afgewezen
Een time off verzoek van 1,2 of 3 dagen wordt op het moment van peilen altijd door middel van de laatste dagen RV of NIZ waargemaakt. Het is dus niet mogelijk om een deel van je time off verzoek waar te maken door een deel RV en een deel NIZ. Mocht je time-off verzoek zijn afgewezen, dan blijft je verzoek genoteerd in het systeem. In een later stadium zal Carmen proberen hier alsnog rekening mee te houden zonder bovenstaande regel in acht te nemen.

7) Wat moet ik doen als ik vragen over plan & go of de verzoekenregeling (aansluitregels) heb?
Ook voor het antwoord op deze vraag ga je naar P&A Service Point. Je kunt ze bereiken via mail, of telefoon. E-mailadres: P&AServicepoint@klm.com. Telefoonnummer: 020-6498610.

8) Ik heb een open rooster. *Hoe* wordt dit dichtgebouwd, *wanneer* en door *wie*?
Open roosters worden twee en een halve week van tevoren op woensdag door Carmen dichtgebouwd. RSA's delen geen vluchten in, omdat zij anders het optimalisatieproces van Carmen verstoren. Na het peilproces en voordat Carmen op woensdag jouw rooster maakt, kan je bij de

informatrice nog een time-off verzoek aangeven. Carmen zal hier vervolgens rekening mee proberen te houden.

9) Wanneer staan de BIPS weer in het rooster?
De BIPS worden uiterlijk het weekend voor het peilen in Plan & Go geplaatst. BIPS worden vastgesteld voor een periode van ongeveer 6 weken.

10) Wanneer kan ik bijzonder verlof aanvragen
Er zijn speciale gevallen waarop bijzonder verlof kan worden aangevraagd. Dit staat ook in bijlage 4, buitengewoon verlof, artikel 9.2 van het CAO. Enkele voorbeelden van bijzonder verlof zijn:

- Huwelijk
- Verhuizing
- Jubilea

Indien je jezelf niet al hebt kunnen vrijspelen door middel van een verzoek., kan je uiterlijk 4 weken van tevoren hiervoor alsnog een verzoek voor indienen bij de UM . De UM zal er alsnog voor zorgen dat je vrijgespeeld wordt. Na deze datum kan dit niet meer worden gegarandeerd.

M. CALL BACK OPTION DOCUMENTS

Dag:	6-Aug	OCHTEND SHIFT

Tijdslot 10:00-11:00					
	Personeelsnr	Telefoonnummer	Omschrijving vraag	Overige opmerkingen	Afgehandeld binnen tijdslot
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Tijdslot 11:00-12:00					
	Personeelsnr	Telefoonnummer	Vraag	Overige opmerkingen	Afgehandeld binnen tijdslot
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

Instructie Informatrices

Op MY KLM is al een stukje gepubliceerd over de call back option voor de CA. In dit formulier wil ik jullie graag nog een paar kleine instructies geven m.b.t. de call back option pilot. Indien er nog na dit formulier onduidelijkheden zijn, aarzel niet om contact met mij op te nemen!

Call back option idee
Het idee van de call back option is als volgt. Een CA stelt een vraag aan jullie. Indien de vraag algemeen is, beantwoorden jullie de vraag zelf. Als het nodig is om de CA door te sturen naar de RSA wordt op basis van het type vraag aan de CA gevraagd of hij behoefte heeft om teruggebeld te worden. Vragen die hiervoor in aanmerking komen zijn vragen die complex zijn, communicatie over en weer nodig hebben of van emotionele aard zijn. Voor andere vragen wordt de CA geadviseerd een mail te sturen naar de RSA (net als nu). Wanneer een CA een reserveblok heeft die er niet uitgehaald kan worden en hij het hier niet mee eens is heeft het geen zin een telefonische afspraak te maken met de RSA. De RSA zal namelijk de CA ook niet verder kunnen helpen. Twijfel je of iets echt niet mogelijk is, of twijfel je of het nodig is om een telefonische afspraak te maken? Aarzel dan niet om zelf contact op te nemen met een RSA om te checken of dit het geval is.

De volgende blokken worden aangeboden aan de CA voor telefonische reserveringen:

Ochtendblok:
10:00-11:00 uur
11:00-12:00 uur

Middagblok:
14:30-15:30 uur
15:30-16:30 uur

Een tijdslot moet gereserveerd worden 5 minuten voor aanvang van het ochtend- of middagblok. Dit betekent dat voor 10 uur ‘s ochtends voor het ochtenddeel of voor half 3 ’s middags gebeld moet zijn door de CA. Houd er rekening mee dat de RSA het bestand om 10 uur opent dus dat CA’s die precies om 10 uur worden ingevoerd eventueel niet meegenomen worden.

Het formulier
Het formulier waarin de tijdslot reserveringen worden bijgehouden kan gevonden worden in de map call back option. Vervolgens kan je een aparte map terugvinden voor maandag en dinsdag, woensdag, donderdag en vrijdag.

Er is een apart document voor de ochtend reserveringen en de middagreserveringen.
Het template document kan gezien worden als een blank document waar je maar één versie van hebt. Echter, je moet elke dag een ingevuld bestand inleveren. Dus wat doe je dan? Je gaat als eerste het template bestand openen. Vervolgens ga je hem kopiëren. Dit doe je echter door de save as functie te gebruiken. Je voegt de datum toe aan de naam van het bestand, zodat het duidelijk is dat het document het document van de dag is. Ook klik je vanuit de save as functie op het mapje met de huidige maand, zodat de volgende persoon het document van de dag makkelijk terug kan vinden. Dit doe je zowel voor het ochtend als het middag bestand.

De informatrice die ’s ochtends om 7 uur begint gaat naar template file toe opent het de map van de dag en slaat beide bestanden op met save as (voegt datum toe aan bestand), naar de map met de huidige maand hierin. Dus op 8 juni heet het bestand voor de ochtend shift *ochtend tijdslot reserveringen080609* en die wordt in de map juni opgeslagen. Je slaat hem in de map juni op door als je op save as hebt gedrukt naar op bureaublad te dubbelkikken, dan vervolgens call back option, en dan juni.

Alle reserveringen worden vervolgens gemaakt in het bestand van de dag.
Wanneer iemand vervolgens een tijdslot reservering wil maken gaat hij naar de huidige maand (dus niet naar het mapje template, er is immers al een document van de dag aangemaakt). De benodigde gegevens voor een tijdslot reservering worden opgeschreven, en vervolgens wordt het document gesaved (niet save as, gewoon save) en afgesloten.

Wanneer een CA graag een tijdslot wilt reserveren kan in het document van de ochtend of middagblok van die dag het personeelsnummer, telefoonnummer en het type vraag (kort en bondig) worden opgeschreven. De vierde kolom, of de vraag is behandeld, is voor de RSA en hoeft niet ingevuld te worden door de informatrice, hetzelfde geldt voor de rij EINDTIJD aan het einde van een tijdslotuur.
In het formulier is het maximale aantal plaatsen per uur aangegeven. Let er op dat ***maandagochtend er geen call back option bestaat***.

Als je de gegevens hebt ingevuld is het belangrijk dat je het bestand opslaat en afsluit. Anders kunnen de andere informatrices niet in het bestand. Als je het bestand probeert te openen en je de melding *read only* krijgt, dan komt dit doordat een informatrice het bestand nog niet heeft afgesloten. Schrijf in dit geval het verzoek op een blaadje op en zorg er daarna voor dat wanneer er weer ‘ normale’ toegang mogelijk is dat de reservering in het bestand wordt verwerkt. Indien iedereen het bestand heeft afgesloten en er nog steeds geen normale toegang is, kan het zijn dat een RSA het excel bestand open heeft staan. Neem in dit geval contact op met hun, en vraag of zij het bestand af kunnen sluiten.

Service level
Het is de bedoeling dat iedereen binnen 24 uur teruggebeld kan worden (uitzondering in het weekend). Dit betekent dat er dus maximaal 24 uur mag vallen tussen het moment dat een CA een reservering wil maken en het moment dat hij een reservering krijgt Geef aan in de kolom overige opmerkingen wanneer dit niet mogelijk is.

CA’s krijgen terug dat ze binnen de marge van het tijdslot (dus tussen 10:00 en 11:00, of tussen 11:00 en 12:00 worden teruggebeld. Indien de CA niet opneemt, zal de RSA nog één keer extra proberen de CA te bereiken.

Succes!

Liselot (0626468638)

Instructie RSA's

In dit formulier wil ik jullie graag nog een paar kleine instructies geven m.b.t. de call back option pilot. Indien er nog na dit formulier onduidelijkheden zijn, aarzel niet om contact met mij op te nemen!

Het idee van de call back option is als volgt. Een CA stelt een vraag aan een informatrice. Indien de vraag algemeen is, kan de informatrice de vraag zelf beantwoorden. Als het nodig is om de CA door te sturen naar de RSA wordt op basis van het type vraag aan de CA gevraagd of hij behoefte heeft om teruggebeld te worden. Vragen die hiervoor in aanmerking komen zijn vragen die complex zijn, interactie nodig hebben of van emotionele aard zijn. Voor andere vragen wordt de CA geadviseerd een mail te sturen naar de RSA (net als nu). De volgende blokken worden aangeboden aan de CA voor telefonische reserveringen:

Ochtendblok:
10:00-11:00 uur
11:00-12:00 uur

Middagblok:
14:30-15:30 uur
15:30-16:30 uur

Met uitzondering van 11:00-12:00 zijn er altijd 2 RSA's aan het terugbellen. Als de RSA aan het terugbellen is mag hij op het bureau een bordje zetten met telefonisch spreekuur. RSA's die niet aan het bellen zijn, proberen te voorkomen dat bel RSA gestoord wordt door inloop, door die mensen zelf naar zich toe te trekken.

De bel RSA kan alle tijdslot reserveringen vinden op de P schijf

P:\SPLWI\GroupWI\external\informatrices\call back option.

Per dag wordt er een nieuw document tijdslot reserveringen door de informatrices opgeslagen met de huidige datum in de naam. Er is zowel een document voor de ochtend shift als voor de middag shift. Dus op 8 juni heet het bestand voor de ochtend *ochtend tijdslot reserveringen080609*. Als je het bestand alleen maar in de read only versie kan openen, dan komt dit doordat een informatrice of andere RSA hem ook geopend heeft. Het is helaas niet mogelijk voor 2 RSA's om tegelijkertijd het actieve bestand geopend te hebben. Dit kan je op lossen door onderlinge afspraken of door 1 iemand in een gekopieerd bestand te laten werken, die vervolgens later de gegevens weer in het originele bestand plakt.

Wanneer er 2 RSA's zijn begint de eerste RSA met de eerste helft van de lijst en de tweede RSA met de tweede helft. Een belangrijke service level indicator is het feit of binnen het tijdslot uur iedereen is teruggebeld. Probeer dit echt te doen, en geef aan of dit gelukt is door ja op te schrijven in de kolom afgehandeld binnen tijdslot. Wanneer een CA niet opneemt, schrijf je bij afgehandeld binnen tijdslot *neemt niet op* op.. Bel de desbetreffende CA later in het tijdslot nog een keer op. Indien het hierna nog steeds niet lukt om de CA te bellen geef dan ook in PLATO aan dat de CA tot 2 keer toe niet heeft opgenomen. Dit is handig voor de informatrices om te weten, aangezien er een kans is dat de CA de dag erna weer belt (en eventueel gaat klagen dat hij niet teruggebeld is door een RSA).

Geef aan wanneer een CA later dan het tijdslot is teruggebeld in de kolom afgehandeld van de desbetreffende persoon. Geef wanneer alle mensen van het uur zijn teruggebeld (en mensen eventueel al 2x niet hebben opgenomen) de eindtijd aan in de laatste rij van het tijdslotuur.

Als je nog vragen of opmerkingen hebt (genoeg ruimte voor verbeteringen) dan hoor ik het graag!

Groeten Liselot

N. RSA CAPACITY MANAGEMENT TOOL

A tool has been created to help the RSA's and manager of the RSA's to gain insight in the number of available RSA hours per day. A RSA is available when he can process emails and visits. The meetings which the RSA's have to attend decrease the number of available RSA hours. In this appendix it will be described how the tool works.

First the number of scheduled RSA's has to be determined and the amount of RSA's which have to perform tests for the new roster system. Table N-1 shows this information for the third week of June.

	15-19 June				
	Monday	Tuesday	Wednesday	Thurday	Friday
Agents working	10	10	8	9	8
PBS tester	2	2	2	2	2

Table N-1: Amount of scheduled agents

After this, the scheduled appointments and the personal activities which influence the available RSA hours have to be filled in. The number of agents having lunch is automatically calculated based on the data of Table N-1. These numbers are divided by 2 and rounded up or down. The yellow activities are weekly activities and do not have to be filled in each week. The weekly meetings which all the RSA's have to attend automatically calculates the number of RSA's by subtracting the PBS testers from the agents working. All the other activities have to be filled in based on the shared calendar of the RSA's, which shows all the activities of the RSA's.

Other tasks RSA's	Monday	Tuesday	Wednesday	Thurday	Friday
8:30					2
9:00		8	6	1	2
9:30		8	6	1	2
10:00					2
10:30				1	1
11:00				2	1
11:30				1	1
12:00	4	4	3	4	3
12:30	4	5	3	3	3
13:00		2			
13:30					
14:00	1	10			
14:30	1	10			
15:00	2	10			
15:30	2	10	1		
16:00		10	1		
16:30		10	1		
17:00		10	1		

weekly meeting
personal related activity, not recurrent
lunch
RSA related activity, not recurrent
testers available again

Table N-2: Planned activities RSA's

When Table N-2 is filled in, excel will calculate the available RSA hours per day and will present how many RSA's are available during each point in time of a day (with intervals of half an hour). The available RSA hours for a certain point in time is calculated by:

Available RSA's = scheduled RSA – PBS tester – other tasks RSA.

For instance on Monday 14:00 o' clock this results in 10-2-1 = 7. When looking at the table below it is shown that there are indeed 7 agents available at 14:00 o clock.

The agents testing for PBS have to test until 14:30. After this they are available as RSA agent again. Therefore from 14:30 until 16:30 the available RSA hours are calculated by the following formula:

Available RSA's = scheduled RSA – other tasks RSA.

Availability	Monday	Tuesday	Wednesday	Thurday	Friday
8:30	8	8	6	7	4
9:00	8	0	0	6	4
9:30	8	0	0	6	4
10:00	8	8	6	7	4
10:30	8	8	6	6	5
11:00	8	8	6	5	5
11:30	8	8	6	6	5
12:00	4	4	3	3	3
12:30	4	3	3	4	3
13:00	8	6	6	7	6
13:30	8	8	6	7	6
14:00	7	0	6	7	6
14:30	9	0	8	9	8
15:00	8	0	8	9	8
15:30	8	0	7	9	8
16:00	10	0	7	9	8
16:30	10	0	7	9	8
17:00					
Half hours	132	61	91	116	95
Total available RSA hours	66	**30,5**	45,5	58	47,5

Table N-3: Available RSA hours

In the beginning an error was made in the tool. On Tuesday there were ten RSA which had to follow a training and this number was filled in task sheet of the RSA's. Because of this the available RSA's became negative between 12:00 and 14:30 o' clock, since this amount was calculated by subtracting the PBS testers and tasks agents from the number of agents scheduled. The PBS testers are subtracted twice (PBS tester are subtracted from scheduled RSA's and in this case the PBS testers are subtracted again, because they are also incorporated in the ten agents going on training). Since this error can be easily made, this problem is solved by using an IF-formula in excel. If the number is negative, excel will calculate that 0 agents are available for that point in time.

To make the sheet easier to read a format formula has been used in excel. When the available RSA hours are between 8 and 10 the cell will become red. When there are six or seven RSA's available the cell becomes orange and when there are five or less agents available the cell becomes red. These numbers are chosen based on agreements between the RSA's and the manager of Rostering Services, which state that a minimum of six agents are needed per day.

The total available RSA hours become red when they are lower than 45 hours, orange between 45-50 hours and green when they are higher than 50 hours. These numbers are based on calculations which state that there are at least 48 available RSA hours per day for an 'upper bound day'.

O. EVALUATION SURVEY QUICK WINS

A survey has been sent to all the CA's that participated in the call back option pilot within the first three weeks. In total 45 CA's have been contacted by email, which resulted in 17 respondents. The evaluation email is presented below.

Evaluation email

Uit onze administratie is gebleken dat jij hebt meegedaan aan de call back option pilot. Dit wil zeggen dat je een telefonische reservering via de informatrice hebt gemaakt en door een RSA bent teruggebeld. Graag zouden wij een aantal vragen willen stellen om de pilot te kunnen evalueren.

Ben je tevreden over de verschillende tijden die je aangeboden zijn door de informatrice waarin het mogelijk is een tijdslot te reserveren?

Vond je dat je RSA genoeg tijd nam om antwoord te geven op je vraag?

Vind je dat de telefonische bereikbaarheid verbetert door de call back option?

Heb je nog verdere suggesties voor het verbeteren van de call back option?

Heb je nog verdere suggesties voor het verbeteren van de telefonische bereikbaarheid?

Bel of mail je liever met je RSA?

Heb je al gezien dat er FAQ al op MY KLM staan? Zo ja, wat vind je hiervan?

Heb je al gezien dat er een schema is gepubliceerd op MY KLM waarin staat welke vragen je waar kan stellen binnen Rostering Services? Zo ja, wat vind je hiervan?

Results

Question	Yes	No	Neutral
Satisfied time offered timeslots	13	4	
RSA sufficient time	16	1	
Improvement telephonic accessibility	15		2
Suggestions call back	6	10	
Suggestions tel. Accessibility	1	15	
CA prefers Phone	7		9
Respondent has seen FAQ	7	9	
Respondent has seen flow chart	11	5	

Reactions on flow chart

ja ik heb nu even gekeken wist niet dat het er was. Het is duidelijk wie je waarvoor moet hebben

Ja gezien, maakt het een stuk duidelijker.
Was eigenlijk niet helemaal op de hoogte dat je ook bij anderen dezelfde vragen kon stellen zonder daarbij je RSA bijv steeds lastig te moeten vallen.

ja. handig

Prima, je weet je precies bij wie je moet zijn.

Ja, lijkt me zeker fijn voor de rsa's dat zij niet met alle vragen Worden geconfronteerd

gezien;is prima

Dat is allemaal heel goed en voorkomt het stellen van vragen aan de verkeerde persoon. Toch blijft de bereikbaarheid van de RSA's bij complexere vragen te wensen overlaten. Ook de regelmatige wisselingen van aanspreekpunten in de verschillen panden blijf ik als erg vervelend ervaren. Met een goede bereikbaarheid van de RSA's en vaste aanspreekpunten/bezetting van de panden zou volgens mij een hoop verbeteren. Je krijgt dan meer wederzijds begrip en dat werkt voor een ieder prettiger.

Reactions on FAQ

GOED EN DUIDELIJK, MAAR TE ALGEMEEN. MIJN VRAGEN AAN DE RSA ZIJN NAMELIJK VEELAL TE SPECIFIEK VAN AARD EN WORDEN NIET BEANTWOORDT DOOR FAQ.

Duidelijk.

ja goed

Ja, prima voor mensen die nog niet zo lang vliegen.

Dat is allemaal heel mooi, voor eenvoudige indeel technische problemen. Bij complexere problemen is er toch echt persoonlijk contact nodig.

Opinion call back option

Ik vind het een mooi alternatief.

Ja,ik vind het een zeer goede mogelijkheid.

Ja, dit is veel beter zo

zeker

Ja. Het is erg moeilijk iedereen te woord te staan voor de RSA's, maar soms is daar echt dringend behoefte aan, omdat anders je hele rooster stuk loopt en dus je sociale leven of gezondheid en die laatste is nog veel belangrijker!

Ik vond het jammer dat ik de hele dag moest wachten voordat ik werd Terug gebeld. Misschien kortere wachttijden?

Er is geen andere mogelijkheid om persoonlijk in contact te komen met de RSA als je niet op het BMC aanwezig bent. Soms heb je persoonlijk contact nodig, omdat sommige zaken via de mail alleen maar tot misverstanden leiden. Kortom in dat soort situatie's ben je op de call back option aangewezen.

Improvement telephonic accessibility?

Dit lijkt mij voldoende

Lijkt me prima zo.

ik vind de terugbeloptie als hij consequent wordt uitgevoerd een uitstekende verbetering 6. ik mail al met mijn RSA.

Er dient gezorgd te worden dat er minimaal dagelijks een RSA bereikbaar is voor problemen die niet via een informatrice of even snel via de mail opgelost kunnen worden. Dit werkt volgens mij voor zowel de beller als voor de RSA het snelst.

Suggestions for improvement

1 Garantie dat je binnen 24 uur wordt teruggebelt
2 Mocht je de volgende dag door bijv. te vliegen niet bereikbaar zijn, moet je nog steeds de mogelijkheid hebben om de RSA meteen rechtstreeks aan de lijn te krijgen

Het zou fijn zijn om voor iedere slot te kunnen bellen voor een afspraak. Dus niet alleen een keer s'ochtends en een keer s'middags

Graag 10 i.p.v. 5 minuten

Aanvragen per e-mail(een dag van te voren) voor een terugbel optie door je eigen RSA.

In plaats van een informatrice, die zelden écht iets voor je kan doen, kan er beter een echte RSA ingezet worden. Scheelt ook in de telefoonkosten voor de KLM... ;-)

Prefer to call or email?

Ik bel liever, mailtjes worden niet goed gelezen, waardoor er miscommunicatie ontstaat en er nog vele mailtjes over heen moeten gaan, voordat het probleem wordt opgelost

Ik bel liever omdat je dan gelijk antwoord krijgt op je vraag.
Soms is mailen effectief genoeg

Bellen als er uitleg nodig is.Mailen voor korte concrete vragen

Hangt af van de vraag soms is het handiger om iets mondeling toe te lichten en soms is dat niet nodig

Als het een simpele vraag is mail ik liever. Maar af en toe heb je iets wat je niet in zo'n klein mailtje kan uitleggen, en dan is het fijn om elkaar te spreken

Bel liever, dan heb je ook direct antwoord.

Mailen is ook goed maar spreken af en toe is ook zeer gewenst. En dan via terugbellen vind ik prima.

Mailen is makkelijk voor een simpele vraag, maar als je iets uitgebreid wilt overleggen bel ik liever

Bereikbaarheid RSA's

De mogelijkheden om met je RSA in contact te komen zijn de laatste tijd steeds meer uitgekleed. Bellen kon niet meer en je kon alleen via een webformulier vragen aan ze stellen. Dit was voor beide partijen geen goede en werkbare oplossing, dus werd er naarstig gezocht naar nieuwe en andere manieren. Er is heus wetenschappelijk onderzoek naar gedaan door een studente Technische Bedrijfskunde van de Universiteit Delft en dat heeft zo op het eerste gezicht resultaten afgeworpen. Op MyKLM.org staat nu een heel handig overzicht van met welke vraag je nu bij wie moet zijn en welke vragen eigenlijk helemaal geen zin hebben om te stellen. Het onderzoek van de studente heeft er ook toe geleid dat er weer telefonisch contact mogelijk is met de RSA. Dit kan middels de 'call back' optie. Je belt de RSA en krijgt de informatrice aan de lijn, daar meld je je vraag en zij geeft je een tijdstip waarop je teruggebeld wordt door een RSA. De eerste reacties van het korps zijn positief en wij zijn het ook. Maar om zeker te weten of het werkt willen we jullie vragen jullie medewerking te geven aan het onderzoek van deze studente als zij jullie benaderd. Tot zover in ieder geval bravo voor deze creatieve oplossing voor dit grote probleem!

C. Brouwer. (2009). Planning & Assignment Commissie, *Grocabulletin*, *31*, 9.