The relationship between

employee satisfaction and customer satisfaction

TU Delft

KLM Royal Dutch Airlines

SKYTEAM

The relationship between
employee satisfaction and customer satisfaction

by

J.C.R. (Remy) Gijzel BEng

to obtain the degree of Master of Science
at the Delft University of Technology,
to be defended publicly on Wednesday 30 September, 2015 at 11:00 hours

Student number:	4258738
Project duration:	February 1, 2015 – July 31, 2015
Thesis committee:	Dr. R.M. (Robert) Verburg, TU Delft, Chairman
	Dr. L. (Laurens) Rook, TU Delft, First Supervisor
	Dr. L.J. (Rens) Kortmann, TU Delft, Second Supervisor
	M.S. (Mark) Kramer BBA, KLM, Company Supervisor
	M. (Marimiek) Klunder, KLM, Company Supervisor
	Mr. F.J.E. (Fiona) Vanderbroeck-Vernooij, KLM, Company Supervisor

Preface

For many years I have been fascinated by looking at aircraft, trying to understand how it is possible that such a massive machine is capable of flying. I wanted to learn all there is about them and by the time I was eight years old I already knew I wanted to become part of the aviation industry. In 2012 I obtained my Bachelor degree in Aeronautical Engineering and soon after I decided to continue my studies. Instead of specializing, I wanted to broaden my knowledge.

After searching websites from various academic institutions I encountered the Management of Technology program of the TU Delft. Without hesitation I signed up, knowing that this program would allow me to become an engineer that is capable of communicating with both employees on the work floor, as well as higher management, both of which speak a different jargon.

Only a few months after I started with the study I decided to temporary quit for the remainder of the first year in order to assist my parents with their company, knowing that they could use all the help they could get. The effects of the late 2000s economic recession required that the company needed to change by means of various technologies and especially a lot of hard work from everyone. Although it was a turbulent period, the company was able to overcome the negative effects of the recession, allowing me to return to Delft a year after I officially enrolled.

It soon became more and more apparent that the experiences that I gained were invaluable. I often had a discussion or two with professors at my university, trying to persuade me about the workings of an organization and behaviour of employees as they modelled it.

By the end of the first year I decided that I wanted to perform a graduation internship at an aviation company. My number one preference was KLM. For many years I have been looking with the same eyes as Puss in Boots from the Shrek movie towards my parents every time I was given a miniature aircraft. (Yes, I still do!) These little aircraft for some unusual reason give me a lot of joy. Some of these models were of KLM, so my surprise and joy was enormous once I heard I was invited for an interview for a graduation internship at their headquarters.

I was offered to work within the CRM department of Air France-KLM. I immediately liked the position, because it would allow me to broaden my knowledge even further: into a domain relatively unknown to me. A few days later I was informed I was granted the position, and would be allowed to start on February 1st, 2015.

During the first month I was able to familiarize myself with the inner workings of the company and the department. The department was relatively new, allowing me to experience how the first major projects were initiated. I was allowed to travel to Paris and visit the headquarters of Air France, and I even had a meeting in Les Invalides with a view on the Eiffel Tower!

During the first months it was demanding to get my research starting. Even the relative simple task of deciding on a specific main research question proofed to be difficult. The organizational culture within KLM was different from any other company I have experienced in the past. At KLM, people have a profound tendency of having a say about the project of someone else. And once you need something from a person outside your own department, people tend to be protective, almost up to the point of being competitive.

While I started in February, it took until May to receive the final approval on my research topic. In the mean time I had studied various aspects of employee and customer satisfaction, making sure I would at least be able to rocket launch my research once approval was given. My research would focus on the relationship between employee and customer satisfaction, so I was fortunate that a lot of previous

work did not go to waste. It took until June to actually start working with the aggregated datasets needed to test various hypothesis only to realize I actually would require raw datasets to make relevant statements. Although I was already in the final stages of my research, three weeks before my contract at KLM would end I was provided with a raw dataset to analyse customer satisfaction.

Although it has been a lot of hard work, I was able to finish my research within a reasonable timeframe. I hope that you as a reader will learn a thing or two about the interesting world of employee and customer satisfaction.

J.C.R. Gijzel
Schiedam, July 2015

Acknowledgements

I would like to thank the following people for making this thesis possible:

My thesis committee, Robert Verburg, Laurens Rook and Rens Kortmann for providing valuable and enjoyable comments on how to enhance the quality of my work.

My supervisors at KLM, Mark Kramer, Marimiek Klunder and Fiona Vanderbroeck for making this research possible, supporting me throughout the way and allowing me to experience KLM.

My internship colleague, fellow MoT student and friend, Steven Paul Balk, for making time to discuss my work, options and to enhance the overall quality.

My family, my mother Sylvia Gijzel-Hillebrand, my father Simon Gijzel and my sisters Sophy Gijzel and Annalou Gijzel for supporting me during my years as a student.

My colleagues at KLM, for supporting me, offering their expertise and knowledge and allowing me to broaden my research.

All my friends for sharing a lot of fun moments which were often a welcome alternative to the sometimes stressful student life throughout the past 8 years.

My colleagues at Technomarine, for their understanding and handling themselves while I was not always able to assist them with their work while I was a student.

Executive Summary

Studying human behaviour within organizations, between humans and organizations, and organizations itself is known as the study of Organizational Behaviour (OB). A well-known discipline into enhancing customer loyalty is Customer Relationship Management (CRM). This managerial approach can be described as a set of methodologies, technologies and e-commerce capabilities used by organizations to manage the relationship with a customer.

In order to enhance knowledge into the OB and CRM domains, a research is performed with the following main research question: What is the relationship between employee satisfaction of cabin crew and customer satisfaction within the airline industry for the long haul, legacy carrier market? This research is to be performed on the basis of a case of KLM Royal Dutch Airlines. In recent years, the aviation industry has been affected by increasing oil prices and fiercer competition, demanding legacy carriers to change. KLM's new vision is to become a customer centric, innovative and efficient leading network carrier.

For the research method, an academically established model of (Salanova, et al., 2005) describing the mediating effects of the construct service climate with the constructs organisational resources and work engagement on the one hand, and employee performance and customer loyalty on the other was used as a basis for the research. Existing datasets from the KLM case were adapted and items were categorized. Subsequently by applying exploratory factor analysis followed by the PROCESS macro from (Hayes, 2014) relationships between constructs could be determined. The result is a model similar to the model of (Salanova, et al., 2005).

Organizational resources, work engagement and service climate are determined by employee satisfaction. Organizational resources are physical, psychological, social or organizational aspects of a job allowing for achieving work goals, reducing job demands and stimulating personal growth. Existing research has established that organizational resources is made up out of training, autonomy and technology. Empirical research suggests that autonomy is the strongest organizational resource. Work engagement is characterized by vigour, dedication, and absorption, and service climate are the perceptions of employees with regard to the provided service, whereas service quality is the level of how well the service matches customer expectations.

Employee performance and customer loyalty is determined by customer satisfaction. Employee performance is customer appraisal of employee service quality. And customer loyalty is the strength of the relationship between an individual's relative attitude and repeat patronage.

It is hypothesised that (1) there is a relationship between organizational resources, work engagement, service climate, employee performance and customer loyalty, including that organizational resources contains three scales, i.e. training, autonomy and technology; (2) the three scales of work engagement are related to service climate; and (3) autonomy as an organizational resource has the strongest total effect on service climate.

By means of using existing data, an employee satisfaction raw dataset and a customer satisfaction aggregated dataset were acquired. The employee satisfaction dataset was obtained from an export of the results of the KLM employee monitor (EMO); a questionnaire used to provide input for HR, identify organisational bottlenecks, and provide managerial knowledge. The customer satisfaction dataset was obtained via an export of e-Score, a customer satisfaction measurement tool based on an extensive list of questions relating to various parts of the Air France-KLM service.

Pre-analysis of the dataset for employee satisfaction consisted by first categorizing each question of the dataset into one of the following three categories: organizational resources; work engagement and service climate. Various questions were rejected from the research e.g. due to using an incompatible measurement scale or not being related to the research of interest.

Pre-analysis of the dataset for customer satisfaction consisted by first categorizing each indicator of the dataset into one of the following three categories: service quality, employee performance and customer loyalty. Exploratory factor analysis was applied using SPSS to determine the factors of the various categories of the dataset. For employee satisfaction, organizational resources consist out of five factors, i.e. technology, autonomy, training, management - unit manager and management - (senior) purser, work engagement out of three factors, i.e. dedication, vigour and absorption and service climate out of two factors, i.e. factor 1 and factor 2. Cronbach's alpha values were good, ranging between .742 and .895.

Exploratory factor analysis for customer satisfaction revealed that four factors were related to service quality i.e. food and beverage front, food and beverage rear, cabin comfort & features and inflight entertainment. Employee performance and customer loyalty both contained one factor, crew and customer loyalty respectively. Cronbach's alpha values were high, ranging between .931 and .976, most likely caused by the aggregated data contained within the dataset.

A mediation analysis was performed using the PROCESS macro for SPSS by estimating work engagement from organizational resources as well as service climate from both organizational resources and work engagement using the employee satisfaction dataset. Employee performance was estimated from service quality and customer loyalty was estimated from both service quality and employee performance using the customer satisfaction dataset.

Results show that (1) there is a relationship between organizational resources, work engagement, service climate, employee performance and customer loyalty, with the exception that the relationship between customer loyalty and service climate could not be tested, and that organizational resources is not made up out of three scales, i.e. training, autonomy and technology; (2) the three scales of work engagement are not related to service climate; and (3) autonomy as an organizational resource has the strongest total effect on service climate.

The research has yielded two models, an employee satisfaction model and a customer satisfaction model. The models are incompatible since the employee satisfaction model has service climate as dependent variable, whereas the customer satisfaction model has service quality as independent variable. However, empirical evidence suggests that employee satisfaction has a significant effect on perceived service quality. As a result, both models can be connected to create a single model indicating the relationship between employee and customer satisfaction for the long haul legacy carrier airline industry.

Because of usage of an aggregated dataset for customer satisfaction, the reliability of the results is questionable. Moreover, several questions of the employee satisfaction dataset may not measure the intendent construct, indicating the need for further research before the relationship can be fully established. The critical element the model could not test is the relationship between service climate and service quality. In order to understand this relationship data would have to be collected in parallel for employees and customers.

Contents

1. Introduction

This chapter discusses the introduction to the researchable domains as well as the industry of target. Prior to discussing the thesis structure, the main research question is presented.

1.1. Background

"*It is not the employer who pays the wages. Employers only handle the money. It is the customer who pays the wages*" (History.co.uk, 2013). By means of this quote, Henry Ford stressed the importance of customers for a company. Without customers, a company cannot exist and would turn bankrupt rather sooner than later. Keeping customers satisfied is a discipline by itself. Academics, managers, CEO's and shareholders alike apply various tactics to enhance customer satisfaction with the goal of increasing organisational performance, often in the context of financial performance. One of the more well-known disciplines into enhancing customer loyalty is Customer Relationship Management (CRM). This managerial approach can be described as a set of methodologies, technologies and e-commerce capabilities used by organizations to manage the relationship with a customer (Stone, 2001).

Angela Ahrendts, the former CEO of Burberry from 2006 to 2014 and current Senior Vice President of Retail & Online Stores at Apple Inc. (Bloomberg, 2015) has a different view: "*Everyone talks about building a relationship with your customer. I think you build one with your employees first*" (Leahey, 2012). Her quote stresses another important, if not the most important facet of an organisation: those that actually make an organisation work: the employees. Employees are central in many organisations, and countless organisations require employees in order to function properly or exist at all. Research into human behaviour within organizations is part of the academic domain of Organizational Behaviour (OB).

Customer satisfaction and employee satisfaction, both have been subjected to various academic research attempting to establish factors influencing them or their relationship such as (Bolton, 1998); (Brown & Lam, 2008); (Cho, 2006); (Donthu & Yoo, 1998); (Fan & Du, 2010); (Gracia, et al., 2013); (Griffin & Moorhead, 2014); (Harter, et al., 2002); (Harter, et al., 2003); (Payne & Frow, 2005); (Robbins & Judge, 2012); (Rust & Zahorik, 1993); (Salanova, et al., 2005); (Schneider, et al., 1998); (Treacy & Wiersema, 1993); (Vaerenbergh, et al., 2014); (Weiner, 2000); (Wu, et al., 2015); (Yim, et al., 2008); (Zeithaml, et al., 1996). Researchers and managers have based variations of hypotheses on the premise that when employees are able to carry out their work properly this results in a customer which has more benefits from the delivered product or service (AFKL Customer Insight, 2013); (Brown & Lam, 2008); (Cretel & Lang, 2014); (Gracia, et al., 2013); (Harter, et al., 2002); (Salanova, et al., 2005); (Schneider, et al., 1998); (Taşkent, 2015); (Vaerenbergh, et al., 2014); (Wu, et al., 2015). Since employees working at a service organisation are more often in direct (personal) contact with customers, especially organisations that provide a service rather than a product are of particular interest to academics when studying the relationship between employees and customers.

In recent years, the aviation industry has been rapidly changing. The increasing oil prices have resulted in a higher demand for fuel efficient and economic aircraft. The global wealth increase has made air travel more accessible to people around the globe. Furthermore, liberalisation in the form of air service agreements and open-sky agreements have led to increased competition for legacy carriers. Low-cost carriers such as EasyJet, Ryanair and Norwegian as well as Gulf carriers such as Emirates, Etihad and Qatar Airways have reshaped the playing field. Legacy carriers such as British Airways, Lufthansa and Air France-KLM need to change to respond properly to the new competition and to avoid operational losses (Air France-KLM, 2013).

(Treacy & Wiersema, 1993) have defined in an applied magazine three different management models from which a company can choose, i.e. operational excellence, product leadership and customer intimacy. Within the airline industry, low cost carriers are known for their operational excellence whereas gulf carriers are known for their product leadership (Cretel & Lang, 2014). According to (Belleghem, 2014), a new era is immerging where companies combine elements from these management models. KLM's new vision is to become a customer centric, innovative and efficient leading network carrier (Elbers, 2015). As a result, KLM wants to combine operational excellence and customer intimacy while keeping product leadership at a high level (Cretel & Lang, 2014). The subsequent strategic change results in a knowledge need for KLM into customer needs and satisfaction (Air France-KLM, 2014) as well as how this can be integrated with employee satisfaction.

1.2. Research question

Whereas the relationship between employee and customer satisfaction has been part of various academic papers, within the context of the airline industry the knowledge is limited. Gaining this knowledge could prove to be interesting because the airline industry is subject to various complex market characteristics such as globally orientated, marginal profitability, technological oriented, labour intensive, oligopolistic, capital intensive and highly regulated (Santos, 2014).

In order to enhance empirical knowledge into the academic domains of CRM and OB, the following main research question is to be addressed: **What is the relationship between employee satisfaction of cabin crew and customer satisfaction within the airline industry for the long haul, legacy carrier market?**

This question is to be answered on the basis of a case at KLM Royal Dutch Airlines. From a practical perspective, the knowledge gained can be used to enhance existing CRM strategies of airlines, such as gaining understanding on how to make employees more effective towards customers.

1.3. Research method

The research method performed in this thesis is based on a research performed by (Salanova, et al., 2005), which describes a model containing the constructs organizational resources, work engagement, service climate, employee performance and customer loyalty. Instead of collecting questionnaires about employee and customer satisfaction to determine the relationship between these constructs, existing data obtained from the KLM case was used. First, the existing datasets were adapted and items were categorized into the constructs. Subsequently by applying an exploratory factor analysis it was determined whether the constructs contained reliable factor loadings to be used to determine the relationship between the constructs. The PROCESS macro from (Hayes, 2014) was used to determine these relationships. The result is a model similar to the model of (Salanova, et al., 2005).

1.4. Thesis structure

The thesis structure is based on the research method as described in the previous paragraph. First, after this introductory chapter a detailed overview will be provided of the theoretical concepts and hypotheses that are involved in this thesis in the theoretical framework chapter. The order of presentation of this chapter is based on the constructs presented in the model of (Salanova, et al., 2005). Chapter 3 describes in detail the case of KLM Royal Dutch Airlines including academic research within the context of the airline industry to further establish from a practical point of view the relevance of this research. Subsequently, Chapter 4 will describe the methods in detail that are applied to analyse the hypotheses. Chapter 5 contains the results of the performed analysis. Finally, chapter 6 reflects upon the results in the form of a discussion, containing also the managerial impact of the research and the conclusions.

2. Theoretic framework

This chapter is the foundation of the various academic concepts that are used and researched upon throughout this thesis. First, the academic domains part of the research will be discussed, before the link between these domains are presented. Furthermore, the constructs that establish this link are presented in the remainder of this chapter. Hypotheses part of the research are discussed throughout this chapter and summarized at the end.

2.1. Academic domains

Before going into specifics of the relationship that this thesis attempts to clarify, it is important to have sufficient background knowledge of the underlying academic domains that provide the basis of the study. As a result, this extensive paragraph describes what both organisational behaviour and customer relationship management entail, including various relevant definitions.

2.1.1. Organizational behaviour (OB)

Humans are social, living in groups and have hierarchies and leaders. However, humans also display behaviour that is unique for each individual. Within the context of an organization, whether this is a commercial, governmental or non-profit organisation, humans also display unique and group behaviour. Organizational behaviour (OB) is the study that revolves around this topic. “Organizational behaviour” as a keyword yielded 1.400 document results on Scopus.com (on 1 June 2015), indicating the usage of the concept in the academic community. (Griffin & Moorhead, 2014, p. 4) have defined OB as "*the study of human behaviour in organizational settings, of the interface between human behaviour and the organization, and of the organization itself*". In order to gain knowledge of OB, insight is required of all three areas of OB. Human behaviour within an organisation is e.g. dependent on the relation the human has with the organisation, as well as how the organisation is organised. The figure below displays the three areas graphically.

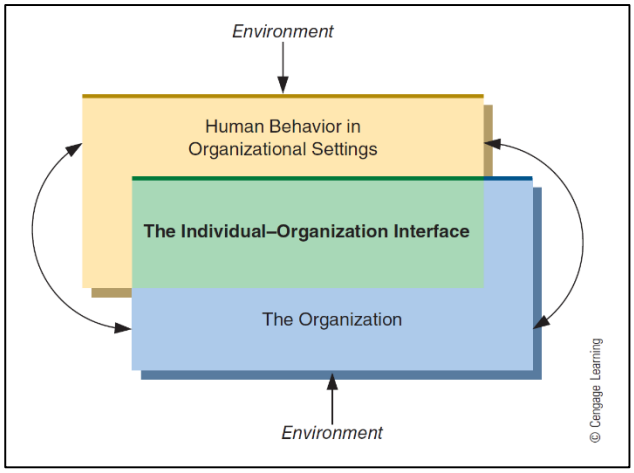


Figure 1 - The three areas of OB, obtained from (Griffin & Moorhead, 2014, p. 5)

An organisation's success can be expressed as the success of all the individuals that work at the organisation. By studying (a part of) OB, knowledge can be gained of how humans behave, the relation between humans and the organisation or how the organisation itself works. This knowledge is important if effective changes are to be made to make an organisation (more) successful. It should be noted that not only employees are part of the human behavioural part of OB. Consumers, suppliers, shareholders and even competitors express human behaviour, at, towards or within an organisation and thereby effect OB (Griffin & Moorhead, 2014).

OB as (Griffin & Moorhead, 2014, p. 6) describe, "*offers specific perspective on the human side of management: people as organizations, people as resources, and people as people*". OB provides insights and tools that all managers within an organisation can use to enhance the effectiveness of work of people at an organisation. These insights can e.g. be regarding attitudinal processes, individual differences, group dynamics, intergroup dynamics, organisational culture, power behaviour and political behaviour. It also helps managers' understanding of people, and possibly explaining the behaviour of people they are held accountable for as their manager. OB knowledge can enhance decision making processes, reduce stress and enhance communication. Knowledge gained about OB can be applied within various organisations, national and international, SMB's and large multinationals (Griffin & Moorhead, 2014). More information regarding OB in terms of a framework and the academic disciplines that contribute to the academic domain can be found in Appendix A.

2.1.2. Customer relationship management

The other major domain which forms the basis for this thesis is Customer Relationship Management. Customer Relationship Management, commonly abbreviated to CRM is a vague term if one wants to determine what it actually entails. As the term describes by itself, it involves managing the relationship with the customer, but what does this actually mean? A keyword search on "Customer relationship management" on Scopus.com yielded 2.489 document results (on 1 June 2015). This paragraph attempts to explain various definitions of CRM, and what CRM can hope to realize in order to understand better how it can contribute to enhance customer loyalty.

Customer Relationship Management is a definition that materialised in the 1990s by IT developers. It is as a result commonly used to describe customer oriented IT solutions (Payne & Frow, 2005). Research has shown that organisations that are adopting CRM strategies are unable to properly define CRM (Payne & Frow, 2005). A possible explanation may be that CRM can be applied in various ways, at various customer contact points, and depending on the CRM strategy, may result in measurable data or is only a tool to facilitate information flows with customers. According to a survey performed by (Payne & Frow, 2005), CRM was defined by various executives as direct mail, loyalty programs, customer databases, relational databases, call centres, help desks, data-mining, e-commerce and internet personalisation. Consequently, (Payne & Frow, 2005) made various CRM definitions, based on various literature. The most relevant as outlined by (Payne & Frow, 2005, pp. 174-175) are detailed below.

Customer Relationship Management…

…is a term for methodologies, technologies and e-commerce capabilities used by companies to manage customer relationships, based on: (Stone, 2001).

…is an enterprise wide initiative that belongs in all areas of an organisation, based on: (Singh, 2003).

…is a comprehensive strategy and process of acquiring, retaining, and partnering with selective customers to create superior value for the company and the customer, based on: (Parvatiyar, 2001).

…is the development and maintenance of long-term, mutually beneficial relationships with strategically significant customers, based on: (Buttle, 2001).

…is an application of one-to-one marketing and relationship marketing, responding to an individual customer on the basis of what the customer says and what else is known about the customer, based on: (Peppers, 1993).

…is a management approach that enables organisations to identify, attract, and increase retention of profitable customers by managing relationships with them, based on: (Hobby, 1999).

…involves using existing customer information to improve company profitability and customer service, based on: (Couldwell, 1999).

…is attempting to provide a strategic bridge between information technology and marketing strategies aimed at building long-term relationships and profitability. This requires "information-intensive strategies, based on: (Glazer, 1997).

…is an enterprise approach to understanding and influencing customer behaviour through meaningful communication to improve customer acquisition, customer retention, customer loyalty, and customer profitability, based on: (Swift, 2000).

As a result of the ambiguity of what CRM strategy entails, (Payne & Frow, 2005) have developed a conceptual framework. This framework describes that there is interaction between 5 main processes. Initially, there is a Strategy Development Process that contains a business strategy and a customer strategy. The business strategy describes the firms' vision, and how to operate competitively within the applicable market. The customer strategy describes the types of customers (including their segments) the company wishes to serve and how it wants to serve them. The Strategy Development Process interacts directly with the Value Creation Process, which focusses on co-creation between the value the customer receives and the value the firm receives. Both values result in a customer lifetime value (which stimulates future firm survival). The Value Creation Process interacts subsequently with the Multichannel Integration Process. Various processes, ranging from physical to immaterial processes are by means of integrated multichannel management optimised. Examples of processes are often related to direct customer contact points. Finally, the Multichannel Integration Process interacts with the Performance Assessment Process, which contains the reporting and monitoring of firm and subsequently shareholder performance. All four processes are assisted by a fifth process, the Information Management Process. This process contains IT systems with data repositories, tools to analyse them and the relevant applications for operation. The entire conceptual framework can be explored graphically in Appendix B.

2.2. Relation between various OB and CRM concepts

Where OB involves concepts such as motivation; decision making; communication; leadership; politics; organisational culture and their outcomes such as productivity; stress; satisfaction and turnover (Griffin & Moorhead, 2014), CRM involves concepts such as business strategy; value of the customer; value for the customer; performance monitoring; customer satisfaction and customer retention (Payne & Frow, 2005).

By collecting data from contact employees and customers of 114 service companies in the hotel and restaurant industry, (Salanova, et al., 2005) were able to design a model of the mediating effects of service climate of organisational resources and work engagement on the one hand (OB factors), and employee performance and customer loyalty on the other (CRM factors). Their work forms the foundation for this thesis and the order of presentation of the various concepts in the remainder of this chapter that are involved in the field of CRM and OB.

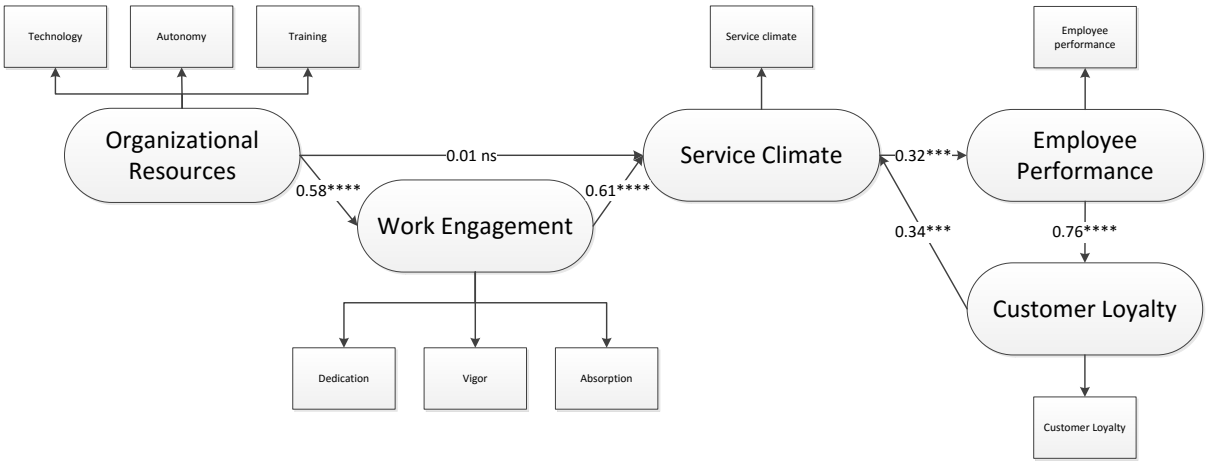


*Figure 2 - Model indicating the (direct) effect sizes between organizational resources, work engagement, service climate, employee performance and customer loyalty. Model adapted from (Salanova, et al., 2005, p. 1223). Significance level is indicated by ns for non-significant; *** for p <0.01; **** for p < 0.001. Organization resources, work engagement and service climate are determined from reporting by employees. Employee performance and customer loyalty are determined from reporting by customers.*

The model of (Salanova, et al., 2005) allows for knowledge creation into the importance of service quality, which has been found to be ultimately related to customer loyalty as described in subsequent paragraphs 2.5 and 2.7. Previous research into this field focussed on organizational predicators of service climate such as characteristics of the organization and human resource procedures (Salanova, et al., 2005). By analysing work engagement as a predictor for service climate, knowledge can be created into psychological factors, such as the motivation of the employee. By incorporating organizational resources, which is the perception of the employee with regards to HR practices, previous research is included in the model. Furthermore, (Salanova, et al., 2005) combine employee and customer data into the same model. Whereas in an ideal situation such data would have to be collected at the same time to create a single dataset, the model can also be created by using two different datasets, one for employee satisfaction data and one for customer satisfaction data.

With their model, (Salanova, et al., 2005) was able to identify the importance of the mediating role of service climate. However, because of the various constructs that describe the model, i.e. organizational resources, work engagement, service climate, employee performance and customer loyalty, much more knowledge can be obtained than simply the mediating effects of service climate. The model would allow for knowledge creation of the (eventual) effects of organizational resources on employee performance and customer loyalty. Moreover, the impact of work engagement on such a relationship is can be made part of the analysis. To what extend would an organization that has a relatively high level of work engagement benefit in terms of increased customer loyalty by applying enhanced organization resources? Such a question can be answered when using this model.

A service climate is created on the basis of practices related to customer support which is dictated by available resources and employees. As a result, by solely looking at employee satisfaction data the left-hand part of the model of (Salanova, et al., 2005), i.e. organizational resources, work engagement, and service climate can be created. When the research would be extended with a second or supplementary dataset containing customer satisfaction data, the right-hand part of the model, i.e. service climate, employee performance and customer loyalty can be created.

Whereas the model of (Salanova, et al., 2005) is based on 114 service organizations in the hotel and restaurant business, no knowledge is available whether the model is applicable to other service

industries. Testing the model within the context of a more complex industry, such as the airline industry would be interesting. The airline industry is subject to various complex market characteristics such as globally orientated, marginal profitability, technological oriented, labour intensive, oligopolistic, capital intensive and highly regulated (Santos, 2014). One or more of these characteristics could have a disruptive impact on the model. However, if the model would be applicable for the airline industry, this could contribute to support a future hypothesis that the model of (Salanova, et al., 2005) defines the relationship between employee and customer satisfaction for any service company. The model of (Salanova, et al., 2005) therefore leads to the first hypothesis of this thesis:

- Hypothesis 1: There is a relationship between organizational resources, work engagement, service climate, employee performance and customer loyalty as defined by (Salanova, et al., 2005).

As a result, the following sub-hypothesis can be written down:

- Hypothesis 1a: Organizational resources is[1] related to work engagement.
- Hypothesis 1b: Work engagement is related to service climate.
- Hypothesis 1c: Organizational resources is not directly related to service climate, and as a result work engagement is a mediator in the relationship between organizational resources and service climate.
- Hypothesis 1d: Service climate is related to employee performance.
- Hypothesis 1e: Employee performance is related to customer loyalty.
- Hypothesis 1f: Customer loyalty is related to service climate.
- Hypothesis 1g: Organizational resources is made up out of three scales, i.e. training, autonomy and technology.

The upcoming paragraphs will discuss the concepts of the model of (Salanova, et al., 2005) as presented in Figure 2, that is: organizational resources, work engagement, service climate, employee performance and customer loyalty. Understanding each of these concepts thoroughly is important due to the fact that the model and the various concepts of Figure 2 will be discussed in greater detail in the remainder of this thesis.

2.3. Organisational resources

Organizational resources, according to (Salanova, et al., 2005), has the same definition of what (Demerouti, et al., 2001) refers to as "job resources". Job resources are "*physical, psychological, social or organizational aspects of the job that may do any of the following: (a) be functional at achieving work goals, (b) reduce job demands at the associated physiological and psychological cost; (c) stimulate personal growth and development*" (Demerouti, et al., 2001, p. 501). A detailed description of the difference between a job resource and job demand can be found in Appendix C.

(Salanova, et al., 2005) describes the development of a scale for organizational resources. First, structured interviews were performed with 20 frontline employees of various restaurants and hotels.

[1] Please note that throughout this thesis various constructs are presented. These constructs are considered as singular, no matter their designation/name, even if this is plural. The constructs have not been written down by using capital letters to enhance readability of the text. As a result, it is important to realize that several sentences have been written down in the following format: "Organizational resources is related to work engagement". This format has been specifically chosen, meaning that Organizational resources 'as a construct' is related to work engagement. The word "is" has intentionally not been replaced with "are" since this would mean that all forms of organizational resources, i.e. all scales, are related to work engagement, which is academically incorrect.

The results were used to determine the most frequently available resources. Eight researchers categorized the resources by applying grounded theory qualitative methodology. The result was a scale made up out of three categories: training, autonomy and technology. Subsequently, a questionnaire for employees was made containing the three categories, with 4, 3 and 4 questions for training, autonomy and technology respectively. The questions are presented in Figure 3. After testing, internal consistency (Cronbach's alpha) was found to be .91, .84 and .90 for training, autonomy and technology respectively.

Training	Managers asked us for our opinion on training activities. Learning helped to overcome work obstacles. Training was practical. Sufficient training was provided.
Autonomy	Autonomy to choose what tasks to perform. Autonomy to decide the order I perform tasks. Autonomy to decide when to start and finish tasks.
Technology	Technologies are easy-to-use and useful. Technical guidebooks and material resources are available. Technology is available. External technical services are provided.

Figure 3 - Scales and (questionnaire) items for organizational resources, obtained from (Salanova, et al., 2005, p. 1227)

2.4. Work Engagement

Work engagement is the second construct of the model of (Salanova, et al., 2005). Before the definition is provided of work engagement, it is important to realize that there are various definitions that closely resemble, or are part of the definition. To this end, first the definitions will be provided of three other popular definitions of engagement within the academic community.

"Engagement" as an aspect of an employee's work emerged in business and organisational psychology literature around 1990 (Simpson, 2009). (Simpson, 2009) performed a literature review of nearly 100 academic manuscripts into engagement at work. According to (Simpson, 2009), even though there is consistency amongst academics of the importance of engagement, there is inconsistency amongst various literature regarding what engagement entails. The research of (Simpson, 2009) revealed that there are four types of commonly applied definitions of engagement. These definitions are presented in the paragraphs 2.4.1-2.4.4 below.

2.4.1. Personal engagement

"*Personal engagement is described as the employing or expressing of oneself physically, cognitively, and emotionally during work role performances. When engaged, an employee is understood to be physically involved, cognitively vigilant, and emotionally connected* (Kahn, 1990)", as described by (Simpson, 2009, p. 1018).

The definition by (Kahn, 1990) was based on the premise that pervious concepts such as motivation, commitment and involvement were not enough related to daily experiences of employees. By applying grounded theory, (Kahn, 1990) performed a qualitative research on working conditions by which employees engage or not. (Kahn, 1990) found three psychological conditions that had an impact on personal engagement. These are meaningfulness, safety and availability. Meaningfulness refers to

"*a feeling that one is receiving a return on investments of self-given in their work role performances*" (Simpson, 2009, pp. 1018-1019). Safety is "*a sense of being able to show and employ oneself without fear of negative consequences to one's self-image or status at work*" (Simpson, 2009, p. 1019). Availability is "*a sense of possessing the physical, emotional and psychological resources needed for investing oneself in the work role*" (Simpson, 2009, p. 1019). Confirmatory research by (May, et al., 2004) has demonstrated that meaningfulness, safety and availability have a significant positive relationship with personal engagement. Meaningfulness was found to have the strongest relationship with personal engagement.

2.4.2. Burnout/engagement

"Burnout *is defined as a psychological syndrome characterized by exhaustion, cynicism, and inefficacy, which is experienced in response to chronic job stressors. Engagement is understood to be the direct opposite of burnout and exist on a continuum—with engagement on one end and burnout on the other. Exhaustion (low energy), cynicism (low involvement), and inefficacy (low efficacy) are characteristic of burnout; whereas, high energy, high involvement, and high efficacy are characteristic of engagement* (Maslach & Leiter, 1997)*;* (Leiter & Maslach, 2003)*''*, as described by (Simpson, 2009, p. 1018).

Research by (Greco, et al., 2006) was able to draw the conclusion based on various studies that work environment, the impact of burnout/engagement on organisational performance, and employee and leader empowerment are of high importance. It should be noted the research of (Greco, et al., 2006) was performed in the setting of healthcare and nursing, and may therefore be limited in generalizability towards other industries.

(Maslach, et al., 1996) have defined the Maslach burnout inventory, a tool to measure engagement and burnout using the three components exhaustion, cynicism and inefficacy and their relative opposites.

(Schaufeli, et al., 2002) have argued against the definition of burnout/engagement as a proper definition of what engagement entails after performing a confirmatory research. According to (Schaufeli, et al., 2002), burnout and engagement are two separate concepts. They argue that a highly engaged employee cannot experience a low level of burnout at the same time.

2.4.3. Employee engagement

Employee engagement refers to the *''individual's involvement and satisfaction as well as enthusiasm for work'* (Harter, et al., 2002)", as described by (Simpson, 2009, p. 1018).

The research of (Harter, et al., 2002) and (Harter, et al., 2003) are based on studies at Gallup into the success of employees, work groups and management over the course of 30 years. (Simpson, 2009) The resultant is an employee engagement model. The model defines four requirements for employee engagement (Simpson, 2009):

- Clear expectations, and the provision of basic materials and equipment
- The feeling of making a contribution towards the organisation
- The feeling of being part of something larger than oneself
- The feeling of being able to discuss opportunities and growth.

Measuring engagement is performed via the instrument called "The Gallup Workplace Audit". It contains 12 items to measure employee perceptions and work characteristics. A meta-analysis based on the data from Gallup, containing 42 studies conducted at 36 independent companies by (Harter, et al., 2002), resulted in explaining the relation between engagement and various organisational factors. Customer satisfaction-loyalty, safety and employee turnover were found to have the strongest

relationships with engagement (r=0.33, r=0.32, r=0.30 respectively). Productivity and profitability of the company were also found to have positive relationships, but less strong. (r=0.25, r=0.17 respectively). (Harter, et al., 2002) was able to determine that business units with an above median score on employee satisfaction-engagement had a 0.43 standard deviation higher performance compared to business units below the median.

2.4.4. Work engagement

"*Work engagement refers to a positive, fulfilling, work-related state of mind that is characterized by vigour, dedication, and absorption. Vigour is characterized by high levels of energy and mental resilience while working. Dedication refers to being strongly involved in one's work and experiencing a sense of significance, enthusiasm, inspiration, pride, and challenge. Absorption is characterized by being fully concentrated and happily engrossed in one's work, whereby time passes quickly and one has difficulties with detaching oneself from work* (Schaufeli, et al., 2002)", as described by (Simpson, 2009, p. 1018).

The state of mind as referred to by (Schaufeli, et al., 2002) is more "*persistent and pervasive affective-cognitive state that is not focused on any particular object, event, individual or behaviour*" (Simpson, 2009, p. 1019). A person with e.g. high vigour will demonstrate persistence and efforts, also during difficult times (Simpson, 2009).

According to (Schaufeli, et al., 2002), vigour and dedication are opposite of exhaustion and cynicism, which are considered to be burnout dimensions. The resultant of the model of (Schaufeli, et al., 2002) is the Utrecht Work Engagement Scale (UWES). The scale uses a questionnaire created by (Schaufeli & Bakker, 2004b) that measures the three aspects of engagement, that is, vigour, dedication and absorption. According to (Simpson, 2009), various studies using UWES have found that organizational factors significantly predict engagement, and not individual factors. A study by (Koyuncu & R.J., 2006) has been able to confirm similar results on an aggregated level: personal demographics as a block are not significant for engagement.

The questions contained within (Schaufeli & Bakker, 2004b) to measure vigour, dedication and absorption are presented in Figure 4 below.

Vigour	At my work, I feel bursting with energy
	At my job, I feel strong and vigorous
	When I get up in the morning, I feel like going to work
	I can continue working for very long periods at a time
	At my job, I am very resilient, mentally
	At my work I always persevere, even when things do not go well
Dedication	I find the work that I do full of meaning and purpose
	I am enthusiastic about my job
	My job inspires me
	I am proud on the work that I do
	To me, my job is challenging
Absorption	Time flies when I'm working
	When I am working, I forget everything else around me
	I feel happy when I am working intensely
	I am immersed in my work
	I get carried away when I'm working
	It is difficult to detach myself from my job

Figure 4 - Questionnaire scales and items to measure work engagement, created from (Schaufeli & Bakker, 2004b, pp. 5-6)

Factors that have been identified as significant predictors of engagement are job resources (Hakenen, et al., 2006); (Llorens, et al., 2006); (Mauno, et al., 2007); (Schaufeli & Bakker, 2004a); (Xanthopoulou, et al., 2007) and work life experience, with in particular control, reward, recognition and value fit (Koyuncu & R.J., 2006); (Simpson, 2009). Turnover intention (Schaufeli & Bakker, 2004a), organizational commitment (Schaufeli & Bakker, 2004a); (Hakenen, et al., 2006); (Richardsen, et al., 2006) and service climate and customer loyalty (Salanova, et al., 2005) have been found to be affected significantly by engagement.

In other research by (Bakker & Leiter, 2010) it is suggested that absorption is to be excluded from the work engagement scale. Work engagement, according to (Bakker & Leiter, 2010), should consist out of an energy and involvement scale since these two dimensions have been found as important aspects of work engagement. Moreover, high levels of absorption (being emerged in one's work) could stimulate unwanted employee behaviour by overlooking personal relationships. As a result, (Bakker & Leiter, 2010) suggest that upon closer examination, absorption could be an outcome of vigour and dedication.

Since work engagement was found by (Salanova, et al., 2005) to be a full mediator between organizational resources and service climate, one could argue that all three scales (i.e. vigour, dedication and absorption) contribute to this relationship. However, due to findings by (Bakker & Leiter, 2010) this is questionable. Therefore, the following hypothesis is added to the research:

- Hypothesis 2: The three scales of work engagement are related to service climate.

This results in the following sub-hypotheses:

- Hypothesis 2a: Vigour is related to service climate
- Hypothesis 2b: Dedication is related to service climate
- Hypothesis 2c: Absorption is related to service climate

2.5. Service climate

Research has demonstrated that a service climate mediates the relationship between organizational resources and engagement on the one hand and employee performance and customer loyalty on the other (Salanova, et al., 2005). A service climate focusses "*service employee efforts and competencies on delivering service quality, which in turn yields positive experiences for customers as well as customer perceptions of service quality*" (Schneider, et al., 1998, p. 150). In other words, a service climate, or "*climate for service*" (Schneider, et al., 1998, p. 151) are the perceptions of employees with regard to customer service and service quality (Schneider, et al., 1998). "Service quality" as a keyword yielded a notable 13.884 document results on Scopus (on 1 June 2015), underlining the prominence of the concept in the academic community. In order to understand the definition of service climate, it is important knowledge is gained of what service quality entails. Moreover, because empirical evidence has been found that service quality has significant impact on customer loyalty (Salanova, et al., 2005), this paragraph goes into further detail by describing various concepts surrounding service quality.

2.5.1. Service Quality

A service encounter is "*the interaction between a service organisation and its customers, and may take varying forms: face-to-face, over the telephone, by letter or by automated means*" (Lewis & Mitchell, 1990, p. 11). Employees that come into direct contact with a customer are commonly referred to as frontline employees. Each time there is interaction between the organisation and the customer, the customer is able to form an impression of the service that is provided (Lewis & Mitchell, 1990). Various definitions exist on what service quality entails. (Lewis & Mitchell, 1990) refer to the fact that literature often describes service quality as meeting customer needs and requirements. A commonly accepted

definition of service quality was made by (Lewis & Booms, 1983), which is the level of how well the service that is delivered to the customer, matches the customers' expectations. Service quality is considered to be an indicator for customer satisfaction and organisational performance (Lewis & Mitchell, 1990). Research has also shown that service quality is related to customer loyalty and ultimately higher organisational profits (Schneider, et al., 1998); (Zeithaml, et al., 1996); (Brown & Lam, 2008); (Hellier, et al., 2003); (Vaerenbergh, et al., 2014).

2.5.1.1. Service quality behavioural consequences

Since service quality is considered to be an indicator for customer satisfaction and organisational performance, knowing how service quality influences customer behaviour is essential. The authors of (Zeithaml, et al., 1996) have created a conceptual model to determine the impact of service quality on customer defection. In their research, the authors have found empirical evidence that customer behavioural intention of defection is strongly influenced by service quality. Ultimately, the customer behaviour impacts organisational performance in terms of financial consequences. The model is presented graphically in Figure 5.

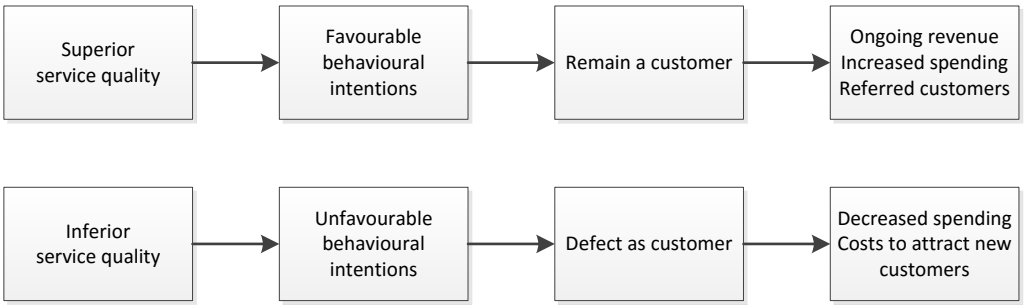


Figure 5 - Overall behavioural and financial consequences of service quality expressed in superior and inferior service quality. Model adapted from the model of (Zeithaml, et al., 1996, p. 33)

2.5.1.2. Service quality enhancement

In case organisational performance or customer satisfaction are weak, knowing how service quality can be improved is valuable information for every organisation. In the paper of (Gracia, et al., 2013), the authors describe how service quality can be enhanced by means of organizational facilitators, work engagement and relational service competence. By using aggregated data based on 107 work units in the restaurant and hotel industry, the researchers applied structural equation modelling to find that:

- Organizational facilitators have a significant correlation with (collective) work engagement.
- Relational service competence is a mediator between organizational facilitators and service quality.
- (Collective) work engagement is a partial mediator between organizational facilitators and relational service competence.
- Relational service competence is a full mediator between (collective) work engagement and service quality.
- Affective and cognitive competent states are important links in the relationship of organizational facilitators and the perceived service quality.
- Autonomy was found to be the strongest organizational facilitator.

Organizational facilitators in the service sector are training, autonomy and technology as described by (Salanova, et al., 2005) and relational service competence is work "*units' perceptions of their current competence in providing customers with positive attributes that are unexpected or not necessarily required and go beyond formal role requirements*" (Gracia, et al., 2013, p. 9). The model of (Gracia, et al., 2013) is presented graphically in Figure 6.

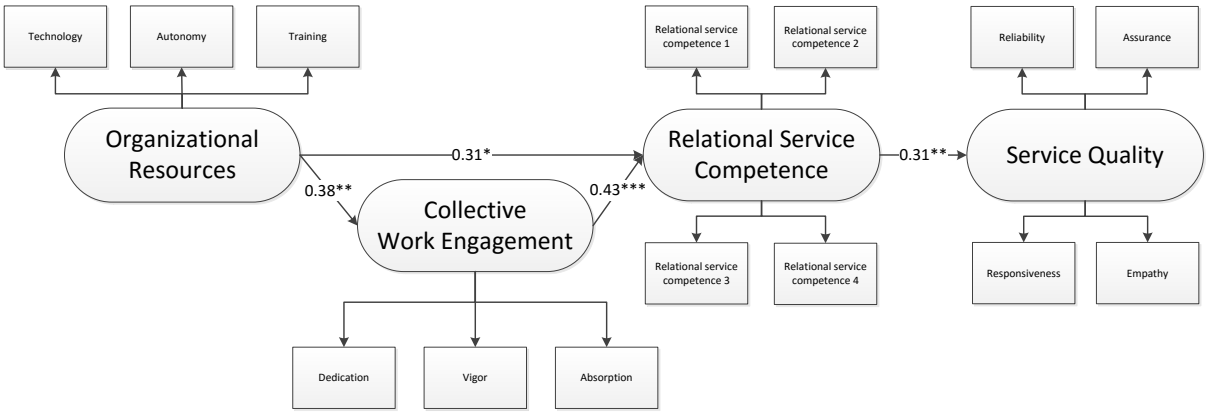


*Figure 6 - Results of the model of (Gracia, et al., 2013, p. 42). N=107 tourist establishments, * = p < 0,01, ** = p < 0,005, *** = p < 0,001.*

The finding of (Gracia, et al., 2013) that autonomy is the strongest organizational facilitator is unexpected. Most organisations design their internal culture in such a way that employees need to comply to various forms of policies and measures which ultimately restricts their autonomy. If autonomy would be the strongest organizational resource, this would indicate that many organizations and ultimately customers can potentially benefit from eliminating employee autonomy restricting policies and measures. Furthermore, once it would be widely academically accepted that autonomy is of importance to enhancing employee and customer satisfaction, additional research could be performed into the workings of autonomy itself. Stimulating specific elements of autonomy could perhaps lead to even higher satisfaction levels instead of unrestricting any form of autonomy. As a result, the following hypothesis is proposed to possibly strengthen the academic knowledge into the importance of autonomy:

- Hypothesis 3: Autonomy as an organizational resource has the strongest total effect on service climate.

2.5.1.3. SERVQUAL model

As described in the model of (Gracia, et al., 2013), the concept of service quality is split up in four different categories. These categories are based on the SERVQUAL model developed by (Parasuraman, et al., 1988). The model is frequently used when studying service quality and actually contains five dimensions to measure customer perceptions of service quality for service and retailing organizations.

The five dimensions are defined by (Parasuraman, et al., 1988) as:

- Tangibles; "*physical facilities, equipment, and appearance of personnel*"
- Reliability; "*ability to perform the promised service dependably and accurately*"
- Responsiveness; "*willingness to help customers and provide prompt service*"
- Assurance; "*knowledge and courtesy of employees and their ability to inspire trust and confidence*"
- Empathy; "*caring, individualized attention the firm provides its customers*"

Even though the model is frequently referred by academics ("SERVQUAL" as a keyword yielded 647 document results (on 1 June 2015) on Scopus), the model is also criticised for its validity (Buttle, 1996). Various academics have found the model to be subjective, complex and statistically unreliable. Nonetheless, no reliable alternative currently exists which is commonly applied within the scientific community, making the SERVQUAL model often the best choice for academics despite the weaknesses of the model.

2.6. Employee performance

(Salanova, et al., 2005) have defined employee performance as "*customer appraisal of employee service quality*". According to (Salanova, et al., 2005), customers that appraise employee performance higher, will be more loyal to an organisation. Employee performance as defined by (Salanova, et al., 2005) is closely related to the term "job performance", which is the overall assessment of whether an employee is doing a job well. Job performance can be measured in several ways. A common practice is to measure the amount of work someone has delivered in a given timeframe, taking into account errors, precision, teamwork and various other factors such as customer appraisal. Research has shown there is a strong correlation between employee job satisfaction and job performance (Robbins & Judge, 2012). Satisfaction and performance measured on an organisational level have shown that organisations with more satisfied employees tend to be more effective than organisations with fewer satisfied employees (Robbins & Judge, 2012).

2.7. Customer loyalty

There is no clear academic definition to what customer loyalty entails (Parasuraman, et al., 1988); (Uncles, et al., 2003). Loyalty, according to (Parasuraman, et al., 1988), can be expressed in multiple ways, such as preferring a company over another company, continuing to purchase products or services, or to increase the volume of purchases at the company in the future. (Dick & Basu, 1994, p. 99) describes loyalty as "*the strength of the relationship between an individual's relative attitude and repeat patronage*". According to (Uncles, et al., 2003), empirical research has demonstrated that in competitive markets customer loyalty is driven by passive brand acceptance. However, many consider customer loyalty to be an attitude based concept influenced by CRM tools and methods (Uncles, et al., 2003). A low level of customer loyalty results in customer churn, whereas a high level of customer loyalty results in customer retention.

Moreover, no common method exists for measuring customer loyalty. Different types of measurements are applied to determine whether customers are loyal or not. Examples of methods applied by organizations to measure or expressing customer loyalty are Overall Satisfaction, Net Promotor Score (NPS) and Repurchase Intention (RPI) (Customer Relation and Interactions (AMS/MD), Customer Insights (AMS/MQ), 2015); (Cretel & Lang, 2014). Each of these concepts are explained in paragraph 3.7.5.

2.7.1. Linking customer retention and satisfaction

(Bolton, 1998) has performed research on the question whether there is a link between customer satisfaction and retention. By understanding this link, managers are better able to understand customer behaviour on the basis of how they assess services and subsequently gain understanding of how retention can be stimulated. The research proves that a decision whether or not to remain loyal to a service providing organisation is positively related to the duration of the relationship. Prior experience therefore weighs relatively heavily on retention. New, recent service satisfaction and information has relatively less impact on retention then prior cumulative satisfaction (Bolton, 1998). It is therefore recommended by the researcher that organisations should focus on the early phases of the customer relationship. The research also describes that it is a common misconception that companies that focus on customer satisfaction are unable to manage customer retention. It is stressed that the relationship between satisfaction and retention is highly complex and that advanced statistical techniques are required to detect relationships.

(Reichheld, 1993) describes an example of the success of a credit cards firm, which, due to the design of their loyalty system have created a self-reinforcing system of creating high value for the customer, and reinvesting profits into keeping customer retention at a high level. In general, this self-reinforcing system entails that when customer retention increases, market share and revenue increase

subsequently. Whereas the overall costs of acquiring new customers are reduced. Moreover, the higher revenues result in higher profits which can be used to enhance employee benefits, enhancing their ability and willingness to serve higher quality to the customer.

2.8. Linking customer satisfaction and employee satisfaction

Whereas (Salanova, et al., 2005) has performed research into the mediating effects of service climate, the authors of (Brown & Lam, 2008) have studied the relationship between employee satisfaction and customer satisfaction in a wider context. Knowledge of this relationship can be used for trade-offs between employees and customers. As an example, the authors refer to Walmart, a superstore retailer. The company decided to apply staff scheduling based on predictive (computer) modelling. The concept behind this managerial decision is that customer satisfaction will increase by having an optimal amount of employees working at the store. On the other hand, this decision could also result in dissatisfied employees due to inconsistent working schedules.

The research of (Brown & Lam, 2008) consist out of a meta-analysis of linking employee job satisfaction to customer satisfaction and the perceived service quality. The overall results of the study indicate there is a significant effect of employee satisfaction on perceived service quality, and a very strong effect of service quality on customer satisfaction. There is a non-significant direct effect of employee satisfaction on customer satisfaction. As a result, the authors conclude that the relationship between employee satisfaction and customer satisfaction is fully mediated by perceived service quality. This conclusion is partially in line with (Salanova, et al., 2005), which found perceived service quality of employees (i.e. service climate) to be a mediator between the relationship of work engagement (a facet of employee satisfaction) and customer loyalty (a facet of the expression of customer satisfaction). See also Figure 7 for the results of the model.

*Figure 7 - The link between employee satisfaction, service quality and customer satisfaction, adapted from (Brown & Lam, 2008, p. 250). Significance level is indicated by ns for non-significant and *** for p<0.00.*

It is also notable to mention that (Brown & Lam, 2008) found that the link between employee satisfaction and perceived service quality were found to be significantly stronger for relationships involving encounter businesses, such as an airline. The authors suggest that employee satisfaction "*is likely to matter most when few, if any, other forces are at play*" (Brown & Lam, 2008, p. 252). When there is limited or no prior experience with the service provider, as is the case for encounter businesses, mainly simple affect transfer is likely to occur (Brown & Lam, 2008). Finally, the authors warn about the fact that both empirically and conceptually the concepts of customer satisfaction and perceived service quality are closely related.

2.9. Hypotheses

Throughout this chapter, various hypotheses have been introduced. This paragraph provides a single overview of all hypotheses to be tested. It should be noted that in order to answer the main research question appropriately, all hypotheses are to be answered within the context of the main research question, i.e. applicable to cabin crew and customers of long haul legacy carrier airline routes.

- Hypothesis 1: There is a relationship between organizational resources, work engagement, service climate, employee performance and customer loyalty as defined by (Salanova, et al., 2005).
    - Hypothesis 1a: Organizational resources is related to work engagement.
    - Hypothesis 1b: Work engagement is related to service climate.
    - Hypothesis 1c: Organizational resources is not directly related to service climate, and as a result work engagement is a mediator in the relationship between organizational resources and service climate.
    - Hypothesis 1d: Service climate is related to employee performance.
    - Hypothesis 1e: Employee performance is related to customer loyalty.
    - Hypothesis 1f: Customer loyalty is related to service climate.
    - Hypothesis 1g: Organizational resources is made up out of three scales, i.e. training, autonomy and technology.
- Hypothesis 2: The three scales of work engagement are related to service climate.
    - Hypothesis 2a: Vigour is related to service climate
    - Hypothesis 2b: Dedication is related to service climate
    - Hypothesis 2c: Absorption is related to service climate
- Hypothesis 3: Autonomy as an organizational resource has the strongest total effect on service climate.

3. Case: KLM Royal Dutch Airlines

This chapter outlines the case on which the research is based, i.e. an introduction to KLM Royal Dutch Airlines, an overview of the current airline market, the CRM strategies and management model applied by KLM as well as the departments responsible for executing (parts of) these strategies. Furthermore, the final paragraph of this chapter provides examples of existing OB and CRM research performed within the context of the airline industry.

3.1. KLM Royal Dutch Airlines

Being the oldest airline still operating under its original name, in the year 2014 KLM Royal Dutch Airlines (KLM) celebrated its 95th birthday (KLM Royal Dutch Airlines, 2015). The KLM group employs a total of 35.685 staff, and has its headquarters in Amstelveen, the Netherlands (KLM Royal Dutch Airlines, 2015). Using a fleet of 202 aircraft, roughly 27,74 million passengers and 759.732 tons of cargo were carried in the year 2014 (KLM Royal Dutch Airlines, 2015). The revenue amounted to 9,643 billion Euro's, resulting in an income from current operations of 175 million Euro's after subtracting expenses before depreciation and long-term rentals (KLM Royal Dutch Airlines, 2015).

KLM is part of the Franco-Dutch airline holding company Air France-KLM, which resulted from the merger between Air France and KLM in 2004 (KLM Royal Dutch Airlines, 2014). The holding company services include passenger and cargo flights, as well as aircraft maintenance and catering. In the financial year 2013, the holding had a revenue of 25.52 billion Euro, resulting in an EBITDA of 1.855 billion Euro. Roughly 77 million passengers are carried by the group annually. The load factor of the group (RPK/ASK) amounted in 2013 to 83.8% (Air France-KLM, 2013).

3.2. KLM within the global airline market

The airline industry is rapidly changing. Initially, the market was dominated by legacy carriers, often linked to a country to act as its national carrier. However, the recent rise of low cost carriers (LCC's) and Gulf carriers has reshaped the playing field. To put it into the words of the CEO of KLM: "*Economically, our environment is undergoing structural change. The economic recession can no longer be regarded as a temporary phenomenon. Competition from airlines from the Gulf States is becoming fiercer and tangible for KLM especially in the Asian markets. Low-cost carriers (LCC) are growing ever-faster and are gaining a permanent position also at our hub. This changing environment with LCC and Gulf carriers underline the need for speed of change of KLM and AIR FRANCE KLM as well*" (KLM Royal Dutch Airlines, 2015, p. 5).

3.2.1. Low Cost Carriers (LCC's)

LCC's focus on maximizing operational excellence. This entails the airline offers little to none personalisation to its product, a so called no-frills service. By making use of relatively new aircraft, LCC's have less operating costs when flying their aircraft, e.g. due to less maintenance requirements of these new aircraft and reduced fuel consumption. Moreover, by hiring relatively inexperienced pilots LCC's can reduce salary costs. LCC's increase turnover by charging customers for every part of the service, such as priority boarding, hold luggage, a drink or seat reservation. By placing small seats in their aircraft, and thereby reducing comfort, LCC's can fit more passengers in an aircraft. Likewise, by applying quick turnaround times, which is possible due to operating a point-to-point network instead of a hub-and-spoke network which is typically operated by a legacy carrier (Santos, 2014), LCCs' aircraft do not have to wait for transfer passengers from delayed flights. All by all, LCC's achieve an operational excellence which is not attainable for a legacy carrier, and position themselves in a market promoting economies of scale, since flying becomes an option for less wealthy people. LCC's in general only operate in a single region, such as Europe, North-America, Southeast-Asia, Oceania and Southern-Africa.

3.2.2. Gulf Carriers

Whereas LCC's are fierce competition on a regional level, Gulf carriers compete on intercontinental routes. These carriers have been able to acquire large amounts of large aircraft such as the Boeing 777 and Airbus A380. These aircraft consume relatively low amounts of fuel and are at the same time equipped with state of the art features and exclusive products. Examples include private suites, a shower spa, an on-board lounge with a bar and wireless internet connections (Emirates, 2015). The Gulf carriers want to maximize so-called product leadership, i.e. offering the best product for their customers. The product leadership business strategy is a common strategy for legacy carriers (Cretel & Lang, 2014). However, due to rise of the Gulf carriers, which are able to offer a better product for less costs to their customers because of operating new aircraft with lower CPK's, Air France-KLM was confronted with a new type of competition.

3.2.3. Need for change

Other legacy carriers, such as Lufthansa and British Airways have demonstrated the ability to respond to the changes in competition by changing the operations and subsequently cost structures in such a way that they are able to make a profit. These changes have been significant over the recent years. For instance, salary cuts and productivity increase have resulted in a competition that has decreased the costs per seats by roughly 25% in the past three years. Moreover, on-time performance of the competition has increased within only 2 years from 62% to 90%. Competitors have also invested significantly into new aircraft, resulting in a reduction of fuel costs of roughly 10% (KLM Royal Dutch Airlines, 2014). However, Air France-KLM has not been able to exhibit a similar change which is effective enough. Changes made by Air France-KLM to its business and structure have been implemented at a too slow pace. Moreover, the employee salary costs are in comparison relatively high to the competition. Consequently, the holding is making losses every year (KLM Royal Dutch Airlines, 2014). This has resulted in a holding with a negative equity position (Air France-KLM, 2015).

In order to change the company in such a way that the cost structure is more appropriate to the service that is being offered, Air France-KLM has made the decision to change its competitive position by changing its management model.

Currently, instead of having a product leader focus, Air France-KLM is undergoing a transformation to become a more customer intimate and service driven company (See Figure 8). Multiple data sources are to be connected to create insight into the customer on the basis of questionnaires (Air France-KLM, 2014).

The CRM strategy of Air France-KLM must be optimised in such a way that the needs of the customer can be determined and used to provide personal, relevant propositions. The final result would be higher customer retention, leading to higher revenue and thus higher firm and shareholder value (Air France-KLM, 2014).

Figure 8: Position of competition (Cretel & Lang, 2014, p. 81)

Since July 2014, Air France-KLM has setup the CRM Strategy department. This department is responsible for making Air France-KLM more customer focused. As of February 2015 the department has renamed itself to Customer Relation and Interactions. The department is located partly at the KLM headquarters in Amstelveen, The Netherlands, and partly at the Air France headquarters at Charles de Gaulle International Airport, Paris, France. A more detailed description of the department and its goals is provided in paragraph 3.4.

3.2.3.1. Perform 2020

The need for change has resulted in the creation of a program called "Perform 2020". This program, which is applicable to every department within the Air France-KLM organisation contains four main themes, namely Customer focus, Profitable growth, Competing cost-basis and Other way of working (KLM Royal Dutch Airlines, 2014).

Both Air France and KLM have created their own plans on the basis of these themes to change the company. Moreover, within the airlines, each division and unit should create their own projects on the basis of the themes. KLM has set the goal to become a customer focused, innovative and efficient leading network carrier. In order to achieve this, three main actions need to be performed (KLM Royal Dutch Airlines, 2014):

- Investments in fleet and product. The fleet is to be renewed by phasing out the MD-11, Boeing 747 and Fokker 70 aircraft. In 2015, 550 million is to be invested in new aircraft to act as replacements. This includes the introduction of the Boeing 787 to the fleet in October 2015,
- Cost reductions. In order to finance the investments, 1,5% per year between 2015 and 2020 need to be saved on unit cost productions. This results in a total of 700 million Euros.
- Productivity increase, the productivity per employee needs to increase by 4% per year until 2020.

3.2.3.2. KLM Flight Plan 2015

The KLM Flight Plan 2015 is a single page companywide business plan for the year 2015 and provides the incentive for KLM to support the research described in this thesis. It is based on the Perform 2020 program and has a total of 5 pillars. Relevant elements of the plan include (KLM Royal Dutch Airlines, 2015):

- Customer & Product; such as a target on the score for repurchase intention of 6.6; approving and executing the customer experience vision, entailing CRM 3.0
- Network & Fleet; such as introducing the Boeing 787 and enhancing partnerships
- Operations; such as enhancing the departure punctuality and starting an operational excellence strategy pilot on operations planning for Europe
- People & Organisation; such as improving employee engagement by focussing on alignment, leadership and involvement
- Finance; such as optimizing the balance between innovation costs and continuity costs.

The Customer & Product pillar combined with the People & Organization pillar provide the reason why KLM is interested in determining the relationship between employee and customer satisfaction. Understanding this relation thoroughly would allow KLM to enhance both pillars, potentially having an impact on the Finance pillar if sufficient benefits can be obtained from the research.

3.3. Management Models

KLM builds part its business strategy on a management model referred to as “customer intimacy”. This model was developed in the 90’s and was published in an applied magazine (Treacy & Wiersema, 1993). Whereas the academic relevance is questionable, mainly due to the fact that limited academic work has been published citing this model, the model forms the basis for managerial decisions involving CRM at KLM. A recent internal research at KLM revealed the relevance of following the strategy as described in the model (Cretel & Lang, 2014). But what is the theory behind this management model? Why would companies such as KLM decide to change their management model? This paragraph explains the theory behind this and two other management models and provides practical examples for each model.

3.3.1. Background

According to (Treacy & Wiersema, 1993), in the past, customers based the value of a product or service on the basis of a combination of quality and price. This value proposition has evolved to also include other aspects such as after-sales, convenience and dependability. However, competition is not based on whether a company is able to compete on every aspect. A company selects a leadership position on which it wants to compete. In their article, the authors present three leadership positions, namely product leadership, customer intimacy and operational excellence. (Treacy & Wiersema, 1993) argue that companies that have become a "champion" in one of these positions, while staying par with industry standards of the other two positions, have the potential to become a market leader. In order to reach a position, companies need to create a business strategy that revolves around this position. As a result, aspects of the organisation such as the culture, processes, organisational systems and IT infrastructure all need to be focussed on the position. Companies that have been unable to create the - as the authors refer to as - "focus", results in the need for more efforts to leverage the advantages. (Treacy & Wiersema, 1993) suggest that companies that are focussing on the same leadership position have striking similarities in terms of the business system, even if the area of expertise is significantly different. The paragraphs below provide a detailed description of each position.

3.3.2. Operational Excellence

Operational excellence according to (Treacy & Wiersema, 1993) means "*providing customers with reliable products or services at competitive prices and delivered with minimal difficulty or inconvenience*". As an example the authors refer to the computer builder Dell as being a champion in operational excellence. Companies that focus on operational excellence want to minimize overhead costs, production steps and any other aspect of the business that does not contribute to functional or organizational elements. Hence, operational excellence can be compared to a lean strategy, eliminating all forms of waste. Companies that want to follow an operational excellence strategy need to restructure their business in such a way that from purchase order to product and service delivery, there is an emphasis on efficiency and reliability (Treacy & Wiersema, 1993). In the airline industry, operational excellent companies are often Low Cost Carriers (Cretel & Lang, 2014).

3.3.3. Product Leadership

Product leadership is being defined by (Treacy & Wiersema, 1993) as "*offering customers leading-edge products and services that consistently enhance the customer's use or application of the product, thereby making rivals' goods obsolete*". In order to be able as a company to be a product leader, (Treacy & Wiersema, 1993) suggest there are three important challenges to overcome. To provide new, innovating products, companies need to be creative. This creativity is often stimulated by accepting ideas from external parties, comparable to what is referred to nowadays as “open innovation”. As a follow-up to the first challenge, companies need to be able to bring the idea to the market quickly. The resultant of this challenge is that the business system of the company needs to be revolved around speed. Finally, companies should continue to innovate, and replace own products with new products instead of allowing the competition to render products superfluous. Detailed analysis is not part of the activities performed by product leadership companies. Instead, they focus on being able to react fast to occurring situations. As an example the authors of (Treacy & Wiersema, 1993) refer to the producer of sporting clothing and apparel Nike as being a champion in product leadership.

3.3.4. Customer Intimacy

Customer intimacy is described by (Treacy & Wiersema, 1993) as "*segmenting and targeting markets precisely and then tailoring offerings to match exactly the demands of those niches*". In order to provide a customer intimate experience, companies need to have extensive knowledge on customers, and use this knowledge in combination with a flexible operation in such a way that products and

services can be tailored-made. As a result, customer intimate companies are able to respond quickly to almost any customer specific need. The result of this leadership position is a high level of customer loyalty. Following a customer intimate strategy can be expensive due to the high level of product differentiation offered by the company. Nonetheless, the customer loyalty it creates means companies are able to benefit from their investment for an extended period. Customer lifetime value becomes more important to the company then a single transaction. An important aspect according (Treacy & Wiersema, 1993) of following a customer intimate strategy is that companies "*understand the difference between profit or loss on a single transaction and profit over the lifetime of their relationship with a single customer*". As an example the authors refer to a financial firm, which is capable of identifying calling customers on the basis of their phone number. Important customers are directed to their senior account manager, whereas customers that do not make often use of the company's services are directed to a junior sales representative. As another example of customer intimacy the authors refer to the retailer of construction products and services Home Depot as being a champion in customer intimacy. Employees at Home Depot focus on customers that demand specific information and services. The price of the product the customer is interested in does not affect the time an employee will spend on making sure the customer receives what is needed. As a result, customers who are solely price-oriented are not part of the market segments Home Deport targets.

3.3.4.1. Risks of customer intimacy

Whereas following a customer intimate strategy may sound to be a good idea, companies such as KLM that are interested in applying such a model should take note of possible risks involved. (Nunes, 2005) has dedicated an article about potential risks of pursuing a customer intimacy strategy. The author describes that marketers "*long for the return to an idealized past, when most transactions were conducted face to face and were closed with a simple handshake*". Using new technologies can help significantly in becoming more intimate with customers. Nonetheless, companies should be aware of what these new technologies can provide. It is suggested by the author that companies need to make "polylogues", i.e. bringing other stakeholders such as other customers, business partners, employees and sometimes even competitors into the conversation the customer has with the company. Subsequently, the author of (Nunes, 2005) provides six reasons why companies should avoid one-on-one customer relationships.

- "*Without obvious benefits, a relationship is a hassle*". Companies should avoid the needless communication such as unsolicited calls and a constant barrage of surveys.
- *"Customers want a balance of power*". Companies should avoid to seek information that "*swing the balance of power*", such as demanding home phone numbers as a prerequisite to complete a transaction. The customer on the other hand is often not provided with the number of the manager in case there is an issue the customer wants to be dealt with.
- *"Dialogue can lead to unreasonable demands"*. Companies need to realize that customers may expect change when a company listens to customer needs. When such a need is not fulfilled, the company should realise the customer may imply this as a promise which was not kept.
- *"Talk isn't always cheap"*. Interactions with the customer may be expensive when customers are uninterested to speak with the company or unable to provide useful feedback.
- *"Some customers will exploit the conversation in unexpected ways"*. Such as using the interaction with other intensions then to optimise a product. As an example the author refers to Nike-ID shoes, which are customisable. A customer ordered shoes that made a political statement about the company. The result was that Nike as a company became part of a political debate.

3.4. Customer Relation and Interactions Department

The Customer Relation and Interactions Department of Air France-KLM has the primary responsibility to optimize customer relationship and customer value. The department focusses on obtaining an optimal customer know-how to be used to provide an integral customer experience (Air France-KLM, 2014). The department is part of the marketing organisation of Air France-KLM, and focuses on Customer Strategy; such as making, supporting and improving strategies on the basis of facts and customer data; Customer Value Processes; such as ranking customers, personalising and offering differentiation for frequent flyers; Metrics & More; such as determining the financial value for customer relationships and the value of the customer on the basis of various initiatives; and Tools & Technology; which describes which methods should be adopted to optimise services (Air France-KLM, 2014):

3.5. Customer insights (AMS/MQ)

The customer insights department of Air France-KLM focusses on understanding customer needs and segmentation. The subsequent knowledge is used to develop marketing strategy and service development. Various systems and research is available from customer insights such as e-Score; a customer satisfaction survey reporting tool providing complete coverage of service, and Quality Observer; a product and service conformity audit, also providing complete coverage of service

3.6. Cabin Crew Management (SPL/NC)

Cabin Crew Management (CCM) is a department located at the KLM crew centre at Amsterdam Airport Schiphol. The department manages roughly 9500 cabin crew employees, including Asian cabin crew but excluding KLM Cityhopper cabin crew. The mission of CCM is "*to ensure that all flights are provided with professional, fit and engaged Cabin Crew"* (Klunder, 2015), thereby finding a balance between customer satisfaction, flight safety and flight operations. The three main levels of this mission are support in employee engagement, flight safety and security, health and absenteeism. Cabin crew, consisting of (Senior) Pursers and Cabin Attendants, are managed by several Unit Managers. Each Unit Manager is responsible for approximately 350 crewmembers (Klunder, 2015).

3.7. Applying OB and CRM theory in aviation

If KLM wants to reach their goals, knowledge is required into the relationship between employees and customers. Currently, KLM has obtained knowledge from separate studies in both employee satisfaction and customer satisfaction. Combining the (aggregated) results of both studies to determine what the relationship is between employee satisfaction and customer satisfaction within the same environment has not been tested. The results of such a study would allow for knowledge creation of service quality within the airline industry.

Since an airline is a service company, it is expected that an airline would exhibit similar behaviour in terms of the model of (Salanova, et al., 2005). The study of (Salanova, et al., 2005) is limited since the research design was cross-sectional, thereby limiting the (causal) effects of reciprocal relationships between customers and employees. However, since the study as presented in this thesis is designed on an aggregated level based on data obtained from a single year, and thereby also unable to determine the reciprocal relationships between employees and customers, the research of (Salanova, et al., 2005) was deemed relevant enough to be used as a basis for studying this case.

Various academics have developed models or discussed the application of OB and CRM within an aviation context. The remainder of this paragraph therefore discusses existing knowledge into this domain.

3.7.1. OB within the airline industry

As described in paragraph 2.1.1, OB knowledge can be applied at various organisations. As such, there are also examples of usage of OB knowledge to enhance business processes within the airline industry. A popular example used by various academics such as (Griffin & Moorhead, 2014), but also used at KLM Royal Dutch Airlines in various (internal) literature is the case of Southwest Airlines, which is briefly discussed in the remainder of this paragraph.

Southwest Airlines, a low-cost-carrier, is known for stimulating employee behaviour which is in line with its business strategy. As a result, Southwest Airlines is ranked as one of the most admired organisations with the USA according to Fortune (Fortune, 2015). Employees are selected on the basis of their willingness to serve the customer. Whether an employee is capable of, so to say, "pouring coffee" does not matter. Southwest believes it can teach all employees with the necessary service skills to achieve this. However, according to Southwest, they cannot change the personal characteristics of someone's willingness to serve. Furthermore at Southwest, training and rewarding employees that execute their work as desired have contributed to high levels of work engagement, low (employee) turnover and ultimately a positive name and satisfied customers (Petrone, 2013).

3.7.2. CRM within the airline industry

When searching for papers on the various concepts it becomes clear that there is a limited amount of literature that details CRM strategies within the context of aviation. The concepts of customer satisfaction and retention are more commonly found but often not in the desired context. Finding a paper relating the concepts in terms of the airline industry resulted in only one relevant result, a paper by (Liou, 2009). It is therefore clear this field of research is limited and has potential for future research.

(Liou, 2009) created a method to determine the competitive position of an airline by understanding customer (buying) behaviour. The researchers' proposed method uses a combination of factor analysis and the Variable Consistency Dominance-based Rough Set Approach. By understanding the perception of choice, relevant marketing strategies can be created to enhance customer retention and thus stimulating the customer relationship.

A questionnaire survey was carried out amongst 92 participants and subsequently analysed by means of a factor analysis to reduce 18 items of influential (buying behaviour) parameters. The factor analysis found six factors that influence the buying behaviour of airline customers, namely: services, timetables, facilities and food, reliability and safety, incentives and price (Liou, 2009).

A second questionnaire survey was conducted amongst 473 participants containing the six factors. Questionnaire results were analysed with the Variable Consistency Dominance-based Rough Set Approach, abbreviated to VC-DRSA. VC-DRSA is a mathematical tool that makes use of data-mining techniques. The result was various, strong and less strong decision rules, often specific for a particular demographic group. Examples of the found decision rules are that customers are above average willing to buy when facilities are above average, and will not buy when reliability and safety in conjunction with timetables is poor. The research assists airlines with determining proper strategies to enhance airline's CRM (Liou, 2009).

3.7.3. Organizational resources within the airline industry

Whereas limited academic research was found involving CRM in the airline industry, research has been performed involving specific elements of CRM, such as job resources. Research by (Xanthopoulou, et al., 2008) made use of the JD-R model (see Appendix C for more information) to determine the effects of daily changes of work group composition. A total of 44 flight attendants were required to fill in a questionnaire and a diary booklet before and after three consecutive intercontinental flights. Results

of the study show that colleague support had positive effects on self-efficacy and work engagement. Work engagement was found to be a mediator between self-efficacy and employee performance. As a result, colleague support was considered by (Xanthopoulou, et al., 2008) as an important job resource for flight attendants.

This knowledge is important due to the fact that airlines such as KLM do not make use of fixed cabin crews for multiple shifts. Whereas long haul flights often have the same crew outbound and a few days later inbound of the hub airport, crews and not kept together afterwards.

3.7.4. Service quality within the airline industry

Service quality is an important aspect of certain types of airlines. Whereas low cost carriers, which focus on operational excellence do not have a service quality focus, legacy carriers having a product leadership (service directed towards delivering the best product) or customer intimate (service directed towards delivering the personal attention) management model find service quality an important element of their business. In the paragraphs below, service quality research is presented within the airline context.

3.7.4.1. Three Taiwanese airlines

The study of (Tsaura, et al., 2002) was able to evaluate service quality within the airline industry. By making use of fuzzy set theory, the authors found that overall, the most important aspects of service quality are physical features. Customers were also found to be more concerned with how they are treated and served. The top four evaluation criteria are courtesy of attendants, comfort and cleanness of seat, safety and responsiveness of the attendants. The authors of (Tsaura, et al., 2002, pp. 6-7) conclude that "*the ranks also reflect why the new design of cabin or seat and on-board features are always welcomed by customers. Particularly for the international flight, which usually incur long airborne time, the physical comfort is the substantial need for the customers. Safety of air travel nowadays becomes a public distress due to several serious jetliner crashes in recent years. Customers are more aware that safety is the essential requirement of any trip.*" The results of the research are presented in Figure 9.

It should be noted that the research of (Tsaura, et al., 2002) only focussed on Taiwanese airlines. Generalizing the results to other regions therefore requires additional research. Moreover, changes in the market over the recent years may have resulted in changes to important aspects.

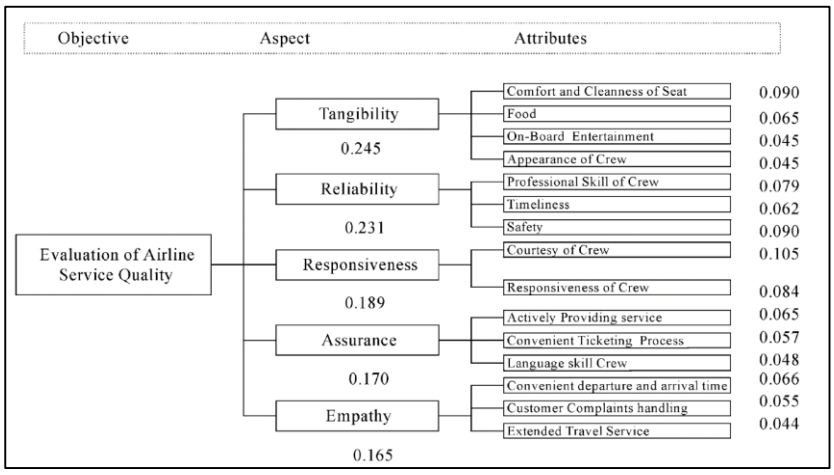


Figure 9 - Service Quality aspects for Airlines, obtained from (Tsaura, et al., 2002, p. 112)

3.7.4.2. Air Mauritius

A paper by (Prayag, 2007) describes a research that made use of the SERVQUAL model to establish the perceptions of service quality by tourists at Air Mauritius. Via a combination of in-flight and mail surveys, the researchers were able, on the basis of 140 responses, to establish that service quality perceptions are influenced by culture (nationality and social background) and context. In terms of the SERVQUAL model, literature research showed that tangibility and reliability were found to be the best perception factors of respondents. However, the study conducted by (Prayag, 2007) found that service efficiency and affect were found to be the most important factors capable of influencing the perception of service quality, whereas service personalisation, reliability and tangibles were found to be the least important factors.

It should be noted that due to budget and facility constraints, the research made use of a convenient sample; only passengers flying between Mauritius and South Africa were questioned. As a result, the demographic group of participating South Africans consisted mainly of Caucasians. Moreover, the small sample size of only 140 responses adds to the bias of the study. The study therefore is exploratory in nature and the non-literature research result should not be accepted without thorough consideration.

3.7.5. Loyalty within the airline industry

A popular customer retention method widely applied within the aviation industry are loyalty programs. These loyalty programs are often called a frequent flyer program (FFP), and offer a range of benefits to the customer such as complementary services based on loyalty level and collecting miles which can be converted into complementary flights. The program allows the airline to gain additional information about specific customers, such as demographics and booking behaviour. Recent research has shown that frequent flyer programs in contrast to hotel guest programs have more members and higher penetration of important customer groups such as business travellers and high-income travellers (DeKay, et al., 2009). A study by (Dolnicar, et al., 2011) has found that at an aggregate level, the membership of a FFP, the airfare, airline reputation as perceived by friends and whether or not it is a national carrier are key factors to determine airline loyalty. The same research has shown that no model indicated satisfaction as a key factor for airline loyalty.

As described in paragraph 2.7, no common method exists for measuring customer loyalty. The subsequent paragraphs provide examples of commonly applied methods within the airline industry to measure customer loyalty. These are overall satisfaction, Net promoter score and repurchase intention (RPI) (Customer Relation and Interactions (AMS/MD), Customer Insights (AMS/MQ), 2015); (Cretel & Lang, 2014).

3.7.5.1. Overall satisfaction

Overall satisfaction can be determined in several ways and is dependent on the industry and the organisation itself. In general, overall satisfaction is the satisfaction of a customer regarding an organisation as a whole, including all the services it provides. Overall satisfaction can be determined by asking a single question (“Please rate your satisfaction about our company”) or it can be determined by requesting various questions about specific aspects of the company and services it provides, and subsequently aggregating the answers to a single outcome, either based on the importance of the various items as indicated by the respondent, or by applying a standardized formula using e.g. weighing factors. Moreover, overall satisfaction can be based on a group of respondents rather than a single customer.

3.7.6. Net promoter score

In their article, (Sixsigma.nl, 2015) present a method to measure customer loyalty by asking a single question to customers: "*How likely is it that you would recommend [company X] to a friend or*

colleague?". This question can be answered on a scale from 1 to 10. Customers answering a 9 or 10 to the question are considered "promoters", whereas customers answering a 1 to 6 are considered a detractor. The percentage promoters minus the percentage detractors results in the Net Promoter Score, NPS. The score is graphically visualised in Figure 10.

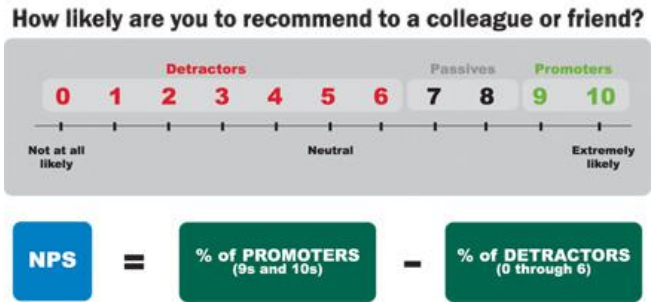


Figure 10 - Net promoter score visualisation obtained from (Sixsigma.nl, 2015)

Even though NPS is a popular loyalty measurement tool amongst companies, the concept is criticised by various academics. As an example, a research by (van Doorn, et al., 2013) used data from Dutch firms to determine the relationship between various satisfaction and loyalty metrics and the NPS, as indicator for sales revenue growth, gross margin and net operating cash flow. In their study, the authors of (van Doorn, et al., 2013) conclude there is no single best metric to predict firm performance and that metrics such as NPS have limited predictive capacity towards future sales growth or gross margin.

3.7.7. Repurchase intention

Repurchase intention (RPI) is a concept that describes, often in a figure from 1 to 10, how likely a customer will make use of the products or services offered by a company in the (near) future. Various models exist of how RPI can be defined. (Hellier, et al., 2003) developed a model of customer repurchase intention, which is defined as "the individual's judgement about buying again a designated service from the same company, taking into account his or her current situation and likely circumstances." The model contains seven factors that influence RPI: service quality, equity and value, customer satisfaction, past loyalty, expected switching cost ad brand preference. The model is presented in Figure 11 below.

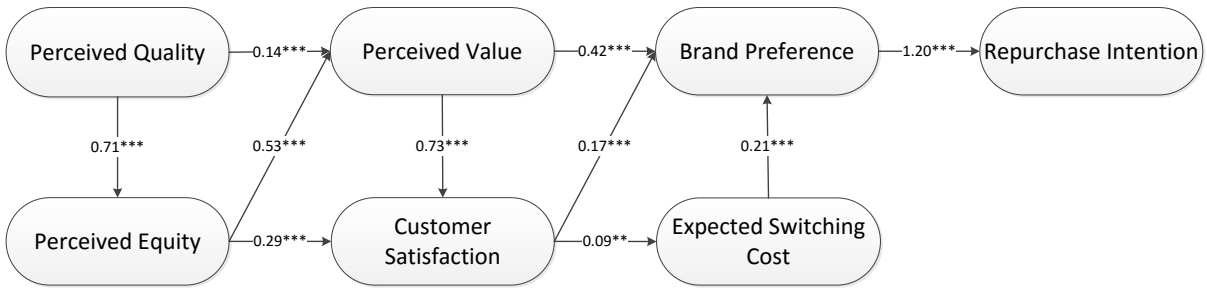


*Figure 11 - RPI model adapted from (Hellier, et al., 2003, p. 1780). Significance level is indicated by ** for p<0.01 and by *** for p<0.001.*

4. Method

This chapter provides an overview of the methods applied to execute the research, i.e. how the method was selected, how data was collected and subsequently how it was processed during the pre- and main analysis.

4.1. Selecting a method

The initial goal of the research was to apply a data mining analysis to determine the relationship between employee and customer satisfaction. For this, the method as described by (Liou, 2009) in paragraph 3.7.2 was selected. This method provides an interesting research technique that has potential to be extended and to be tested on a large dataset containing thousands of customer responses from various routes, requiring ultimately significant resources.

The viability of performing such a study on the basis of using existing data was examined. Buying behaviour can be viewed as a direct expression of a customer's loyalty. Determining which factors influence this buying behaviour, especially by taking into account employee satisfaction factors and their dependent variables could result in a highly interesting study. Unfortunately, it was determined that in order to undertake such a research, raw data containing individual responses would be required of both employee and customer satisfaction. Ideally, such data would be collected in the same period as was also implemented by (Salanova, et al., 2005). This data was not made available to the research and therefore a different method had to be selected as a basis for the research.

This different method was the one as described by (Salanova, et al., 2005). This proven method offered a suitable basis to determine the relationship between customer satisfaction and employee satisfaction, while not being limited considerably by using aggregated existing data. The method entails that questionnaires need to be collected and subsequently analysed from both employees and customers during the same time period. For data analysis (Salanova, et al., 2005) makes use of SEM methods (including MANOVA) implemented in AMOS.

Since this research is based upon existing data and therefore no questionnaires had to be collected, it was determine that the constructs as defined by (Salanova, et al., 2005), i.e. organizational resources, work engagement, service climate, employee performance and customer loyalty, could best be determined by applying an exploratory factor analysis on existing datasets. Furthermore PROCESS from (Hayes, 2014) was used as a method to establish relationships between the constructs. In order to apply this method, existing data would have to be adapted in a usable dataset. How this has been achieved has been described in the subsequent paragraphs.

4.2. Data collection

Air France-KLM is a large cooperation where it takes time to induce change. Complex procedures are required to change existing customer surveys and/or systems for this particular research. Whereas developing a custom made survey for this research could be distributed amongst various employees and customers, collecting sufficient responses to be able to generalize the results for the entire Air France-KLM organisation would require time and resources which were not available. Therefore, currently applied measurement tools had to be used. A main advantage of using existing survey systems is the easy availability of data. However, potential survey errors, assumptions or omitted results are unknown. A primary reason for this is that data (pre-) processing has been outsourced by Air France-KLM to dedicated survey agencies. These companies, likely as part of protecting their business with Air France-KLM do not share assumptions, errors or other relevant information that could be vital for follow-up research based on their research. It should also be noted that no raw data was used unless explicitly indicated. All aggregated data used for the research was obtained from reporting tools, containing aggregated survey results that have been processed by third-parties.

4.2.1. Employee satisfaction data

KLM Royal Dutch Airlines management considers employee satisfaction a high priority. For 2012-2015, KLM was selected to be the best employer amongst Dutch multinational companies (Effectory & Intermediair, 2015); (de Waard, 2015). In order to determine the satisfaction levels of KLM employees (and its direct subsidiaries such as KLM Cityhopper), an "Employee Monitor", often abbreviated to "EMO" is organised. What this monitor entails is described the in subsequent paragraphs.

4.2.1.1. Background

The employee monitor presents the results of a questionnaire which is held amongst KLM employees – depending on the division and department – annually or bi-annually. The goals of the monitor are to determine the level of work engagement amongst employees, provide input for Human Resources and Management, determine bottlenecks within the organisation, and to provide managers with knowledge to enhance their managing abilities (Ipsos, 2014).

4.2.1.2. Data collection

The questionnaire is collected online during the month of October. In 2014, it consisted out of 52 generic questions that are applicable to every KLM employee, supplemented with division specific questions. Final (total) result of KLM and division specific questions are weighed to correct the response to the actual population. Results for a specific question are only shown after receiving at least 10 responses. Moreover, a department must consist out of at least 10 employees before it is part of the analysis. Division specific results can be compared to KLM as a whole, whereas KLM total results can be compared to other companies via the RED (Representative Employee Data) benchmark developed by Ipsos. The results of each question is presented in a percentage of the amount of positive responses (Ipsos, 2014). An example is provided in Figure 12.

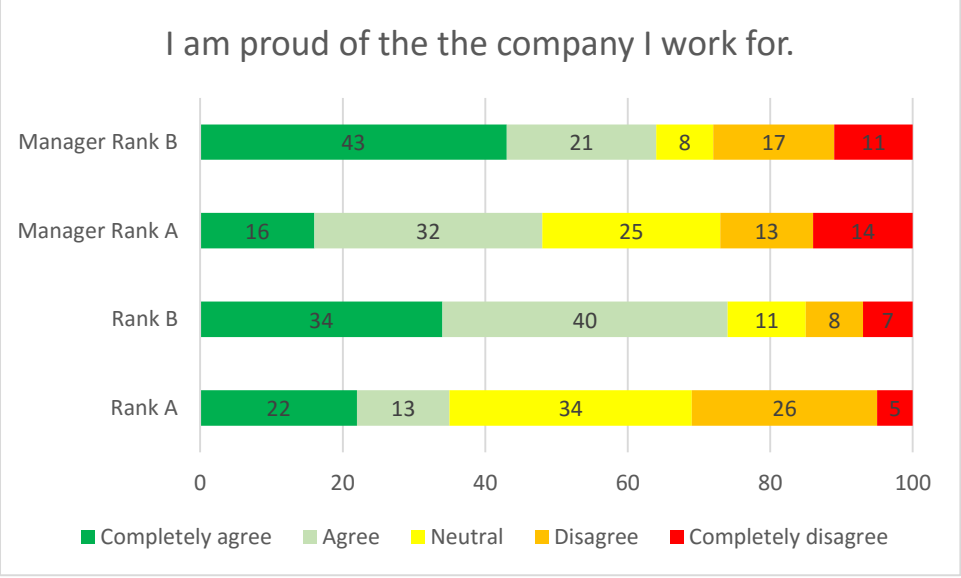


Figure 12 - Example of responses to a question of the Ipsos Engagement Model based on (Ipsos, 2014). For this question, Rank B would score 74% (34%+40%) in the Ipsos report. Note that figures are completely fictive and do not represent scores of the KLM employee monitor.

4.2.1.3. Questions & attributes

The complete EMO questionnaire for both 2013 and 2014 contains 187 questions, supplemented with 62 attributes. An overview of all the questions can be found in Appendix H. The attributes contain information such as department, age, years of service, function, and other relevant information about the responder of the questionnaire. These attributes can be used to determine employee satisfaction of specific groups within the KLM employee population.

4.2.1.4. Data extraction and preparation

The results of the employee monitor are made available to KLM by Ipsos via a browser based reporting tool. This tool allows for export of the data to PowerPoint only, based on various settings such as a filter on respondent attributes. Within the exported PowerPoint presentation, the results of each question are presented on a separate slide in the form of a graph. Further examination of the PowerPoint file revealed that the data source behind the graph is an Excel-based table. As a result, in order to create a dataset representing all the questions of the employee engagement monitor, each table on every slide of the PowerPoint presentation must be manually copied to excel. Furthermore, in order create a dataset that can be read by SPSS, the tables must be formatted by transposing specific elements of the table, either manually or partially automatic via a macro. An average PowerPoint export file contains roughly 80 questions. Converting all the results to a usable dataset from a single PowerPoint file takes up to one working day.

The data exported from the Ipsos reporting tool was repeated with the following attributes:

- Answers for the overall cabin crew (total scores)
- Answers based on function level
- Answers based on years of service (at KLM)

4.2.2. Customer satisfaction data

Air France-KLM uses multiple customer insight sources. Combining data from these sources efficiently and properly can be perceived as a study by itself. As a result, a single system had to be used to obtain all customer satisfaction data. The system selected for this is e-Score. This system contains the most (representative) information in terms of customer satisfaction data. Other systems such as Quality Observer are (more) biased since they contain customer satisfaction results from specific selected customers that participate in an ongoing study. For e-Score, all survey data is pre-processed by TNS-NIPO and processed by Customer Insights prior to being reported on a monthly basis. The exact procedure regarding data collection has been described in detail in the next paragraphs.

4.2.2.1. Background

As of July 1st, 2013, Air France-KLM switched its paper questionnaire which was distributed by crew on-board to a digital (email) questionnaire which would be send after a flight. The switch had several positive effects, such as no manual input of customer responses. The ultimate result was a faster, more reliable set of data to be used for analyses. The results of the digital questionnaire are reported in a system called e-Score. e-Score is a satisfaction measurement tool that runs on the Dapresy platform. It is not a real-time operational feedback tool, since data needs to be collected, processed and transferred to the system, taking up to 7 weeks after a flight was taken.

4.2.2.2. Data collection

Every day, based on the passenger name record (PNR) database of the reservation system, a random selection is made of about 10% of the passengers that travelled the day before with Air France-KLM or franchised flights and of which an email address is on record. As a result, professional booking agencies, Air France-KLM employees and customers that participate in a quality improvement program (Quality Observer) are not selected. Once selected, the customer receives an email containing a link to an online platform hosted by TNS-Nipo. The questionnaire is conducted in English, French, Dutch, German, Italian, Spanish, Portuguese/Brazilian, Japanese, Chinese (traditional and simplified), Korean, Russian, Greek, Norwegian, Romanian and Swedish. (AFKL Customer Insight, 2013)

A customer has 7 days to fill in the questionnaire and a subsequent questionnaire is only send after a black-out period of 5 weeks after the previous questionnaire invitation. The total number of

questionnaires a single customer can fill-in is 8 per year. Every customer has the option to opt-out to receive future questionnaires (AFKL Customer Insight, 2013).

As a result of the sampling method, not all outstations (ground related services) are covered completely in the results. Nevertheless, all flights, a total of 635.000, divided over 570 aircraft are covered within the system (AFKL Customer Insight, 2013).

4.2.2.3. Questions

The questionnaire consists out of an extensive list of questions relating to various parts of the service, such as:

- Flights details: route, class, seat, upgrade
- Pax profile: FFP membership, gender, age, travel reason, residence, nationality, reason of choice, segmentation, travel frequency
- Before flight: transfer, check-in (including luggage), border control, security check, boarding, lounge, punctuality
- During flight: cabin crew, comfort & cabin, catering, IFE
- After flight: disembarkation, arrival, luggage delivery
- Other: Paid services, disruptions, suggestions

Nevertheless, a customer will only receive a sample of the questions, thereby reducing the time to fill-in the questionnaire to roughly 10-12 minutes. At present, approximately 80.000 to 100.000 questionnaires are filled in every month, resulting in an approximate total number of filled-in questions of roughly 1.000.000 each year (AFKL Customer Insight, 2013).

The results of the questionnaires are weighted according to traffic and frequent flyer data to make sure the sample of questionnaires is representative for the customer base. All results are tested for significance to make sure enough respondents have provided an answer to a particular question. Roughly 14 to 24 days after the end of the month, the results are presented in the reporting tool e-Score. The results of the questionnaires are not only used for e-Score, but also to perform other analytical analyses (AFKL Customer Insight, 2013).

4.2.2.4. Indicators and filters

e-Score contains an extensive list of indicators (measurement items) and filters. A complete overview of all indicators is provided in Appendix D. A specific filter, cabin, has been used for the research. Since additional explanation may be required for non-aviation experts, the next paragraph provides additional information regarding this filter.

4.2.2.5. Cabin

Within e-Score, the cabin can be split into two categories; front and rear. Front represents the high-value, high-cost section of the aircraft, such as business class. The rear represents the remainder of the cabin, i.e. economy and premium economy. In Figure 13, the front is represented by the first five passenger seat rows, measured from the nose of the aircraft. This section contains the World Business Class product of KLM. The orange seats that follow are part of the rear section, representing the Economy Comfort zone (premium economy product). Subsequently, the blue seats represent regular economy. Seats coloured in orange, yellow and purple are part of the ancillaries' product range, offering more seat pitch and/or privacy for a supplement to the travel fare.

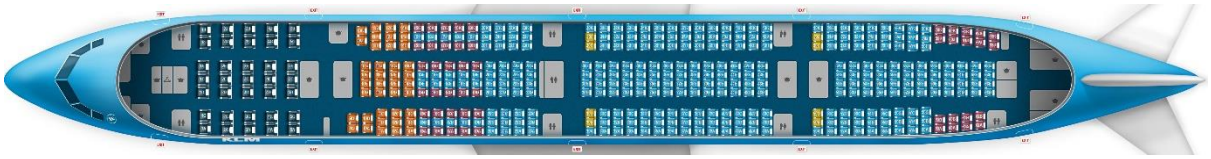


Figure 13 - Cabin configuration of a KLM Boeing 777-300. Obtained from: (KLM Royal Dutch Airlines, 2010)

4.2.2.6. Data extraction and preparation

Data can be exported from e-Score. In order to obtain the correct format, the functionality "Tables & Charts" must be used. This system feature allows the user to design custom made tables containing customer satisfaction scores from user selected indicators based on specific filters. Once the wanted table has been designed, the system must generate the contents, a process that can take up to 90 minutes depending on the complexity and size of the requested table. Once it has been generated it is automatically displayed in the browser. It should be noted that complex tables are often presented incorrectly in the browser. Future researchers should therefore apply caution when extracting information from this browser overview. At the bottom left section of the page, the user is presented the option to export the table to Microsoft Office Excel. Whereas the generated export does open in Excel, scores are opened as strings requiring further conversion by the researcher prior to be able to use the scores for further data processing. Moreover, the format of the tables that can be generated is limited. As a result, in order to be able to load the table into SPSS or other statistical programs, specific sections of the table often need to be transposed. Because these sections are specific, manual labour intensive or complex macros are required to design the dataset into the correct format.

Overall, whereas the data has already been collected and made available via e-Score, before the data can be used in a dataset often several hours are required. In case the dataset contains data from multiple e-Score exports, multiple days may be required before obtaining a dataset that can be used for research.

The definitive data exported from e-Score to be used to create a dataset was based on the "Bi directional route" filter, in conjunction with limiting the export to contain only data relevant to the research, i.e. only long haul flights operated by KLM Royal Dutch Airlines. The "Bi directional route" filter was selected because such a filter would generate indicator results for every route. By repeating this process for every month between 1 July 2013 and 31 October 2014 a dataset could be made that contained over 1000 items, which should enhance the reliability of the dataset. It should be noted that such an export stretches the limits of the e-Score system to its maximum capabilities from a client perspective since the export required a significant amount of time for e-Score to generate. Selecting a more detailed filter would have also resulted in more missing values due to the fact that e-Score will only generate (significant) scores after having at least 50 individual answers per indicator.

4.3. Pre-analysis

In order to establish the scales of the constructs as established by (Salanova, et al., 2005), i.e. organizational resources, work engagement, service climate, employee performance and customer loyalty, a factor analysis must be performed. This paragraph describes the method of factor analysis of both the employee and customer datasets. By performing this factor analysis, it becomes possible to test hypothesis 1g.

4.3.1. Factor analysis employee satisfaction aggregated dataset

Pre-analysis of the dataset for employee satisfaction data consisted by first categorizing each question of the dataset into one of the following three main categories: organizational resources; work engagement and service climate. The categorisation was based on the definition of the three

categories as explained in paragraphs 2.3, 2.4.4 and 2.5. A few questions were found to have an incompatible measurement scale and were therefore immediately rejected for further research. Some questions were found to relate insufficiently to one of the three categories, such as the question of whether a specific source of information is frequently used, these questions were therefore rejected for further research. Ultimately, questions to which one or more of the reasons below were applicable were rejected from the research:

- Question answers differ too much between the various aircraft
- Question has a different scale applied
- Question relates mainly to a third-party
- Question is related to a policy (or safety) event
- Question does not relate enough to the main categories
- Question could be interpreted in multiple ways
- Question was found to have an absolute coefficient value (factor loading) of lower than 0.50
- Question has significant changes between the results of 2013 & 2014 (due to changes in KLM policies and/or resources)
- Question is not part of the scope of research; e.g. the question has not been asked to KLM cabin crew
- Question has an open answer/non quantitative data.

Once the questions were given a main category, a secondary category was determined. These secondary categories were based, if possible and applicable, on the categories of organisational resources or work engagement as provided in paragraphs 2.3 and 2.4.4, i.e. training, autonomy and technology for organizational resources and vigour, dedication and absorption for work engagement. However, some questions were highly specific to the KLM case, yet they were considered to be relevant enough to be added to the research. As an example, (Salanova, et al., 2005) does not make use of factors such as Information resources to be one of the organizational resources. Yet, when considering the definition from (Demerouti, et al., 2001) one can argue that an information resource complies with the definition of an organizational resource, at least in the context of cabin crew of airlines. An information resource could be considered to be a technology, but in the context of aviation such a resource can also be used to gain autonomy (schedule events) and gain knowledge (training). As a result, three new sub categories were ultimately introduced; i.e.

- Unit manager; the unit manager (direct manager) may offer (psychological) support to cabin crew, as well as enhance social and organizational aspects of the job. Moreover, the manager is capable to stimulate personal growth and development.
- (Senior) Purser; the (senior) purser can be considered to be the operational manager for cabin crew. Taking responsibility and organizing cabin crew jobs while actively performing them, a (senior) purser is overall a critical job resource for cabin crew.
- Information Resources; cabin crew need to conform to a wide variety of policies as well as consider flight specific events. Due to the huge cabin crew population at KLM (approximately 9500 employees), KLM relies on various information tools to be used by cabin crew as a resource to execute their job effectively. Without these tools, some of which required by aviation law, KLM cabin crew would not be able to carry out their jobs effectively.

Once the categorisation was completed, it was subsequently checked and agreed upon by Ms. M. Klunder, a KLM employee who has extensive knowledge of the employee monitor questionnaire and

results specifically for the Inflight department. A complete overview of the results of the categorization can be found in Appendix E.

After categorization the dataset was created. The dataset contained a mix of answers based on function level and years of service. Consequently, each individual answer was actually represented twice (but nonetheless at an aggregated level) in the dataset. The dataset contained a total of 130 answers of 84 questions, of which only questions were used that were assigned a relevant category as described above.

The dataset was subsequently opened for analysis in the software package IBM SPSS Statistics 22. Exploratory factor analysis was applied to determine the various components of the dataset. Due to issues arising as a result of multicollinearity, various groups of questions part of the same main category were tested in a manual (labour intensive) iterative process. The multicollinearity was occurring due to the usage of an aggregated dataset. Multiple questions were a (near) linear function of each other.

Principal axis factoring method was applied using a correlation matrix and with an extraction based on eigenvalues greater than 1. Maximum iterations for convergence was set to 25. The rotation applied was a Varimax rotation, again with 25 maximum iterations for convergence. The Kaiser-Mayer-Olkin Measure of Sampling Adequacy was required to be above .6 and the Bartlett's test of sphericity was required to have a significance of 0.05 or lower. Furthermore, coefficients with an absolute value below .50 were suppressed to enhance the readability of the results. The results of the factor analysis can be found in paragraph 5.1.1.

4.3.2. Factor analysis employee satisfaction raw dataset

The results of the aggregated employee satisfaction dataset as presented in paragraph 5.1.1 revealed that internal reliability (Cronbach's alpha) was too high. As a result, in order to establish whether the results of the aggregated dataset were actually true, raw data had to be analysed. This raw data was delivered by Ipsos in SPSS format in the final stages of the research. The SPSS dataset was extensively checked for errors and subsequently adapted to contain only responses from employees that fall under the scope of the research. Responses equivalent to “not applicable” also had to be removed from the dataset and/or converted to a missing value status in SPSS.

Comparable to as described in paragraph 4.3.1, the questions of the dataset were categorized. This process had to be repeated due to the fact that the dataset contained more questions than were initially available in the aggregated dataset. A complete overview of the results of the categorization can be found in Appendix H.

The dataset contained over 20.000 answers, reduced to a roughly usable 8.000 answers for both 2013 and 2014 employee monitor questionnaire results. The dataset comprised of a total of 187 questions, of which only questions were used that were assigned a relevant category as described above. Furthermore, several questions that were deemed relevant could not be used since they were not asked to employees of interest (KLM cabin crew). A detailed description of the dataset can be found in Appendix H.

Exploratory factor analysis comparable to the method described in paragraph 4.3.1, (i.e. principal axis factoring method) was applied using a correlation matrix and with an extraction based on eigenvalues greater than 1. Maximum iterations for convergence was set to 25. The rotation applied was a Varimax rotation, again with 25 maximum iterations for convergence. The Kaiser-Mayer-Olkin Measure of Sampling Adequacy was required to be above .6 and the Bartlett's test of sphericity was required to have a significance of 0.05 or lower. Likewise, coefficients with an absolute value below .50 were

suppressed to enhance the readability of the results. However, due to the fact that the raw dataset contained a significant portion of missing values, when available for the analysis technique the option "pairwise deletion of missing values" was selected. A list wise deletion of missing values was not chosen since it would result in de loss of a significant amount of responses for analyses. The raw dataset had no issues of multicollinearity when performing the exploratory factor analysis. The results of the factor analysis can be found in paragraph 5.1.2.

4.3.3. Factor analysis customer satisfaction dataset

Pre-analysis of the dataset for customer satisfaction data was very similar to that of employee satisfaction data. First, a selection was made of relevant inflight employee satisfaction indicators. Subsequently, the indicators were categorized. Categorisation was based on the two categories as used by (Salanova, et al., 2005), i.e. employee performance and customer loyalty. However, since the dataset contained much more information a third category was added, namely "Service Quality". This category contained the indicators that were related to the perception of service other than service offered by crew. As a result, this category is very similar to the "service quality" category as described in the model of (Brown & Lam, 2008). Whereas the model of (Salanova, et al., 2005) contains the construct service climate, i.e. the perception of service by employees, service quality is the same construct from the customer perspective. Adding this construct to the analysis may therefore offer valuable insights as well as to provide a method of linking both datasets. A complete overview of the results of the categorization can be found in Appendix P.

After categorizing and creating the dataset in a similar fashion as described in paragraph 4.3.1, the dataset was opened in IBM SPSS Statistics 22. Exploratory factor analysis was applied using the same method as for employee satisfaction data to determine the various components of the dataset; Principal axis factoring method was applied using a correlation matrix and with an extraction based on eigenvalues greater than 1. Maximum iterations for convergence was set to 25. The rotation applied was a Varimax rotation, again with 25 maximum iterations for convergence. The Kaiser-Mayer-Olkin Measure of Sampling Adequacy was required to be above .6 and the Bartlett's test of sphericity was required to have a significance of 0.05 or lower. Additionally, coefficients with an absolute value below .50 were suppressed to enhance the readability of the results. The results of the factor analysis can be found in paragraph 5.2.

4.4. Data analysis

This section describes the method that was used to determine whether or not the found factors in the pre-analysis actually influence each other as hypothesised. In order to achieve this, the PROCESS macro for SPSS of Andrew Hayes (version 2.13) as described in (Hayes, 2013) was used. The macro itself was obtained from (Hayes, 2014), and allows for the determination of effect sizes between various constructs. Depending on significance levels and the reliability of the datasets, the knowledge gained could ultimately lead to an established causal model for the relationship between employee and customer satisfaction. As a result, hypothesis 1, 2 and 3 can be tested by applying this method.

4.4.1. Employee satisfaction datasets

The raw dataset for employee satisfaction was prepared to only contain relevant variables by using the "Select Cases" functionality of SPSS. Only KLM cabin crew and answers of the relevant year were left in the dataset. Subsequently, the arithmetic mean was calculated using the "Compute Variable" functionality of SPSS for each found factor during the pre-analysis.

When configuring PROCESS, model 4 was selected (see Appendix K) since this model resembles the model of (Salanova, et al., 2005) as depicted in Figure 2. The outcome variable was set to service climate, the independent variable was set to organizational resources and the mediating variable was

set to work engagement. Confidence level for confidence intervals was set to 95% and 1000 bootstrap samples were used for bootstrapping for indirect effects. Bootstrap samples was increased if required until the results were trustworthy. Centring the data was achieved through the “Mean centre for products” option of the PROCESS macro.

First, based on the aggregated dataset for employee satisfaction, a causal model could be determined. This model makes use of the factors as found in the pre-analysis. The results can be found in paragraph 5.3.1.

Subsequently, using the raw dataset for employee satisfaction, a basic model could be determined using the factors as found in the pre-analysis that were comparable to the model of (Salanova, et al., 2005). To provide additional insights, an extended model could be made by using all the found factors of the pre-analysis. Furthermore, by splitting the construct work engagement into the factors it was made up of, a comprehensive model could be made to determine the individual impact of each factor on the relationship. For PROCESS this meant that all the factors of work engagement were set as a mediating variable. The results leading to the basic, extended and comprehensive models can be found in paragraphs 5.3.2, 5.3.3 and 5.3.4 respectively.

Finally, the comprehensive model itself could also be analysed differently by taking into account only one of factors of organizational resources as independent variable. The subsequent models would provide insights into which resource has a greater effect on the relationship compared to other resources. The results of these resource specific comprehensive models can be found in paragraph 5.3.5.

4.4.2. Customer satisfaction dataset

As described in paragraph 4.3.3, the customer satisfaction dataset contains more information than required (employee performance and customer loyalty) to develop the customer side of the model of (Salanova, et al., 2005). The construct of service quality was therefore added to the analysis. Similar steps comparable to as described in paragraph 4.4.1 were executed. The arithmetic mean was calculated using the “Compute Variable” functionality of SPSS for each found factor during the pre-analysis. Subsequently, PROCESS was applied using the same configuration as used to determine the models for employee satisfaction. The outcome variable was set to customer loyalty, the independent variable was set to service quality and the mediating variable was set to employee performance.

Two types of models can be made from the dataset. First, an overall model that is comparable to the model as described by (Salanova, et al., 2005) plus the extension of service quality. This model is presented in paragraph 5.4.1.The other model type is a specific model, similar to what was done for the comprehensive model for employee satisfaction. The specific models for customer satisfaction take into account only one of the factors of service quality as an independent variable. The subsequent models would provide insights into which service quality aspect has a greater effect on the relationship compared to other aspects. The results of these specific models can be found in paragraph 5.3.5.

5. Results

This chapter describes the results of the pre-analysis and main analysis as described in the previous Chapter 4: Method.

5.1. Exploratory factor analysis for employee satisfaction

This paragraph presents the results of the exploratory factor analysis for employee satisfaction.

5.1.1. Employee satisfaction aggregated dataset

In Figure 14 up to and including Figure 18 on pages 36-37, the output of the (rotated) factor matrix is presented for questions of the categories organizational resources – management, organizational resources training/ technology/ autonomy, organizational resources – information, engagement and service climate respectively. Due to multicollinearity the categories had to be tested separately. These figures all show factor loadings obtained via SPSS. Note that as described in paragraph 4.3.1, all factor loadings smaller than 0.5 were left out of the results to enhance the readability. In case a question was found to be related to two factors, the question was related to the factor with the strongest factor loading. Figure 19 presents a summary of the found factors; placed within the employee part of the model of (Salanova, et al., 2005) plus two additional factors as outlined in paragraph 4.3.1. This figure was named "aggregated model" and also includes the internal reliability (Cronbach alpha) results for each found factor. Detailed results of the factor analysis can be found in Appendix F and detailed results of the reliability statistics in Appendix G. Note that naming of the factors was based on the prior categorization of the questions of the dataset as described in paragraph 4.3.1. An overview of this can be found in Appendix E.

Factor Matrix[a]

	Factor
	1
<censored>	.991
<censored>	.864
<censored>	.888
<censored>	.916
<censored>	.993
<censored>	.861
<censored>	.966
<censored>	.924
<censored>	.910

Extraction Method: Principal Axis Factoring.
a. 1 factors extracted. 5 iterations required.

Figure 14 - Factor matrix obtained with exploratory factor analysis using the aggregated employee satisfaction dataset, testing only questions with the "organizational resources – management" category.

Factor Matrix[a]

	Factor
	1
<censored>	.951
<censored>	.967
<censored>	.987
<censored>	.974
<censored>	.904
<censored>	.667
<censored>	.667
<censored>	.941
<censored>	.893
<censored>	.951
<censored>	.804

Extraction Method: Principal Axis Factoring.
a. 1 factors extracted. 4 iterations required.

Figure 15 - Factor matrix obtained with exploratory factor analysis using the aggregated employee satisfaction dataset, testing only questions with the "organizational resources – training/ autonomy/ technology" category.

Factor Matrix[a]

	Factor
	1
<censored>	.865
<censored>	.896
<censored>	.965
<censored>	.943
<censored>	.879
<censored>	.747
<censored>	.974
<censored>	.928
<censored>	.803
<censored>	.976

Extraction Method: Principal Axis Factoring.
a. 1 factors extracted. 4 iterations required.

Figure 16 - Factor matrix obtained with exploratory factor analysis using the aggregated employee satisfaction dataset, testing only questions with the "organizational resources – information" category.

Rotated Factor Matrix[a]

	Factor	
	1	2
1 Ik ben trots op KLM		.949
<censored>		.982
3 Ik zou mensen in mijn omgeving aanraden om bij KLM te komen werken	.524	.840
4 Als ik alles afweeg ben ik tevreden over KLM als werkgever		.926
5 Ik heb plezier in mijn werk		.961
7 In het algemeen ben ik tevreden over mijn werk	.603	.791
<censored>	.964	
<censored>	.950	
<censored>	.875	
<censored>	.898	
<censored>	.871	
<censored>	.853	
<censored>	.920	

Figure 17 - Rotated factor matrix obtained with exploratory factor analysis using the aggregated employee satisfaction dataset, testing only questions with the "organizational resources – engagement" category.

Factor Matrix[a]

	Factor
	1
<censored>	.993
<censored>	.999
<censored>	.803
<censored>	.996
<censored>	.993
<censored>	.829

Extraction Method: Principal Axis Factoring.
a. 1 factors extracted. 5 iterations required.

Figure 18 - Factor matrix obtained with exploratory factor analysis using the aggregated employee satisfaction dataset, testing only questions with the "organizational resources – service climate" category.

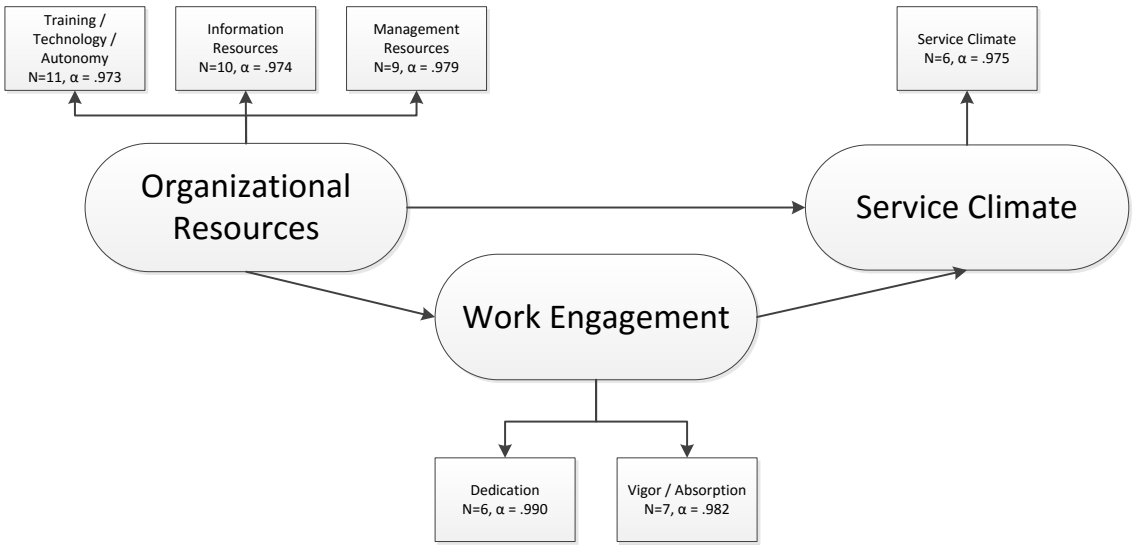


Figure 19 - Summary of the results exploratory factor analysis of employee satisfaction aggregated dataset, containing the factors comparable to the model of (Salanova, et al., 2005) plus two factors specific for the KLM case

The results of the factor analysis for employee satisfaction data revealed that organizational resources consist out of three factors (when taking into account case specific factors), work engagement out of two factors and service climate out of one factor.

When examining the factors for organizational resources, one factor was found for a total of eleven questions, categorized with sub categories training, technology and autonomy. It could therefore be said that this factor is the representation of what (Salanova, et al., 2005) refers to as organisational resources. However, the dataset also contained a set of eleven other questions that are related to organisational resources which are specific for KLM; all labelled “Information resources”.

The first factor that is part of work engagement contains a total of six questions, all with the sub category “dedication”. The second factor representing work engagement contains a combination of a total of seven questions. These questions are a mix of vigour and absorption. Cronbach’s alpha was determined for each factor. Results show extremely high Cronbach’s alpha values, ranging between .973 and .990, indicating the need to perform a similar analysis with a raw dataset.

5.1.2. Employee satisfaction, raw dataset

As described in paragraph 5.1.1, due to the high Cronbach’s alpha values found during the exploratory factor analysis of the aggregated dataset, there was a need that was ultimately satisfied at the end of the research period to perform exploratory factor analysis on the raw dataset of employee satisfaction.

In Figure 20 up to and including Figure 25 on pages 39-40, the output of the (rotated) factor matrix is presented for questions of the categories organizational resources – autonomy, organizational resources technology, organizational resources – training, organizational resources – management, engagement and service climate respectively. These figures all show factor loadings obtained via SPSS. Note that as described in paragraph 4.3.2, all factor loadings smaller than 0.5 were left out of the results to enhance the readability. In case a factor was found containing questions with relatively low factor loadings (near .50), the factor was omitted from the research. Figure 26 presents a summary of the found factors; placed within the employee part of the model of (Salanova, et al., 2005). This figure also includes the internal reliability (Cronbach alpha) results for each found factor. A second figure (Figure 27) contains the same results, only adapted to account for Cronbach alpha values based on

the 2013 employee satisfaction raw dataset. Detailed results of the factor analysis can be found in Appendix I and detailed results of the reliability statistics in Appendix J. Note that naming of the factors was based on the prior categorization of the questions of the dataset as described in paragraph 4.3.2. An overview of this can be found in Appendix H.

Factor Matrix[a]

	Factor
	1
<censored>	
<censored>	.755
<censored>	.907
<censored>	

Extraction Method: Principal Axis Factoring.
a. 1 factors extracted. 21 iterations required.

Figure 20 - Factor matrix obtained with exploratory factor analysis using the raw employee satisfaction dataset, testing only questions with the "organizational resources – autonomy" category.

Rotated Factor Matrix[a]

	Factor	
	1	2
<censored>		.533
<censored>		
<censored>		.537
<censored>		
<censored>	.721	
<censored>		
<censored>		
<censored>	.791	

Extraction Method: Principal Axis Factoring.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

Figure 21 - Rotated factor matrix obtained with exploratory factor analysis using the raw employee satisfaction dataset, testing only questions with the "organizational resources – technology" category.

Factor Matrix[a]

	Factor
	1
<censored>	
<censored>	.948
<censored>	.688

Extraction Method: Principal Axis Factoring.
a. Attempted to extract 1 factors. More than 25 iterations required. (Convergence=.001). Extraction was terminated.

Figure 22 - Factor matrix obtained with exploratory factor analysis using the raw employee satisfaction dataset, testing only questions with the "organizational resources – training" category.

Rotated Factor Matrixa

	Factor	
	1	2
<censored>	.717	
<censored>	.890	
<censored>	.811	
<censored>	.884	
<censored>		.809
<censored>		.844
<censored>	.606	
<censored>		

Extraction Method: Principal Axis Factoring.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

Figure 23 - Rotated factor matrix obtained with exploratory factor analysis using the raw employee satisfaction dataset, testing only questions with the "organizational resources – management" category.

Rotated Factor Matrix[a]

	Factor		
	1	2	3
<censored>			.725
<censored>			.763
<censored>			
<censored>			
<censored>		.647	
Ik ben trots op KLM	.727		
<censored>	.584		
Ik zou mensen in mijn omgeving aanraden om bij KLM te komen werken	.738		
Ik heb plezier in mijn werk	.636		
<censored>		.570	
In het algemeen ben ik tevreden over mijn werk	.688		
Als ik alles afweeg ben ik tevreden over KLM als werkgever	.694		
<censored>		.737	

Extraction Method: Principal Axis Factoring.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 5 iterations.

Figure 24 - Rotated factor matrix obtained with exploratory factor analysis using the raw employee satisfaction dataset, testing only questions with the "organizational resources – engagement" category.

Rotated Factor Matrix[a]

	Factor	
	1	2
<censored>		.761
<censored>		.774
<censored>		
<censored>		
<censored>	.762	
<censored>	.790	
<censored>	.724	

Extraction Method: Principal Axis Factoring.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

Figure 25 - Rotated factor matrix obtained with exploratory factor analysis using the raw employee satisfaction dataset, testing only questions with the "organizational resources – service climate" category.

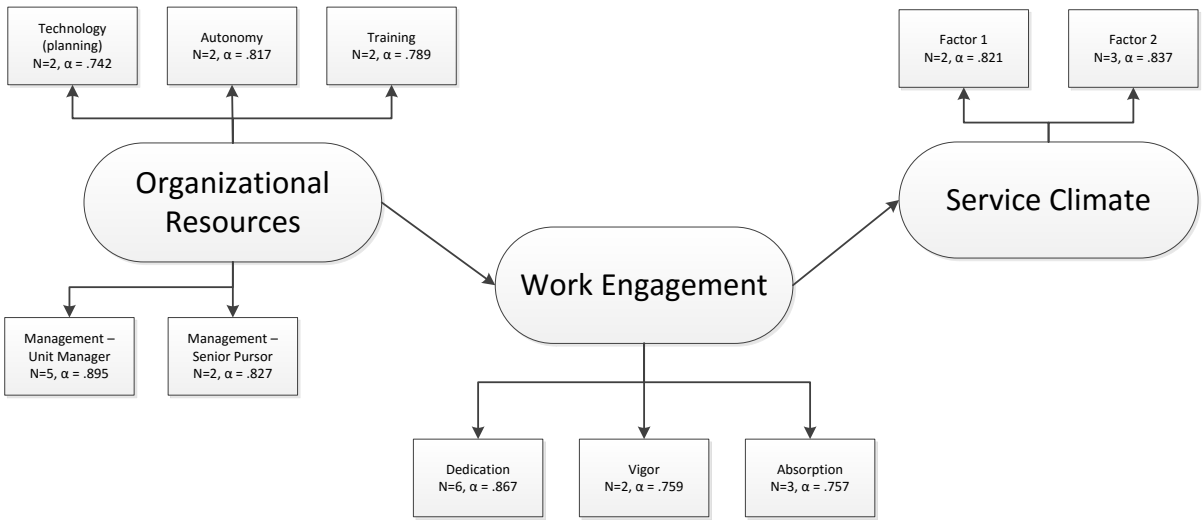


Figure 26 - Summary of the results of the exploratory factor analysis of employee satisfaction raw dataset, 2014 data only

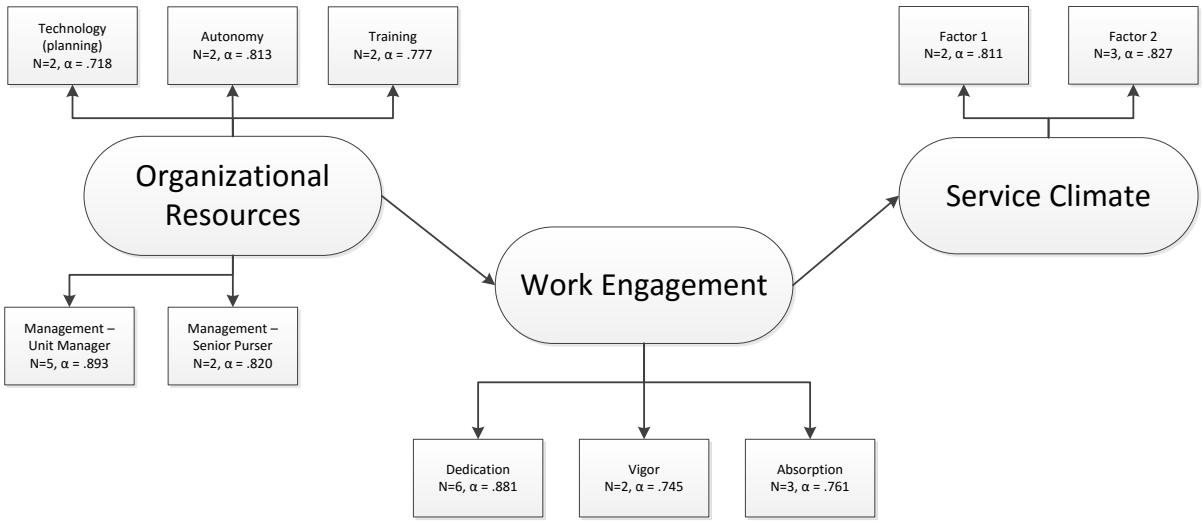


Figure 27 - Summary of the results of the exploratory factor analysis of employee satisfaction raw dataset, 2013 data only

The results of this factor analysis show that organizational resources consist out of five factors, work engagement out of three factors and service climate out of two factors. The results are comparable to the model as presented by (Salanova, et al., 2005).

For organisational resources the three factors Technology, Autonomy and Training were found in the raw dataset. Technology consists of two questions that are related to the planning elements of a job only, resulting in a factor that is not entirely comparable to what (Salanova, et al., 2005) considers to be technology. Subsequently, two other factors were found, namely Management - Unit Manager and Management - (Senior) Purser.

Work Engagement consists out of the same three factors as used by (Salanova, et al., 2005) and described by (Schaufeli, et al., 2002), i.e. Dedication, Vigour and Absorption. Whereas Vigour and Absorption are only made out of two and three questions respectively, Dedication is made out of six questions.

For service climate two factors were found, containing a total of five questions. Since no clear underlying construct could be determined of the questions representing a single factor, the factors have been named “Factor 1” and “Factor 2”.

Result show good Cronbach’s alpha values, ranging between .742 and .895.

5.2. Exploratory factor analysis customer satisfaction dataset

In

Figure 28 up to and including Figure 33 on pages 42-43, the output of the (rotated) factor matrix is presented for questions of the categories customer loyalty, crew, food & beverage front, food & beverage rear, cabin comfort & features and inflight entertainment respectively. Due to multicollinearity the categories had to be tested separately. These figures all show factor loadings obtained via SPSS. Note that as described in paragraph 4.3.3, all factor loadings smaller than 0.5 were left out of the results to enhance the readability. Figure 34 presents a summary of the found factors; placed within the customer part of the model of (Salanova, et al., 2005). This figure also includes the internal reliability (Cronbach alpha) results for each found factor. Detailed results of the factor analysis can be found in Appendix Q and detailed results of the reliability statistics in Appendix R. Note that naming of the factors was based on the prior categorization of the questions of the dataset as described in paragraph 4.3.3. An overview of this can be found in Appendix P.

Factor Matrix[a]

	Factor
	1
1 Overall Satisfaction	.978
2 Value for money	.740
3 Repurchase intention	.875
4 NPS Mean value	.896
5 Overall Inflight	.940

Extraction Method: Principal Axis Factoring.
a. 1 factors extracted. 6 iterations required.

Figure 28 - Factor matrix obtained with exploratory factor analysis using the customer satisfaction dataset, testing only questions with the "customer loyalty" category.

Factor Matrix[a]

	Factor
	1
6 Special and Valued customer	.808
7 Overall Cabin Crew	.870
8 Personal attention of Cabin crew	.952
9 Courtesy/ helpfulness of Cabin crew	.952
10 Responsiveness of Cabin crew	.941
11 Language skills of Cabin crew	.793
12 Information given by Crew	.942
13 Information given by Cockpit	.851

Extraction Method: Principal Axis Factoring.
a. 1 factors extracted. 4 iterations required.

Figure 29 - Factor matrix obtained with exploratory factor analysis using the customer satisfaction dataset, testing only questions with the "crew" category.

Factor Matrix[a]

	Factor
	1
14 Overall F&B (LH - Front)	.905
15 Presentation of F&B (LH - Front)	.946
16 Quality of entrée (LH - Front)	.956
17 Quality of main course (LH - Front)	.907
18 Quality of dessert (LH - Front)	.906
19 Quality of 2nd meal-snack (LH - Front)	.877
20 Quantity of food (LH - Front)	.912
21 Wines (LH - Front)	.800
22 Other beverages (LH - Front)	.869
23 Service schedule of food and beverages (LH - Front)	.890
24 Efficiency of service (LH - Front)	.787

Extraction Method: Principal Axis Factoring.
a. 1 factors extracted. 4 iterations required.

Figure 30 - Factor matrix obtained with exploratory factor analysis using the customer satisfaction dataset, testing only questions with the "food & beverage front" category.

Factor Matrix[a]

	Factor
	1
25 Overall F&B (LH - Rear)	.926
26 Presentation of F&B (LH - Rear)	.970
27 Quality of food (LH - Rear)	.930
28 Quantity of food (LH - Rear)	.929
29 Wines (LH - Rear)	.855
30 Other beverages (LH - Rear)	.908

Extraction Method: Principal Axis Factoring.
a. 1 factors extracted. 4 iterations required.

Figure 31 - Factor matrix obtained with exploratory factor analysis using the customer satisfaction dataset, testing only questions with the "food & beverage rear" category.

Factor Matrix[a]

	Factor
	1
31 Overall Comfort & Cabin features	.777
32 Comfort of seat	.795
33 Condition of cabin	.941
34 Cleanliness of lavatories	.788
35 Cleanliness of the cabin	.895
36 Amenities in lavatories	.895
37 Selection of Duty Free items (LH only)	.628

Extraction Method: Principal Axis Factoring.
a. 1 factors extracted. 5 iterations required.

Figure 32 - Factor matrix obtained with exploratory factor analysis using the customer satisfaction dataset, testing only questions with the "cabin comfort & features" category.

Factor Matrix[a]

	Factor
	1
38 Overall Inflight Entertainment	.816
39 Selection of movies	.829
40 Selection of TV	.823
41 Functioning of audio-video	.902
42 Navigation and ease of use	.907
43 Selection of newspapers	
44 Quality of picture	.827
45 Quality of sound	.843

Extraction Method: Principal Axis Factoring.
a. 1 factors extracted. 4 iterations required.

Figure 33 - Factor matrix obtained with exploratory factor analysis using the customer satisfaction dataset, testing only questions with the "inflight entertainment" category.

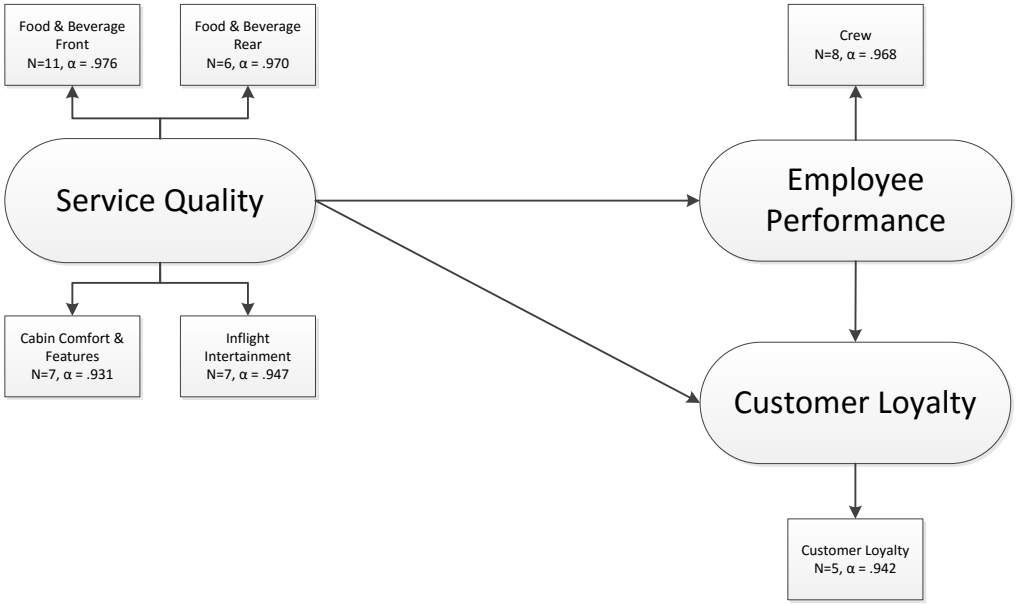


Figure 34 - Summary of the results of the exploratory factor analysis of the employee satisfaction dataset

Upon performing exploratory factor analysis on the customer satisfaction data, a total of six factors were found. Four of these factors were related to the construct of service quality, whereas employee performance and customer loyalty both contained one factor. The four factors of service quality were food and beverage, for both the front and rear section of the aircraft (see paragraph 4.2.2.5 for more information), as well as cabin comfort & features and inflight entertainment.

Cronbach's alpha result show again high values, ranging between .931 and .976. Due to the complexity and experience KLM has with collecting data for e-Score, it is reasonable to assume that the questions of the various factors do not test the same underlying question but in a different manner. A single customer response is incorporated into the dataset only once. Yet, the high Cronbach's alpha values are more likely to be caused by using aggregated data. It is e.g. conceivable that cultural effects of the various customers, or combining both day and night flights due to the usage of a "Bi Directional Route" route filer for the dataset is causing the high alpha values. A raw dataset would be required to determine whether this is the case or not.

5.3. Causal models employee satisfaction

One of the major goals of this research is to develop a causal model comparable to the one presented by (Salanova, et al., 2005). However, due to the nature of the datasets used for the analyses, the causal model of both customer and employee satisfaction need to be determined separately. This paragraph describes the results of the causal models for the employee satisfaction datasets.

5.3.1. Aggregated model

A mediation analysis was performed using the PROCESS macro by estimating work engagement from organizational resources as well as service climate from both organizational resources and work engagement. The method applied has been described in paragraph 4.4.1. The goal is to determine a model comparable to the model as described by (Salanova, et al., 2005) for employee satisfaction only. With this model, hypotheses 1a, b and c can be tested. The factor training/technology/autonomy was used for organizational resources (OR_STD), dedication and vigour/absorption for work engagement (EN_ALL) and the factor "service climate" for service climate (SC_TOT).

The results of the analysis suggest that organizational resources is positively related to work engagement (a = .90, p = .0000) and work engagement positively predicted service climate (1.52, p = .0000). A bootstrap confidence interval for the indirect effect of organizational resources (ab) using 1000 bootstrap samples was 1.238 to 1.500, meaning that there was evidence of an indirect effect of organizational resources on service climate through work engagement. Organizational resources was found to be negatively related to service climate directly (c' = -.53, p=.0000) whereas the total effect of organizational resources was found to be positively related to service climate (c = .84, p=.0000).

To make the results easier to understand, the results of this model, named "aggregated model" - because of the use of the aggregated dataset for employee satisfaction - is presented in Figure 35.

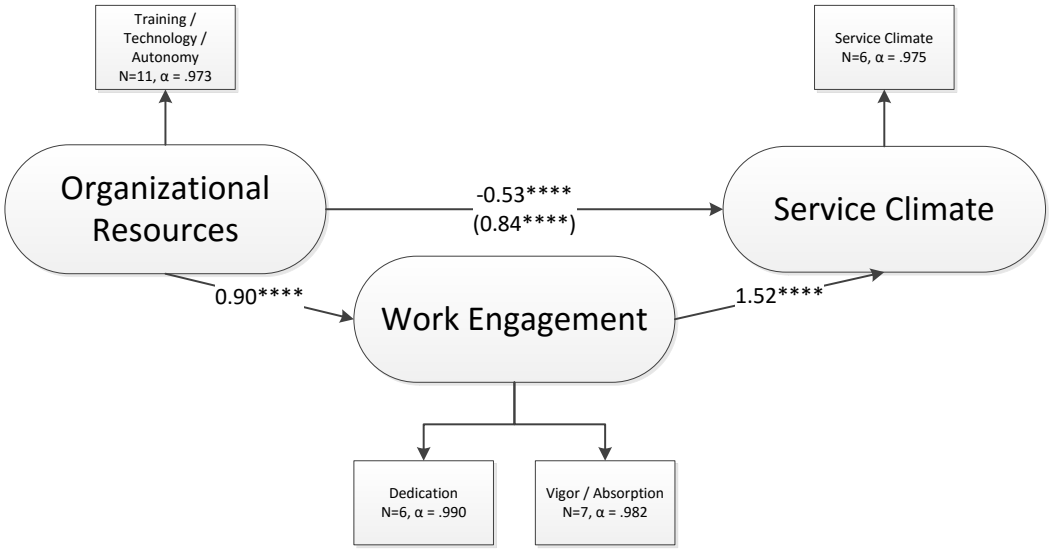


*Figure 35 - Aggregated model 1 for employee satisfaction of the aggregated dataset. Effect size significance: **** p<0.0001.*

Since the model could be extended due to two other factors that were found to represent the organizational resources construct, a second model, named aggregated model 2, was made. All factors related to organizational resources were used for organizational resources (OR_TOT), dedication and vigour/absorption for work engagement (EN_ALL) and the factor "service climate" for service climate (SC_TOT).

The results of this analysis are similar, suggesting that organizational resources is positively related to work engagement (a = 1.10, p = .0000) and work engagement positively to service climate (1.54, p = .0000). A bootstrap confidence interval for the indirect effect of organizational resources (ab) using 1000 bootstrap samples was 1.522 to 1.838, meaning that there was evidence of an indirect effect of organizational resources on service climate through work engagement. Organizational resources was found to be negatively related to service climate directly (c' = -.62, p=.0000) whereas the total effect of organizational resources was found to be positively related to service climate (c =1.07, p=.0000). The results of this analysis are presented in the model below in Figure 36.

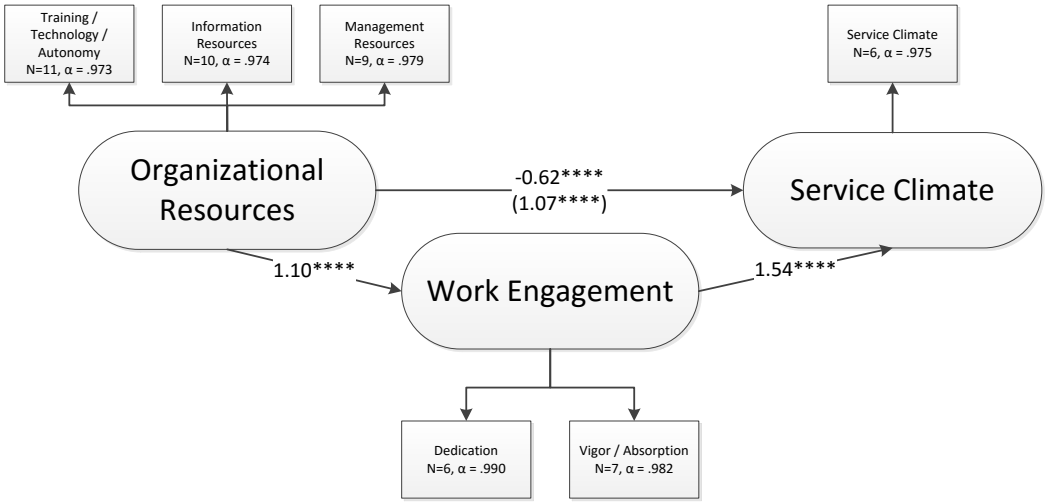


*Figure 36 - Aggregated model 2 for employee satisfaction of the aggregated dataset. Effect size significance: **** p<0.0001.*

5.3.2. Basic model (raw dataset)

The basic model is comparable to the aggregated models. However, the basic model makes use of the raw dataset, thereby allowing hypotheses 1a, b and c to be tested with an improved reliability. For this model, the factors technology, autonomy and training were used for organizational resources (OR_STD3), dedication, vigour and absorption for work engagement (EN_ALL) and factor 1 and 2 for service climate (SC_ALL).

The results of the analysis suggest that organizational resources is positively related to work engagement (a = .50, p = .0000) and work engagement positively predicted service climate (0.44, p = .0000). A bootstrap confidence interval for the indirect effect of organizational resources (ab) using 1000 bootstrap samples was 0.200 to 0.236, meaning that there was evidence of an indirect effect of organizational resources on service climate through work engagement. Organizational resources was found to be negatively related to service climate directly (c' = -.05, p=.0000) whereas the total effect of organizational resources was found to be positively related to service climate (c = .17, p=.0000). The results have also been summarized in Figure 37 for easy readability. The results of the calculations of PROCESS used to develop the basic model of 2014 can be found in Appendix L.

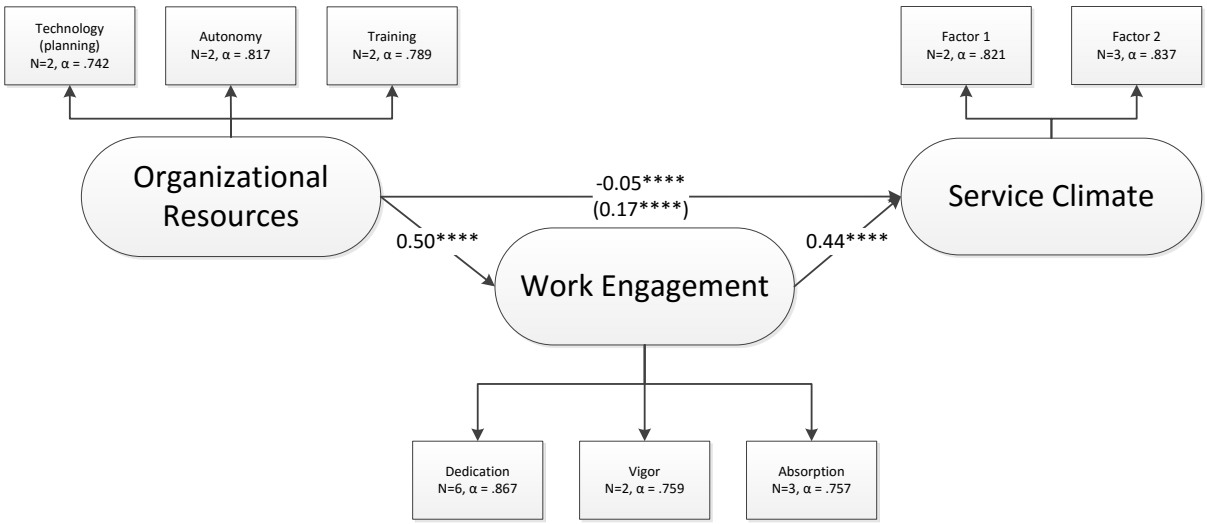


*Figure 37 - Basic model for employee satisfaction of the raw dataset, using only data of 2014. Effect size significance: **** p<0.0001.*

After determining the basic model for 2014, the model was also determined for 2013 to extend the research longitudinally. The results of the 2013 basic model are very similar to those of 2014. The results of the analysis suggest that organizational resources is positively related to work engagement (a = .53, p = .0000) and work engagement positively predicted service climate (0.44, p = .0000). A bootstrap confidence interval for the indirect effect of organizational resources (ab) using 1000 bootstrap samples was 0.214 to 0.253, meaning that there was evidence of an indirect effect of organizational resources on service climate through work engagement. Organizational resources was found to be negatively related to service climate directly (c' = -.04, p=.0011) whereas the total effect of organizational resources was found to be positively related to service climate (c = .19, p=.0000). The results are summarized in Figure 38.

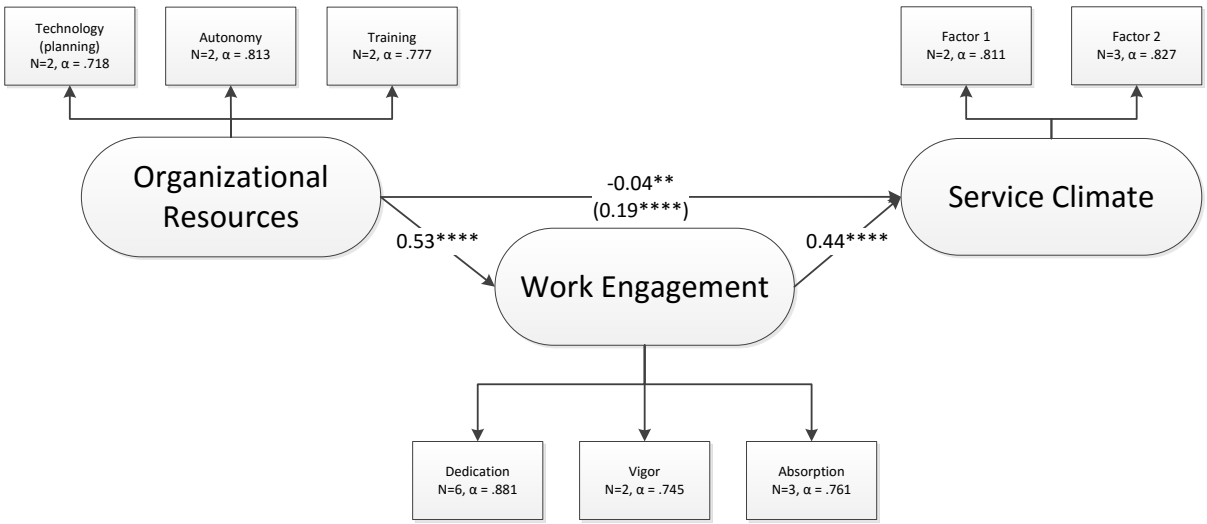


*Figure 38 - Basic model for employee satisfaction of the raw dataset, using only data of 2013. Effect size significance: ** p<0.01; **** p<0.0001.*

5.3.3. Extended model (raw dataset)

In case hypothesis 1g is accepted, hypothesis 1a and 1c may be influenced. Therefore, it is required to test whether there would be a substantial difference in the model. The extended model contains the

same factors for engagement and service climate as the basic model. However, organizational resources is extended to also include the factors relating to management, i.e. unit manager and (senior) purser.

For this model, the factors technology, autonomy, training, management unit manager and management (senior) purser were used for organizational resources (OR_TOT), dedication, vigour and absorption for work engagement (EN_ALL) and factor 1 and 2 for service climate (SC_ALL).

The results of the analysis suggest that organizational resources is positively related to work engagement (a = .55, p = .0000) and work engagement positively predicted service climate (0.39, p = .0000). A bootstrap confidence interval for the indirect effect of organizational resources (ab) using 1000 bootstrap samples was 0.193 to 0.235, meaning that there was evidence of an indirect effect of organizational resources on service climate through work engagement. The relation between organizational resources was found to be non-significantly related to service climate directly (c' = .00, p=.8193) whereas the total effect of organizational resources was found to be positively related to service climate (c = .21, p=.0000). The results have also been summarized in Figure 39 for easy readability. The results of the calculations of PROCESS used to develop the extended model for 2014 can be found in Appendix M.

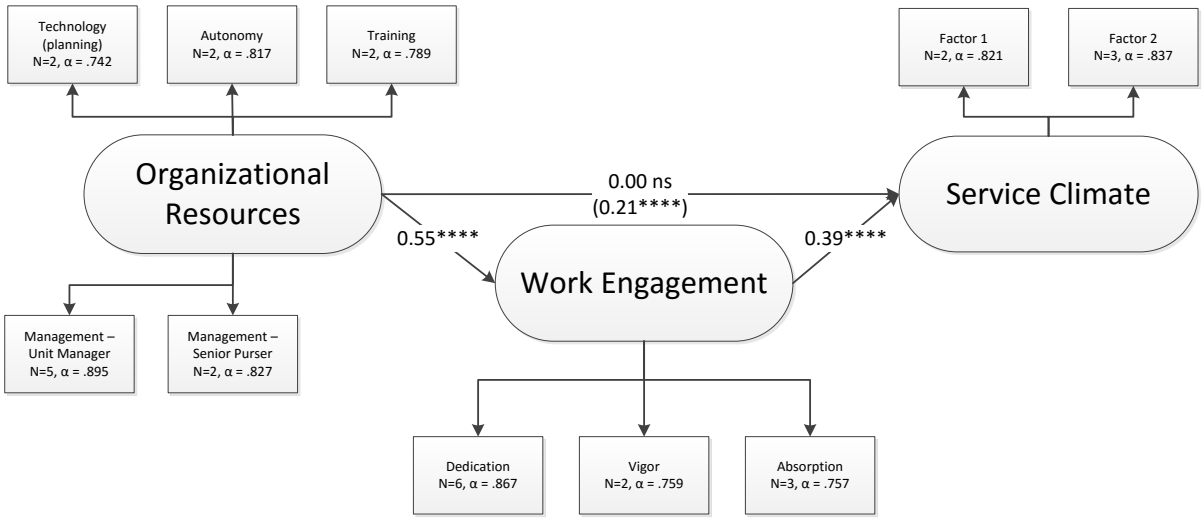


*Figure 39 - Extended model for employee satisfaction of the raw dataset, using only data of 2014. Effect size significance: ns for non-significant; **** p<0.0001.*

After determining the extended model for 2014, the model was also determined for 2013 to extend the research longitudinally. The results of the 2013 basic model are very similar to those of 2014. The results of the analysis suggest that organizational resources is positively related to work engagement (a = .55, p = .0000) and work engagement positively predicted service climate (0.39, p = .0000). A bootstrap confidence interval for the indirect effect of organizational resources (ab) using 1000 bootstrap samples was 0.193 to 0.235, meaning that there was evidence of an indirect effect of organizational resources on service climate through work engagement. Organizational resources was found to be non-significantly related to service climate directly (c' = -.00, p=.8093) whereas the total effect of organizational resources was found to be positively related to service climate (c = .21, p=.0000). The results are summarized in Figure 40.

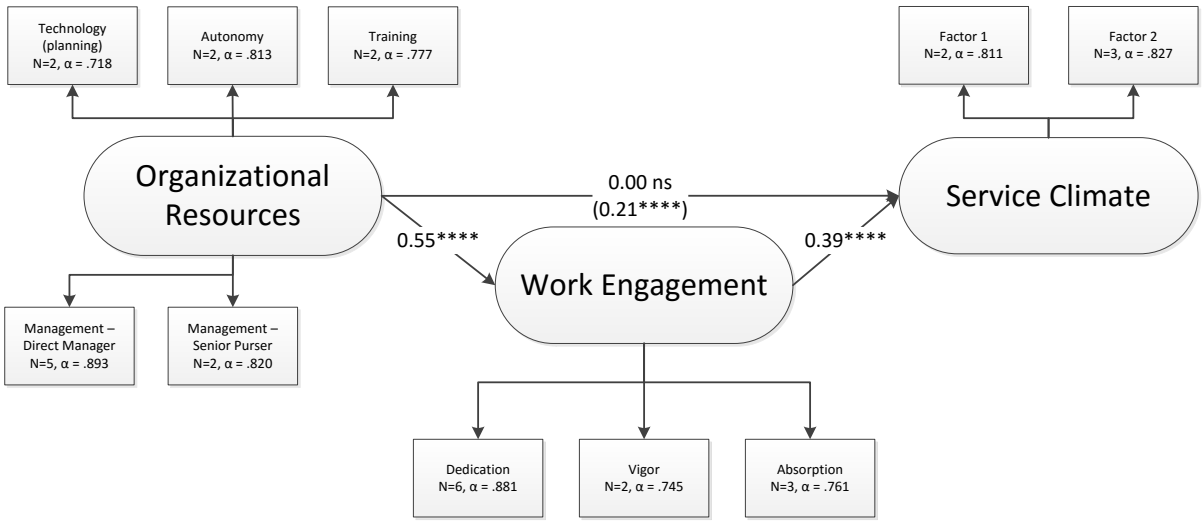


*Figure 40 - Extended model for employee satisfaction of the raw dataset, using only data of 2013. Effect size significance: ns for non-significant; **** p<0.0001.*

5.3.4. Comprehensive model (raw dataset)

Testing hypothesis 2 is not possible with the basic or extended models. These models to not allow for establishing the effects of the factors work engagement is made out of, i.e. dedication, vigour and absorption. The comprehensive model attempts to test this hypothesis by reviewing each work engagement factor separately. Moreover, the factors themselves can be compared with each other, giving additional insights into the relationship.

For this model, the factors technology, autonomy, training, management unit manager and management (senior) purser were used for organizational resources (OR_TOT), dedication for dedication (EN_DEDIC), vigour for vigour (EN_VIGOR), absorption for absorption (EN_ABSOR) and factor 1 and 2 for service climate (SC_ALL).

The results of the analysis suggest that organizational resources is positively related to dedication (a1 = .44, p = .0000), vigour (a2 = .35, p = .0000) and absorption (a3 = .90, p = .0000). Dedication, vigour and absorption positively predicted service climate (b1 = 0.25, p = .0000; b2 = 0.14, p = .0000; b3 = 0,03, p = .0041). A bootstrap confidence interval for the indirect effect of organizational resources (ab) using 1000 bootstrap samples was 0.193 to 0.235, meaning that there was evidence of an indirect effect of organizational resources on service climate through work engagement. The relation between organizational resources was found to be non-significantly related to service climate directly (c' = .03, p=.0520) whereas the total effect of organizational resources was found to be positively related to service climate (c = .21, p=.0000). The results have also been summarized in Figure 41 for easy readability. The results of the calculations of PROCESS used to develop the comprehensive model for 2014 can be found in Appendix N.

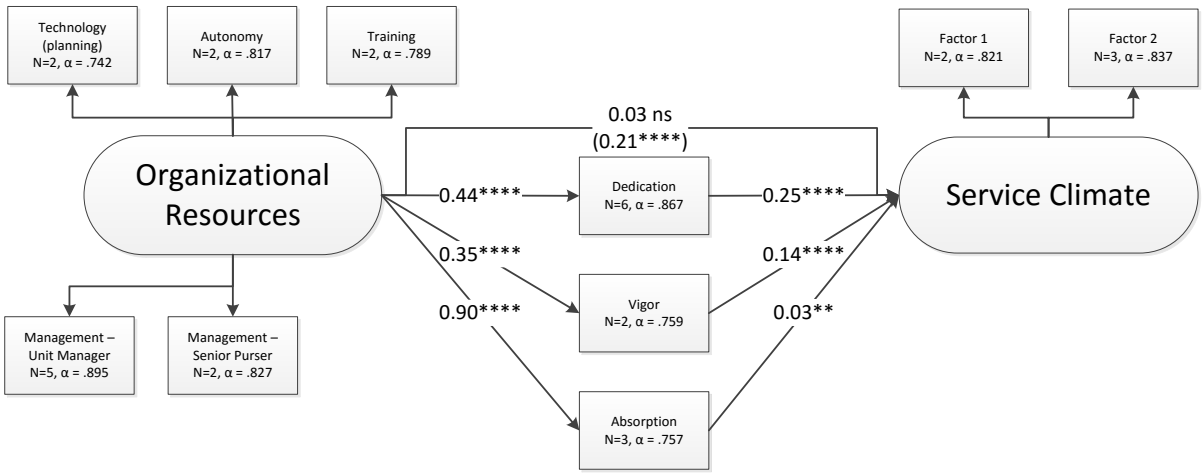


*Figure 41 - Comprehensive model for employee satisfaction of the raw dataset, using only data of 2014. Effect size significance: ns for non-significant; ** p<0.01; **** p<0.0001.*

After determining the comprehensive model for 2014, the model was also determined for 2013 to extend the research longitudinally. The results of the 2013 comprehensive model are once more very similar to those of 2014. The results of the analysis suggest that organizational resources is positively related to dedication (a1 = .47, p = .0000), vigour (a2 = .35, p = .0000) and absorption (a3 = .89, p = .0000). Dedication, vigour and absorption positively predicted service climate (b1 = 0.26, p = .0000; b2 = 0.15, p = .0000; b3 = 0,03, p = .0063). A bootstrap confidence interval for the indirect effect of organizational resources (ab) using 1000 bootstrap samples was 0.203 to 0.246, meaning that there was evidence of an indirect effect of organizational resources on service climate through work engagement. The relation between organizational resources was found to be non-significantly related to service climate directly (c' = .02, p=.1181) whereas the total effect of organizational resources was found to be positively related to service climate (c = .22, p=.0000). The results have also been summarized in Figure 42 for easy readability.

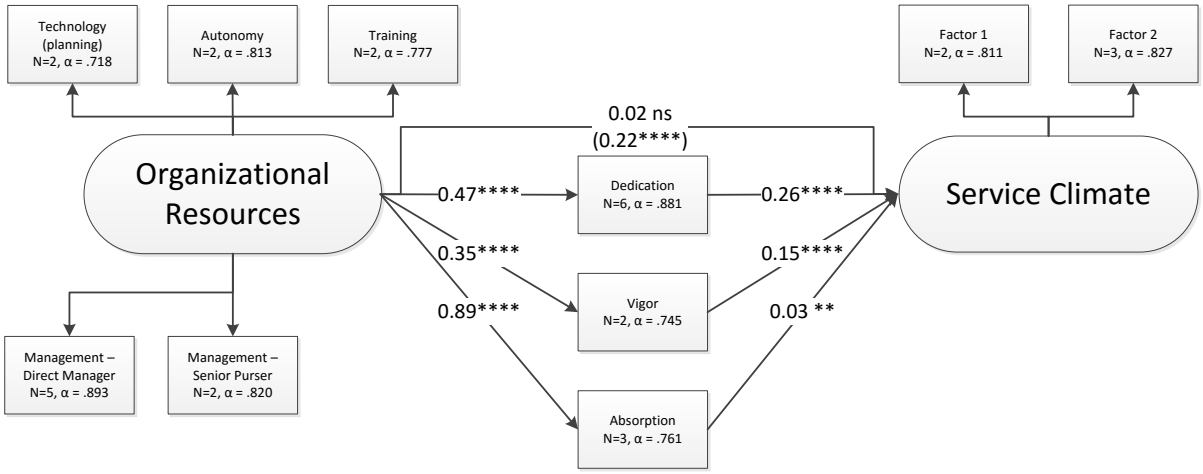


*Figure 42 - Comprehensive model for employee satisfaction of the raw dataset, using only data of 2013. Effect size significance: ns for non-significant; ** p<0.01; **** p<0.0001.*

5.3.5. Resource specific comprehensive models (raw dataset)

In order to test hypothesis 3, it is required to review each organizational resources factor separately, i.e. Autonomy (OR_AUTON), Technology (OR_TECH), Training (OR_TRAIN), Management – Unit Manager (OR_UMGR) and Management – (Senior) Purser (OR_SPUR). The other factors included in

the models are dedication for dedication (EN_DEDIC), vigour for vigour (EN_VIGOR), absorption for absorption (EN_ABSOR) and factor 1 and 2 for service climate (SC_ALL).

The results are five resource specific comprehensive models. The results of the analysis suggest that autonomy as an organizational resources has the strongest direct effects on dedication (a1 = .27, p = .0000), vigour (a2 = .27, p = .0000) and absorption (a3 = .68, p = .0000) compared to the other organizational resource factors. Moreover, autonomy has the strongest positive total effect on service climate. The results of all models are summarized in Table 1. Detailed models can be reviewed in Appendix O. It should be noted that these models were only made on the basis of the 2014 part of the dataset, since for all previous (basic, extended and comprehensive) models there were no substantial changes between the results of 2014 and 2013 datasets.

Table 1 - Summary of the resource specific comprehensive models. Effect size significance: ns for non-significant; * p<0.05; ** p<0.01; **** p<0.0001

Organizational resources factor	**Direct effect on**				**Total effect on**
	Dedication	Vigour	Absorption	Service climate	Service climate
Autonomy	.27 ****	.27 ****	.68 ****	.01 ns	.15 ****
Technology (planning)	.21 ****	.14 ****	.24 ****	-.02 *	.07 ****
Training	.16 ****	.12 ****	.47 ****	-.01 ns	.07 ****
Management - Unit Manager	.21 ****	.13 ****	.34 ****	.02 **	.10 ****
Management - (Senior) Purser	.19 ****	.22 ****	.39 ****	.03 **	.12 ****

5.4. Causal model customer satisfaction

This paragraph describes the results of the causal model for the customer satisfaction dataset. In combination with the causal model for employee satisfaction, a causal model comparable to the model as presented by (Salanova, et al., 2005) can be developed.

5.4.1. Overall model

As described earlier in paragraph 4.4.2, the overall model is comparable to the model as described by (Salanova, et al., 2005) for customer satisfaction only plus the addition of the service quality construct. The model makes use of all the found factors during the pre-analysis, i.e. food & beverage front, food & beverage rear, cabin & comfort features and inflight entertainment for service quality (SQ_ALL); crew for employee performance (EP_CREW) and the customer loyalty factor for the customer loyalty construct (CL_ALL).

The results of the analysis suggest that service quality is positively related to employee performance (a = .75, p = .0000) and employee performance positively predicted customer loyalty (b = 0.43, p = .0000). A bootstrap confidence interval for the indirect effect of service quality (ab) using 1000 bootstrap samples was 0.278 to 0.369, meaning that there was evidence of an indirect effect of service quality on customer loyalty through employee performance. Service quality was found to be positively related to customer loyalty directly (c' = .48, p=.0000) whereas the total effect of service quality was found to be positively related to customer loyalty (c = .80, p=.0000). The results have also been summarized in Figure 43 for easy readability.

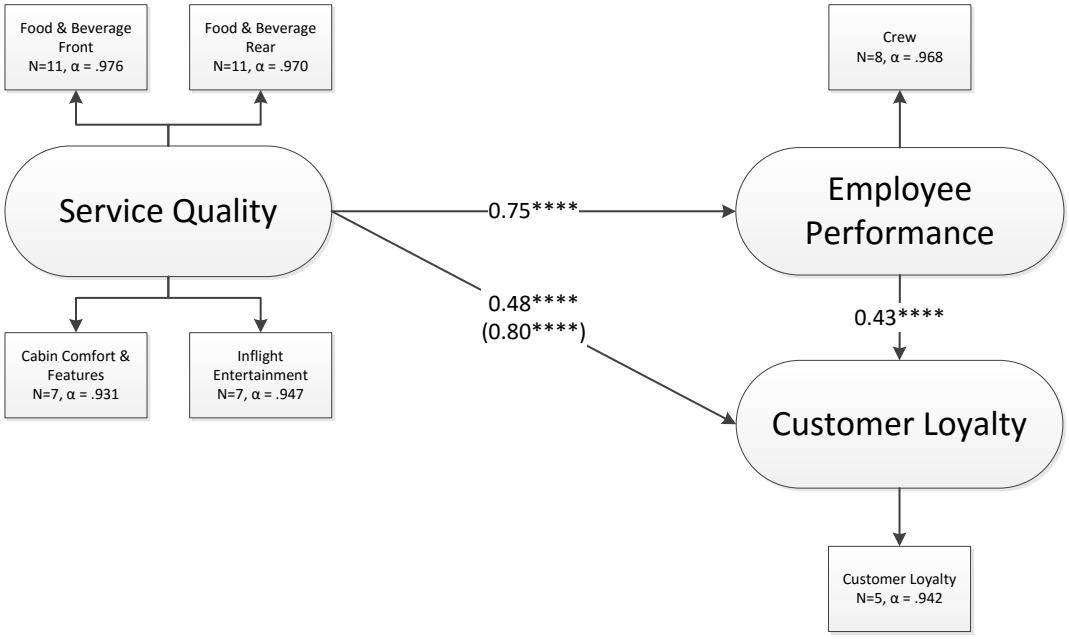


*Figure 43 - Overall model for customer satisfaction dataset. Effect size significance: **** p<0.0001.*

The results of the calculations of PROCESS used to develop the model can be found in Appendix T. Since the dataset contains a large portion of missing values due to the e-Score export, certain indicators contained a significant lower number of cases used for calculations, as is presented in Appendix S.

6. Discussion

This chapter discusses the results of the research as presented in chapter 5 by relating it to the theoretic framework as presented in chapter 2 as well as the company case as presented in chapter 3.

6.1. Summary of findings

The main research question this research attempts to answer is "What is the relationship between employee satisfaction of cabin crew and customer satisfaction within the airline industry for the long haul, legacy carrier market?". Existing research by (Salanova, et al., 2005) has proven for the hotel and restaurant industry there is a positive relationship between:

- Organizational resources and work engagement.
- Work engagement and service climate.
- Service climate and employee performance.
- Employee performance and customer loyalty.
- Customer loyalty and service climate.

In order to determine whether this would also be the applicable for companies within the long haul airline industry, a case was analysed of KLM Royal Dutch Airlines. This case did not provide data that was fully compatible to test the model of (Salanova, et al., 2005) completely. Nevertheless, by using various academic literature, other hypotheses not solely based on the model of (Salanova, et al., 2005) could be established in order to test a more elaborate model. By combining the results of these hypotheses, understanding can be provided into the relationship between employee and customer satisfaction. The subsequent sub paragraphs will therefore discuss the findings of the research results for each hypothesis before proceeding to the subparagraph that combines the findings.

6.1.1. Hypothesis 1

The first hypothesis was that "There is a relationship between organizational resources, work engagement, service climate, employee performance and customer loyalty as defined by (Salanova, et al., 2005)." In order to accept this hypothesis, all sub hypothesis listed below need to be accepted:

- Hypothesis 1a: Organizational resources is related to work engagement.
- Hypothesis 1b: Work engagement is related to service climate.
- Hypothesis 1c: Organizational resources is not directly related to service climate, and as a result work engagement is a mediator in the relationship between organizational resources and service climate.
- Hypothesis 1d: Service climate is related to employee performance.
- Hypothesis 1e: Employee performance is related to customer loyalty.
- Hypothesis 1f: Customer loyalty is related to service climate.
- Hypothesis 1g: Organizational resources is made up out of three scales, i.e. training, autonomy and technology.

For hypothesis 1a, the results of the basic model suggest that organizational resources is significantly positively related to work engagement. Furthermore, this relationship was also found in subsequent detailed models, i.e. the extended and comprehensive models. As a result, hypothesis 1a is accepted.

For hypothesis 1b, the results of the basic model suggest that work engagement is significantly positively related to service climate. Furthermore, this relationship was also found in subsequent detailed models, i.e. the extended and comprehensive models. As a result, hypothesis 1b is accepted.

For hypothesis 1c, the results of the basic model suggest that organizational resources is not directly related to service climate. Whereas the direct effect of organizational resources on service climate is significant, it is very small. Moreover, work engagement was found to be a mediator in the relationship between organizational resources and service climate. Additionally, variations of this relationship were also found in subsequent detailed models, i.e. the extended and comprehensive models. For some of these models the direct effect of organizational resources on service climate was non-significant, for other, it was very small. As a result, hypothesis 1c is accepted.

For hypothesis 1d, the overall model for customer satisfaction did not contain the construct service climate. As a result, it was not possible to test hypothesis 1d on the basis of the KLM case. Nevertheless, from research performed by (Brown & Lam, 2008) it is however known that employee satisfaction has a significant effect on perceived service quality by customers. It is therefore possible to assume that service climate has a positive effect on service quality, which in turn would result in the support for the hypothesis that service climate is positively related to employee performance. As a result, hypothesis 1d is conditionally accepted, with the assumption that service climate has a positive significant effect on service quality.

For hypothesis 1e, the results of the overall model for customer satisfaction suggest that employee performance is positively related to customer loyalty. As a result, hypothesis 1e is accepted.

For hypothesis 1f, the overall model for customer satisfaction did not contain the construct service climate. Therefore, it was not possible to test whether customer loyalty is positively related to service climate. As a result, hypothesis 1f is non-acceptable.

For hypothesis 1g, the categorization and subsequent factor analysis of the raw employee dataset did find the scales training, autonomy and technology. However, it was also determined that for the KLM case, at least two other organization resource factors could be determined, i.e. management – unit manager and management – (senior) purser. Nonetheless, these scales are solely applicable to KLM and are therefore not generalizable. Based on the KLM case, hypothesis 1g is rejected, but from an academic perspective hypothesis 1g is non-acceptable.

Except for hypothesis 1f and 1g, all sub-hypotheses have been accepted. As a result, except for the relationship between customer loyalty and service climate and the scales that make up organizational resources, the model as described by (Salanova, et al., 2005) was found to hold true for the analysed case. Therefore, considering that hypothesis 1f and 1g are academically non-acceptable, hypothesis 1 is accepted.

6.1.2. Hypothesis 2

Hypothesis 2 was about that “the three scales of work engagement are related to service climate.” In order to accept this hypothesis, all sub hypothesis listed below need to be accepted:

- Hypothesis 2a: Vigour is related to service climate
- Hypothesis 2b: Dedication is related to service climate
- Hypothesis 2c: Absorption is related to service climate

For hypothesis 2a, the comprehensive model of employee satisfaction indicated that vigour is positively related to service climate. As a result, hypothesis 4a is accepted.

For hypothesis 2b, the comprehensive model of employee satisfaction indicated that dedication is positively related to service climate. As a result, hypothesis 4b is accepted.

For hypothesis 2c, the comprehensive model of employee satisfaction indicated that absorption is positively yet very small related to service climate. Due to the small effect size, hypothesis 4c is rejected.

Since hypothesis 2c is rejected, hypothesis 2 is rejected.

6.1.3. Hypothesis 3

Hypothesis 3 is that "autonomy as an organizational resource has the strongest total effect on service climate." For hypothesis 3, from the resource specific comprehensive models it was determined that the largest total effect on service climate was provided by autonomy. As a result, hypothesis 3 is accepted.

6.1.4. Linking employee and customer satisfaction models

This research attempts to determine the relationship between employee and customer satisfaction for the airline industry by using the model as developed by (Salanova, et al., 2005) as a basis. The research has yielded two models, an employee satisfaction model and a customer satisfaction model. The employee satisfaction model has service climate as dependent variable, whereas customer satisfaction makes use of service quality as independent variable. This essentially means that the models are incompatible, yet both concepts are very much alike. Service climate is the perception of service quality by employees (see also paragraph 2.5), and service quality defines how well the delivered service matches the customers' expectations (see also paragraph 2.5.1). The missing link is therefore the difference between the perception of service quality of employees and the actual perceived service as experienced by the customers.

Nonetheless, empirical evidence has already been provided that employee satisfaction has a significant effect on perceived service quality. The research by (Brown & Lam, 2008) as described in paragraph 2.8 has proven this. Although the model is not yet complete, it is relatively safe to assume that the complete employee and customer satisfaction model for the airline industry is closely related to the model as presented on page 55 in Figure 44.

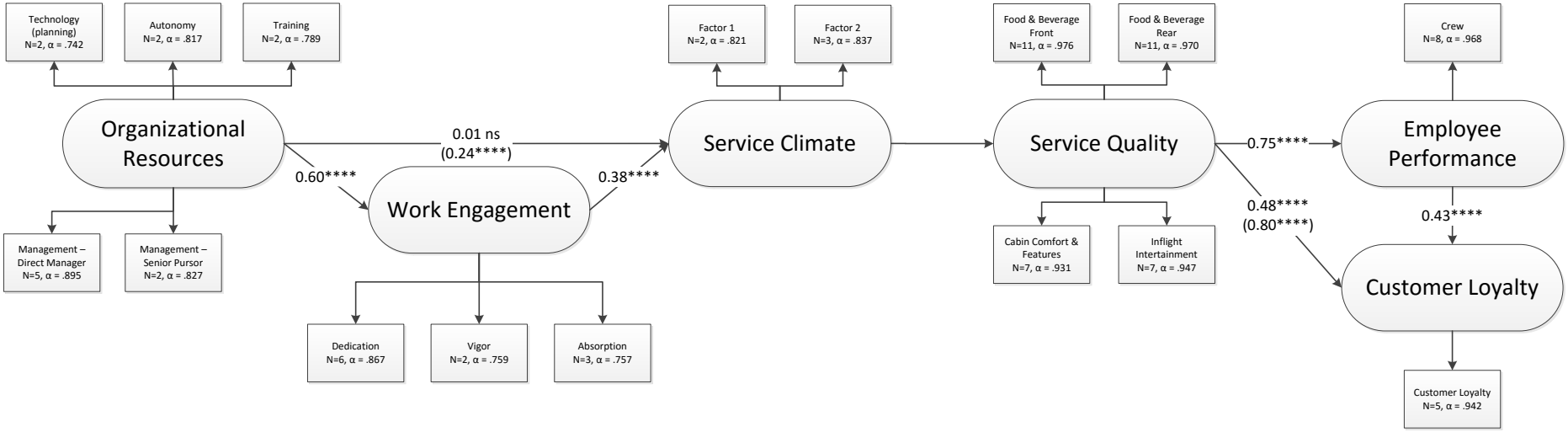


*Figure 44 - Employee satisfaction and customer satisfaction relationship model for the airline industry (Case KLM, combining extended model for employee satisfaction 2014 with the overall model for customer satisfaction) Effect size significance: ns for non-significant; **** p<0.0001. Effect size between service climate and service quality could not be determined due to insufficient data.*

6.2. Scientific relevance

This paragraph addresses how the model as presented in Figure 44 is relevant for the scientific community.

6.2.1. Strengthening the research of (Salanova, et al., 2005)

First of all, by accepting hypothesis 1 and the underlying sub-hypotheses 1a-1f, this research strengthens the model as presented by (Salanova, et al., 2005). Empirical evidence has been found that as described by (Salanova, et al., 2005), work engagement is a mediator in the relationship between organizational resources and service climate. Although different yet related concepts, service climate combined with service quality were found to form a mediating role between employee satisfaction on the one hand and customer satisfaction on the other.

Knowledge obtained from this thesis is more than simply an addition to the mediating effects of service climate as described by (Salanova, et al., 2005). The model also shows the importance of (the mediating effects of) work engagement between organizational resources on the one hand and service climate on the other. An airline such as KLM, which is known for having relatively high levels of work engagement can definitely experience benefits from this in terms of the relationship between employee and customer satisfaction.

Not only does the enhancement of employee satisfaction lead to employee performance as dictated by (Robbins & Judge, 2012), this research demonstrates that employee satisfaction contributes to higher levels of customer satisfaction. To what extend this is caused by having a more effective organization due to higher levels of job satisfaction (Robbins & Judge, 2012) or due to other factors such as the willingness to serve the customer as explained in the example in paragraph 3.7.1 is unknown and could be researched upon during future research.

For the academic community, this thesis also contributes to (Schaufeli & Bakker, 2004a) and (Schaufeli & Bakker, 2004b) on the importance of work engagement. Furthermore, service quality was found to be related to customer loyalty. As a result, this research is complementary to (Schneider, et al., 1998); (Zeithaml, et al., 1996); (Brown & Lam, 2008); (Hellier, et al., 2003) and (Vaerenbergh, et al., 2014).

6.2.2. Questioning the scales of organizational resources

(Salanova, et al., 2005) made use of eight researchers that categorized resources by applying grounded theory qualitative methodology. By rejecting hypothesis 1g on the basis of the KLM case, this research has established that organizational resources is not always made up out of solely the three scales as presented by (Salanova, et al., 2005), i.e. training, autonomy and technology. On the other hand, the rejection of the hypothesis is only based on organizational resources that are solely applicable to the KLM case. This does not warrant academic generalizability. However, this finding does contribute to the fact that the academic community should consider other organizational resources beside the ones established by (Salanova, et al., 2005). It is probable that a fourth, summarized as “organizational specific” resource could be added since it is possible that organizational specific resources are capable of influencing the relationship substantially. An example of an organizational specific resource could be information. Such a resource could be something other than a training, technology or autonomy e.g. when providing information regarding the customer the employee is about the serve. Furthermore, this thesis demonstrates that organizational resources such as information are complex to cover within established models. One can even argue that information could both be a job resource and job demand, depending on the type of information. With this knowledge we can potentially extend the job resources and demands (JR-D) model theory as established by (Demerouti, et al., 2001).

6.2.3. Importance of organizational resources

Despite the fact as described in the previous paragraph that there is a level of uncertainty when it comes to the scales involved to define organizational resources, it is clear that organizational resources as a whole is an important construct when it comes to the relationship between employee and customer satisfaction. Organizational resources has been found during this research to be a significant predictor of work engagement. Being such a significant predictor, this knowledge is complementary to academic research of (Hakenen, et al., 2006); (Llorens, et al., 2006); (Mauno, et al., 2007); (Schaufeli & Bakker, 2004a) and (Xanthopoulou, et al., 2007) and thereby strengthens the importance of the construct even further.

6.2.4. Insight into the scales of work engagement

For work engagement, empirical evidence has been found that as described by (Schaufeli, et al., 2002) factors dedication, vigour and absorption make up the construct of work engagement. Whereas this construct has already been very well established in the scientific community, this thesis provides additional evidence.

On the other hand, research by (Bakker & Leiter, 2010) has suggested that absorption is to be excluded from the work engagement scale. It is suggested that absorption could be an outcome of vigour and dedication. The research in this thesis has found empirical evidence that absorption was unable to have a substantial significant causal effect on service climate. Whereas further research is required to determine whether absorption should be omitted from the work engagement scale, this thesis does provide evidence of the ineffectiveness of the absorption construct. (Bakker & Leiter, 2010, p. 191) suggest that absorption is "*a likely candidate for evoking unhealthy behaviour*". Their main argument for this is the fact that highly absorbed employees could develop a burnout. This research has been unable to determine if such an event is contributing to the ineffectiveness of absorption. However, it must be said that as described in paragraph 2.4.2, (Schaufeli, et al., 2002) have argued against the definition of burnout/engagement as described by (Maslach & Leiter, 1997); (Leiter & Maslach, 2003). By doing so, (Schaufeli, et al., 2002) may have avertedly neglected that burnout and engagement are more closely related than thought. From an academic perspective, this research at least underlines this grey area and further research should be conducted to establish the relationship between burnout and work engagement.

Furthermore, this thesis has established from the comprehensive model that dedication is the strongest work engagement scale. Research findings of (Schaufeli & Bakker, 2004a); (Hakenen, et al., 2006) and (Richardsen, et al., 2006) are similar, which found that organizational commitment is a significant predictor of engagement. Since commitment and dedication are closely related, it could be possible that if the research would be extended to include organizational commitment, this would have a significant direct effect on service climate. Further research would be required to establish if this is the case.

Overall, this research contributes to the research of (Simpson, 2009). A more detailed understanding of work engagement, with in particular the above mentioned uncertainty involving absorption, the importance of dedication and the potential importance of vigour could be added to the empirical knowledge.

6.2.5. The importance of autonomy

(Gracia, et al., 2013) determined that autonomy is the strongest organizational facilitator. By means of hypothesis 3 this research has been able to empirically confirm this. The fact that autonomy is the strongest organizational resource is interesting to say the least. Organisations are often structured by applying forms of restricting policies or measures. Such a structure can be applied in the form of

organizational culture, but also via technological systems, such as ICT. The right for an average employee to be more autonomous has either to be earned via trust and experience, or is granted at the cost of having more responsibility and accountability. Granting more autonomy normally does not require significant financial investments. Yet, companies currently prefer to enhance employee satisfaction by either providing training or new technology. Both of these options are often expensive, and involve risks into whether or not they are effective. As a result, this thesis has opened the door for potential further academic research into the importance of autonomy.

6.2.6. Overall contribution

Overall, knowledge has been created for both the CRM and OB academic domains. Books such as those of (Griffin & Moorhead, 2014) could make use of the knowledge that work engagement is an important mediator in the relationship between organizational resources and service climate. Moreover, the research by (Payne & Frow, 2005) can be extended to include that a CRM strategy, with in particular the enhancement of customer loyalty, is dependent on both employee performance and service quality. Their model focusses significantly on methods which define a CRM strategy, yet the method of stimulating employee satisfaction or service quality as a whole is lacking, which is surprising considering not only the results of this thesis, but also from other researchers such as (Salanova, et al., 2005) and (Brown & Lam, 2008).

Furthermore, research relating to employee and customer satisfaction, even when considering just one of these concepts is limited within the aviation context. This research is the first to attempt to create an integral model into employee and customer satisfaction into this relatively complex industry. From an academic perspective, this research can be used as a basis for further research into either employee or customer satisfaction or both.

In all, Cronbach's alpha values for most factors are good. Furthermore, significance levels of almost all effect sizes are good to very good, thereby indicating that the found results are most likely not caused by random chance. The results of the factor analysis and causal models for the 2013 part of the dataset show only slight differences in Cronbach's alpha values compared to 2014 results, adding to the reliability and repeatability of the results. Nonetheless, it should be noted that the airline industry on which the case was based is rapidly changing. Relationships are likely to be effected due to changes in customer and employee behaviour as part of industry changes. The research results may therefore change in the (near) future when the research would be repeated.

6.3. Practical relevance

The model as depicted in Figure 44 indicates that customer loyalty can be enhanced by e.g. improving organizational resources and the actual level of service. How can this be achieved and what are the considerations? This paragraph attempts to answer these questions.

6.3.1. Using organizational resources

The model has proven that organizational resources are capable of positively influencing service climate, and it is ought to ultimately positively influence customer loyalty. This knowledge can be used in practice by enhancing organizational resources. Upon considering which organizational resource to improve, i.e. training, autonomy, technology or an organizational specific resource, airlines must realize that this research made use of information that was provided by KLM Royal Dutch Airlines. Their employee satisfaction questionnaire results may prove to be insufficient to be used by other airlines, e.g. due to differences in culture. However, this research has shown that different types of organizational resources could contribute towards creating (ultimately) more loyalty, including organizational specific resources. Upon considering only the three organizational resource constructs as developed by (Salanova, et al., 2005), i.e. autonomy, technology and training, airlines should focus

efforts that enhance autonomy. Not only this research but also other research such as (Gracia, et al., 2013) have proven that autonomy is the strongest organizational resource towards enhancing service quality.

6.3.2. Effectively using engagement

Whereas work engagement is made up out of three components i.e. vigour, dedication and absorption, this research has proven that dedication has the largest effect on service climate. As a result, when organizational resources are developed or enhanced to stimulate engagement, managers should implement resources that stimulate the dedication element of work engagement. As an example, various American and British police forces make use of police cars that contain the text "proud to serve", thereby enhancing public visibility of the dedication of the police officers.

6.3.3. Connection with the KLM RPI model

Once the missing link between service climate and service quality has been determined, the model could be connected with another important model used by KLM: the RPI model. With the complete model for employee and customer satisfaction, it would be possible to determine the effect size of various factors on RPI. Connecting the RPI model would allow KLM to determine the monetary value of the effect. This value could subsequently be used to determine which factor should be stimulated to maximize investment versus profits. Possibly, the model of (Rust & Zahorik, 1993) can be used for selecting which resource to improve. Should it prove to be difficult to connect the entire model of employee and customer satisfaction with the RPI model, as an alternative, the model of (Hellier, et al., 2003) as presented in paragraph 3.7.7 could be used.

6.3.4. Creating a better relationship with the customer

This research has unveiled various interesting facts about the relationship between employee and customer satisfaction. Nonetheless, this research has been unable to fully answer the main research question. The unknown link between service climate and service quality is a central missing piece. However, answering the main research question may never become fully possible. Upon understanding the various aspects that are involved with the relationship, it becomes clear that on a macro scale the relationship could possibly be well established. Knowing the satisfaction of an average employee and average customer allows a researcher to establish the average relationship between the two. But as shown, there is a large difference between aggregated and raw dataset models. In order for organisations such as KLM to achieve a truly customer intimate interaction between the employee and customer, the analysis would have to be extended to a micro scale, thereby understanding the relationship between an individual employee and individual customer interacting personally with each other, including various forces acting on this relationship such as culture, environment, procedures and regulations. Such a research would require vast and therefore expensive resources which are most likely not attainable for most organizations.

6.3.5. Linking service failure to customer satisfaction

This thesis has demonstrated how service quality can be enhanced. Many organizations strive towards enhancing service quality, yet the pitfall of service failure is often ignored. Even if parts of the model as presented in Figure 44 would be used, it is important to realize how a company and its employees should act, if service failure occurs. After all, failure is human and this can happen to the best and brightest of organizations. Managers and academics should therefore not only focus on enhancing satisfaction. A more detailed example of what a possible response to service failure could be is provided in Appendix U.

6.4. Directions for further research

Specific elements of this research need to be improved before the research results can be applied effectively in a working (business) environment. Therefore, this paragraph provides entertaining suggestions for further research.

6.4.1. Improving the model to include the missing link

The link between service climate and service quality is missing in the research. As a result, (direct) effect sizes between the constructs is unknown and total effect sizes of e.g. organizational resources on customer loyalty cannot be established. Due to this missing link, the model and therefore the research is incomplete. Even though existing literature can be used to assume there is a link, no proof exists that this link is also applicable specifically for the long haul airline industry.

The model should be improved to include the missing link between service climate and service quality. If this gap is to be filled, employee and customer satisfaction levels would have to be measured at the same time. Otherwise determining the differences in perception might prove to be difficult. Conducting such a research would probably require vast resources, since there are significant differences between the types of customers that make use of airline services. The alternative would be to apply a model similar to the one developed by (Liou, 2009). This model predicts the buying behaviour of customers based on various elements of the service quality. Such knowledge could be used to close the gap between service climate and service quality. Nonetheless, such a research would be incapable of determining the causal relation between service climate and service quality.

If further research were to be conducted to determine the missing link between service climate and service quality, this research is likely to deal with the perception of service. As a result, existing research should can be taking into account, thereby reducing the efforts required to gain knowledge on the missing link. As an example research performed by (Fan & Du, 2010) can be considered.

By making use of the Big-Five theory and an adjusted SERVQUAL scale developed by (Cho, 2006) as referenced by (Fan & Du, 2010) containing only three dimensions of service quality (responsiveness, assurance and reliability), the authors of (Fan & Du, 2010) studied how service perceptions are influenced by personality traits. It was found that personality traits moderate the effects of the dimensions of perceived service quality on overall service quality. Since the research of (Fan & Du, 2010) made use of a convenience sample and only collected data from undergraduate students at a Chinese university. The results of the study may not be generalizable and further research is required to establish the relationship of personality and perceived service quality. Nevertheless, the methods applied by (Fan & Du, 2010) could be used as a basis.

6.4.2. Improving causality effects

It was not possible to obtain a raw dataset of the customer satisfaction questionnaire used to fill e-Score. Causal model results for employee satisfaction show substantial differences between the aggregated and raw datasets. The same is likely to be the case if the current research results based on the aggregated dataset for customer satisfaction would be compared with the raw dataset for customer satisfaction. Due to the usage of an aggregated dataset for customer satisfaction, there is an unknown level of unreliability in the research results. Whereas the relationship for the employee satisfaction part of the model is relatively certain, the customer satisfaction part is not. A raw dataset with individual customer responses must be obtained to determine with an acceptable level of certainty how service quality, employee performance and customer loyalty are related.

6.4.3. Establishing the relationship between burnout and engagement

As described in paragraph 6.2.4, further research should be performed into the relationship between burnout and engagement. By first studying whether or not absorption should be omitted from the

work engagement scale, valuable insights can be determined whether as argued by (Bakker & Leiter, 2010) highly absorbed employees could develop a burnout. With this knowledge, managers and academics can possibly better understand how a burnout can be prevented, and which forms of engagement should be stimulated.

6.4.4. Understanding the importance of autonomy

This thesis provides an addition to (Gracia, et al., 2013) into the importance of autonomy. Further academic research is required to establish the importance of autonomy as an organizational resource. The potential benefits of understanding the importance of autonomy would entail that by means of reduced costs (due to less need to training and technology), a higher level of employee and ultimately customer satisfaction can be obtained. Additional research could also focus on autonomy itself, knowing if and how the stimulation of specific elements of autonomy could lead to even higher satisfaction levels instead of stimulating just overall autonomy.

6.4.5. Effect of organizational commitment on service climate

This thesis has found that dedication is the strongest work engagement scale. Organizational commitment has been found to be a significant predictor of engagement in literature (Schaufeli & Bakker, 2004a); (Hakenen, et al., 2006); (Richardsen, et al., 2006). Organizational commitment and dedication may therefore be closely related. It is recommended for further research to establish if organizational commitment has a significant direct effect on service climate.

6.4.6. Stimulating vigour with colleague support

This research did not focus on specific resources such as colleague support, which was found to be an important organizational resource for flight attendants after research by (Xanthopoulou, et al., 2008). The finding of (Xanthopoulou, et al., 2008) may be empirically established, it does not contribute to better levels of work engagement at the average airline since the employees that make up the cabin crew change constantly; inhibiting employees to get to know each other well. However, for this thesis questions relating to colleagues had factor loadings that were found to make up the vigour scale. Vigour was ultimately found to have a moderate effect on service climate. With the knowledge from this thesis, it could be argued that possibly the vigorous elements of colleague support can be used to gain higher levels of vigour and ultimately work engagement. Further research is therefore recommended to establish if this is the case.

6.4.7. Improving the questionnaire

Factors such as technology, autonomy and training are based on only two questions each. Especially when considering the questions of (Salanova, et al., 2005) as described in paragraph 2.2, it is questionable if the constructs are covered sufficiently in the model. Furthermore, some questions could be interpreted differently adding to the uncertainty of the questionnaire used. Since the research was dependent on using existing data, the results of this research may change significantly when asking well-established questions.

To enhance the model, it would be required to gain better understanding of the satisfaction levels of every employee. By doing so, no self-made questions or questions developed by a research company such as Ipsos should be used. These type of questions have not been scientifically proven in terms of relevance and reliability. The resultant is only an extended questionnaire that takes more time for the employee to fill in, for companies like Ipsos to process (and therefore induce higher costs on KLM) and for managers to understand the answers, if this is possible at all. Well-established and proven questions should be asked, such as those used by (Salanova, et al., 2005). Furthermore, it is recommended to KLM to instruct Ipsos to stop presenting the answers to questions of the EMO as a percentage of questions which have been answered positively. Presenting results in this fashion could result in unwanted (and unsupported) conclusions and interfere with future research conclusions.

6.4.8. Continued review of employee satisfaction

Whereas at KLM customers are asked about their opinion on a continued basis, employees are not. The changing conditions that are applicable to customers are to a certain extend also applicable to employees, yet currently employees are not continuously asked about their opinion. Applying a similar data collection technique for employees, as used for e-Score, (i.e. asking 10% of the passengers after each flight to wander only a part of the available questionnaire) would make it easier for a researcher to actually link the environment in which employee and customer behave. From a cost perspective, perhaps the e-Score system itself could be used to collect such data. It would after all facilitate the reliability and validity of future research.

6.4.9. Creating an alternative to SERVQUAL

The SERVQUAL model created by (Parasuraman, et al., 1988) is old and has been criticised in literature (Buttle, 1996). Nonetheless, research by (Gracia, et al., 2013), (Prayag, 2007) and (Tsaura, et al., 2002) make use of this model. Because their research is based on this criticised model, it is relatively easy and warranted if academics criticise their work. Because of the absence of a good alternative to the SERVQUAL model, research into the field of service quality is obstructed. It is therefore recommended to develop a new, more reliable alternative to the existing service quality model.

6.4.10. Improving the construct scales

Management resources in terms of unit manager and (senior) purser were found to each represent a factor that was capable of influencing the relationship of interest. It is therefore proposed that research is conducted to determine whether training, technology and autonomy are actually sufficient to grasp the construct of organizational resources. Also for service climate two unidentified factors were determined. If research would be performed to determine possible underlying constructs of service climate, this could possibly facilitate the development of a new enhanced model into service quality opposed to the currently criticized SERVQUAL model.

6.4.11. Caution with dataset extraction and creation

As described in paragraph 4.2.2.6, caution should be applied when creating a dataset or extracting information as existing systems used to extract data (e-Score) contain errors and could lead to misinterpretation of the data. Furthermore, due to the time required and the risks of copying errors involved to create a dataset, existing data collection systems for both employee and customer satisfaction at KLM should be enhanced to allow for direct data export to common dataset file formats for statistical software besides comma separated value (.csv) or Excel (.xls).

6.4.12. Repeating the study for different organizations

The study results could be enhanced in terms of generalizability if the study would be repeated for different organizations. At Air France-KLM, the study could be repeated internally for Air France, Transavia Netherlands and Transavia France. Moreover, if the study could be repeated within other service industries besides restaurants, hotels and airlines, this would contribute to the overall understanding of the relationship between employee and customer satisfaction.

6.5. Conclusions

The research started with the question of "What is the relationship between employee satisfaction of cabin crew and customer satisfaction within the airline industry for the long haul, legacy carrier market?"

Being a legacy carrier that operates long haul routes, a case provided by KLM Royal Dutch airlines was used to answer the main research question. It was found that KLM has extensive knowledge of both employee and customer satisfaction. Both sources of knowledge are widely used throughout the organisation but as of yet, no attempts were made to connect these data sources.

The research started with the premise that the model of (Salanova, et al., 2005) could be applicable to the airline industry. By using this model as a basis, both employee and customer satisfaction data sources provided by KLM could be connected to test various hypotheses.

By using employee satisfaction data, the relation between organizational resources, employee engagement and service climate could be determined. This revealed that organizational resources is positively related to work engagement; work engagement is positively related to service climate; and organizational resources is not directly related to service climate, and as a result work engagement is a mediator in the relationship between organizational resources and service climate.

By using customer satisfaction data, the relation between employee performance and customer loyalty could be determined. However, since the dataset contained more information, the construct of service quality was added. This revealed that as hypothesised employee performance is positively related to customer loyalty. Nonetheless, due to insufficient information the hypotheses of "service climate is not related to employee performance" and "customer loyalty is not related to service climate" could not be tested. Nonetheless, on the basis of research performed by (Brown & Lam, 2008) it is assumed that there is a relationship between service climate and employee performance.

Because of usage of an aggregated dataset for customer satisfaction, the reliability of the results is questionable. Also the fact that several questions of the employee satisfaction dataset may not measure the intendent construct, further research is required to actually determine if the relationship between organizational resources, work engagement, service climate, employee performance and customer loyalty as defined by (Salanova, et al., 2005) holds true. Nonetheless, despite possible reliability issues, on the basis of other research, there is a substantial chance that the relationship is applicable to KLM and thereby to the airline industry. The only element of the model of the relationship between employee and customer satisfaction that could not be tested is the relationship between service climate and service quality. In order to understand this relationship data would have to be collected in parallel for employees and customers.

7. Bibliography

AFKL Customer Insight, 2013. *Dapresy reporting tool for expert & Key Users,* Amstelveen: Air France-KLM.

Air France-KLM, 2013. *Registration Document 2013.* s.l.:Air France-KLM.

Air France-KLM, 2014. *Vacature CRM Strategy.* Schiphol-Oost: s.n.

Air France-KLM, 2015. *Air France-KLM Financial Year 2015: First Quarter results..* [Online]
Available at: http://news.klm.com/airfrance-klm-financial-year-2015-first-quarter-results-en
[Accessed 09 05 2015].

Anon., 2015. *Stress.* [Online]
Available at: http://www.oxforddictionaries.com/definition/english/stress

Bakker, A. & Leiter, M., 2010. Where to go from here? Integration and future research on work engagement.. In: A. Bakker & M. Leiter, eds. *Work engagement: A handbook of essential theory and research..* New York: Psychology Press, pp. 181-196.

Belleghem, S. V., 2014. *Niet meer kiezen tussen operational excellence en customer intimacy.* [Online]
Available at: http://www.marketingfacts.nl/berichten/niet-meer-kiezen-tussen-operational-excellence-en-customer-intimacy
[Accessed 22 04 2015].

Bloomberg, 2015. *Executive Profile Angela Ahrendts.* [Online]
Available at:
http://www.bloomberg.com/research/stocks/people/person.asp?personId=2015350&ticker=BRBY:LN
[Accessed 14 07 2015].

Bolton, R., 1998. A dynamic model of the duration of the customer's relationship with a continuous service provider: The role of satisfaction. *Marketing Science,* pp. Volume 17, Issue 1, Pages 45-65.

Brown, S. P. & Lam, S. K., 2008. A Meta-Analysis of Relationships Linking Employee Satisfaction to Customer Responses. *Journal of Retailing,* 84(3), p. 243–255.

Buttle, F., 1996. SERVQUAL review, critique, research agenda. *European Journal of Marketing,* 30(1), pp. 8-32.

Buttle, F. A., 2001. The CRM Value Chain. *Marketing Business,* pp. (February) 52-55.

Cho, M., 2006. *The Relationship between Customers' Personalities and Their Evaluation of Service Quality,* Columbia: University of Missouri-Columbia.

Couldwell, C., 1999. Loyalty Bonuses. *Marketing Week,* pp. (February 18), 14.

Cretel, S. & Lang, J., 2014. *What are our customers' needs?,* s.l.: Air France-KLM.

Customer Relation and Interactions (AMS/MD), Customer Insights (AMS/MQ), 2015. *Easy Customer Dashboard,* Amstelveen: KLM Royal Dutch Airlines.

de Waard, P., 2015. *KLM en Shell populaire werkgevers, Efteling snelste stijger.* [Online]
Available at: http://www.volkskrant.nl/economie/klm-en-shell-populaire-werkgevers-efteling-

snelste-stijger~a4042983/
[Accessed 14 07 2015].

DeKay, F., Toh, R. & Raven, P., 2009. Loyalty programs: Airlines outdo hotels. *Cornell Hospitality Quarterly,* pp. Volume 50, Issue 3, Pages 371-382.

Demerouti, E., Bakker, A. B., Nachreiner, F. & Schaufeli, W. B., 2001. The job demands–resources model of burnout. *Journal of Applied Psychology,* Volume 86, p. 499–512.

Dick, A. & Basu, K., 1994. Customer loyalty: Toward an integrated conceptual framework. *Journal of the Academy of Marketing Science,* 22(2), pp. 99-113.

Dolnicar, S., Grabler, K., Grün, B. & Kulnig, A., 2011. Key drivers of airline loyalty. *Tourism Management,* pp. Volume 32, Issue 5, Pages 1020-1026.

Donthu, N. & Yoo, B., 1998. Cultural Influences on Service Quality Expectations. *Journal of Service Research,* 1(2), pp. 178-186.

Dr.Ir. Broekhans, B., 2013. *Decision making, lecture 1: Introduction + analytical perspective,* Delft: Faculty of Technology, Policy and Management, TU Delft.

Effectory & Intermediair, 2015. *Top 5 Multinationals.* [Online]
Available at: http://www.beste-werkgevers.nl/beste-werkgevers/top-5-multinationals/
[Accessed 14 07 2015].

Elbers, P., 2015. *CEO Column, 28 januari,* Amstelveen: KLM Royal Dutch Airlines.

Emirates, 2015. *Flying with Emirates.* [Online]
Available at: http://www.emirates.com/english/flying/flying_with_emirates.aspx
[Accessed 12 05 2015].

Fan, X. & Du, Y., 2010. *How do Consumer Personality Traits affect their Perceptions and Evaluations of Service Quality?.* Shanghai, 2010 International Conference on Service Sciences.

Fortune, 2015. *Most Admired 2015.* [Online]
Available at: http://fortune.com/worlds-most-admired-companies/southwest-airlines-7/
[Accessed 12 5 2015].

Geert-hofstede.com, 2015. *Dimensions - Geert Hofstede.* [Online]
Available at: http://geert-hofstede.com/national-culture.html
[Accessed 01 06 2015].

Glazer, R., 1997. Strategy and Structure in Information-Intensive Markets: The Relationship Between Marketing and IT. *Journal of Makret Focused Management,* pp. 2 (1), 65-81.

Gracia, E., Salanova, M., Graub, R. & Cifre, E., 2013. How to enhance service quality through organizational facilitators, collective work engagement, and relational service competence. *European Journal of Work and Organizational Psychology,* 22(1), pp. 42-55.

Greco, P., Laschinger, H. & Wong, C., 2006. Leader empowering behaviors, staff nurse empowerment and work engagement/burnout. *Nursing Leadership 19 (4),* pp. 41-56.

Griffin, R. W. & Moorhead, G., 2014. *Organizational Behavior, Managing People and Organizations.* Mason, OH: South-Western, Cengage Learning.

Hakenen, J., Bakker, A. & Schaufeli, W., 2006. Burnout and work engagement among teachers. *Journal of School Psychology,* Volume 43, p. 495–513.

Harter, J., Schmidt, F. & Hayes, T., 2002. Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: a meta-analysis. *Journal of Applied Psychology 87 (2),* p. 268–279.

Harter, J., Schmidt, F. & Keyes, C., 2003. *Well-being in the workplace and its relationship to business outcomes: a review of the Gallup studies.* Washington, DC: American Psychological Association.

Hayes, A. F., 2013. *Introduction to Mediation, Moderation and Conditional Process Analysis: A Regression-Based Approach.* New York: The Guilford Press.

Hayes, A. F., 2013. *Model Templates for PROCESS for SPSS and SAS.* [Online]
Available at: http://www.afhayes.com/public/templates.pdf
[Accessed 8 07 2015].

Hayes, A. F., 2014. *The PROCESS macro for SPSS and SAS.* [Online]
Available at: http://www.processmacro.org/download.html
[Accessed 8 7 2014].

Hellier, P. K., Geursen, G. M., Carr, R. A. & Rickard, J. A., 2003. Customer repurchase intention: A general structural equation model. *European Journal of Marketing,* 37(11/12), pp. 1762-1800.

History.co.uk, 2013. *Henry Ford.* [Online]
Available at: http://www.history.co.uk/biographies/henry-ford
[Accessed 14 07 2015].

Hobby, J., 1999. Looking After the One Who Matters. *Accountacy Age,* pp. (October 28), 28-30.

Ipsos, 2014. *Employee Monitor 2014 IFS - Cabine,* Schiphol: KLM Royal Dutch Airlines.

Kahn, W., 1990. Psychological conditions of personal engagement and disengagement at work. *Academy of Management 33 (4),* p. 692–724.

KLM Royal Dutch Airlines, 2010. *Bereid uw reis voor | Welkom aan boord | Stoelindelingen | Boeing 777-200ER.* [Online]
Available at: http://www.klm.com/travel/nl_nl/prepare_for_travel/on_board/seating_plans/777-200ER.htm
[Accessed 02 06 2015].

KLM Royal Dutch Airlines, 2014. *Air France KLM.* [Online]
Available at: http://www.klm.com/corporate/en/about-klm/air-france-klm/
[Accessed 16 Dec 2014].

KLM Royal Dutch Airlines, 2014. *Flightplan Presentatie Perform 2020, KLM Personeelsbijeenkomst 27 november & 4 december,* Hoofddorp: KLM.

KLM Royal Dutch Airlines, 2015. *Annual Report 2014.* [Online]
Available at: http://www.klm.com/corporate/nl/images/KLM_annual_report_2014_tcm730-579492.pdf
[Accessed 03 08 2015].

KLM Royal Dutch Airlines, 2015. *Flight plan 2015,* Amstelveen: KLM Royal Dutch Airlines.

Klunder, M., 2015. *Cabin Crew Management* [Interview] (06 08 2015).

Koyuncu, M. B. & R.J., F. L., 2006. Work engagement among women managers and professionals in a Turkish bank: potential antecedents and consequences. *Equal Opportunities International 25,* p. 299–310.

Leahey, C., 2012. *Angela Ahrendts: The secrets behind Burberry's growth.* [Online]
Available at: http://fortune.com/2012/06/19/angela-ahrendts-the-secrets-behind-burberrys-growth/
[Accessed 14 07 2015].

Leiter, M. P. & Maslach, C., 2003. *Areas of worklife: a structured approach to organizational predictors of job burnout..* Oxford: Emerald Group Publishing Limited.

Lewis, B. R. & Mitchell, V. W., 1990. Defining and Measuring the Quality of Customer Service. *Marketing,* 8(6), pp. 11-17.

Lewis, R. C. & Booms, B. H., 1983. *The Marketing Aspects of Service Quality.* s.l.:American Marketing.

Liou, J., 2009. A novel decision rules approach for customer relationship management of the airline market. *Expert Systems with Applications,* Volume 36(Issue 3 PART 1), pp. 4374-4381.

Llorens, S., Bakker, A., Schaufeli, W. & Salanova, M., 2006. Testing the robustness of the job demands–resources model. *International Journal of Stress Management,* Volume 13, p. 378–391.

Maslach, C., Jackson, S. & Leiter, M., 1996. *Maslach Burnout Inventory: Manual.* Palo Alto, CA.: Consulting Psychologists Press.

Maslach, C. & Leiter, M., 1997. *The Truth About Burnout.* San Francisco: Jossey-Bass.

Mauno, S., Kinnunen, U. & Ruokolainen, M., 2007. Job demands and resources as antecedents of work engagement: a longitudinal study. *Journal of Vocational Behavior,* Volume 70, p. 149–171.

May, D., Gilson, R. & Harter, L., 2004. The psychological conditions of meaningfulness, safety and availability and the engagement of the human spirit at work. *Journal of Occupational and Organizational Psychology 77 (1),* pp. 11-37.

Nunes, P. F., 2005. The risk of customer intimacy. *MIT Sloan Management Review,* pp. Vol 47, No 1, 15-19.

Parasuraman, A., Zeithaml, V. A. & Berry, L. L., 1988. SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality. *Journal of Retailing,* 64(1), pp. 12-40.

Parvatiyar, A. a. J. N. S., 2001. Conceptual Framework of Customer Relationship Management. In: *Customer Relationship Management - Emerging Concepts, Tools and Applications.* New Dheli: Tata/McGraw-Hill, pp. 3-25.

Payne, A. & Frow, P., 2005. A strategic framework for customer relationship management. *Journal of Marketing,* Volume 69(Issue 4), pp. 167-176.

Peppers, D. a. M. R., 1993. The One to One Future. In: *Is Your Company Ready for One-to-One Marketing.* London: Harvard Business Review 77 (January-February), pp. 151-60.

Petrone, P., 2013. *How Southwest Hires: Taking Fun Seriously.* [Online]
Available at: http://voiceglance.com/how-southwest-hires-taking-fun-seriously/
[Accessed 10 05 2015].

Prayag, G., 2007. Assessing international tourists' perceptions of service quality at Air Mauritius. *Journal of Quality & Reliability Management,* 24(5), pp. 492-514.

Reichheld, F., 1993. Loyalty-based management. *Harvard Business Review,* pp. Volume 71, Issue 2, Pages 64-73.

Richardsen, A., Burke, R. & Martinussen, M., 2006. Work and health outcomes among police officers: the mediating role of police cynicism and engagement. *International Journal of Stress Management,* Volume 13, p. 555–574.

Robbins, S. P. & Judge, T. A., 2012. *Essentials of Organizational Behavior.* Harlow, UK: Pearson Education Limited.

Rust, R. T. & Zahorik, A. J., 1993. Customer Satisfaction, Retention and Market Share. *Journal of Retailing,* pp. Volume 69, Issue 2, Pages 193-215.

Salanova, M., Agut, S. & Peiró, J. M., 2005. Linking Organizational Resources and Work Engagement to Employee Performance and Customer Loyalty: The Mediation of Service Climate. *Journal of Applied Psychology,* pp. Vol. 90, No. 6, 1217–1227.

Santos, D. B. L. d., 2014. *Lecture 1: Airline Industry Context, AE4443,* Delft: TU Delft.

Schaufeli, W. & Bakker, A., 2004a. Job demands, job resources and their relationship with burnout and engagement: a multisample study. *Journal of Organizational Behavior,* Volume 25, p. 293–315.

Schaufeli, W. & Bakker, A., 2004b. *Utrecht work engagement scale: version 1.1, Preliminary Manual.* s.l.:Psychology Unit, Utrecht University.

Schaufeli, W., Salanova, M., Gonzalez-Roma, V. & Bakker, A., 2002. The measurement of engagement and burnout: a confirmative analytic approach. *Journal of Happiness Studies,* Volume 3, p. 71–92.

Schaufeli, W., Salanova, M., Gonzalez-Roma, V. & Bakker, A., 2002. The measurement of engagement and burnout: a confirmative analytic approach.. *Journal of Happiness Studies 3,* pp. 71-92.

Schneider, B., White, S. S. & Paul, M. C., 1998. Linking Service Climate and Customer Perceptions of Service Quality: Test of a Causal Model. *Journal of Applied Psychology,* 83(2), pp. 150-163.

Simpson, M. R., 2009. Engagement at work: A review of the literature. *International Journal of Nursing Studies,* pp. 46, 1012–1024.

Singh, D. a. D. A., 2003. CRM Practices in Indian Industries. *International Journal of Customer Relationship Management,* pp. 5, 241-57.

Sixsigma.nl, 2015. *Sixsigma.nl.* [Online]
Available at: http://www.sixsigma.nl/wp-content/uploads/2015/05/3_calculate-your-score.jpg
[Accessed 04 06 2015].

Stone, M. a. N. W., 2001. Defining CRM and Assessing its Quality. *Successful Customer Relationship Marketing,* pp. 3-20.

Swift, R. S., 2000. *Accelerating Customer Relationships - Using CRM and Relationship Technologies.* Upper Saddle River, NY: Prentice Hall.

Taşkent, Z., 2015. *Creating Loyalty Through Total Customer Satisfaction.* Istanbul, Turkish Airlines.

Treacy, M. & Wiersema, F., 1993. Customer Intimacy and Other Value Disciplines. *Harvard Business Review,* pp. Issue January-February, 84-93.

Tsaura, S.-H., Changb, T.-Y. & Yena, C.-H., 2002. The evaluation of airline service quality by fuzzy MCDM. *Tourism Management,* Volume 23, p. 107–115.

Uncles, M. D., Dowling, G. R. & Hammond, K., 2003. Customer loyalty and customer loyalty programs. *Journal of Consumer Marketing,* 20(4), pp. 294-316.

Vaerenbergh, Y. V., Orsingher, C., Vermeir, I. & Larivière, B., 2014. A Meta-Analysis of Relationships Linking Service Failure Attributions to Customer Outcomes. *Journal of Service Research,* 17(4), pp. 381-398.

van Doorn, J., Leeflang, P. S. & Tijs, M., 2013. Satisfaction as a Predictor of Future Performance: A Replication. *International Journal of Research in Marketing,* 30(3), p. 314–318.

Weiner, B., 2000. Attributional thoughts about consumer behavior. *Journal of Consumer Research,* 27(3), p. 382.

Wu, Y.-C., Tsai, C.-S., Hsiung, H.-W. & Chen, K.-Y., 2015. Linkage between frontline employee service competence scale and customer perceptions of service quality. *Journal of Services Marketing,* 29(3), pp. 224-234.

Xanthopoulou, D. et al., 2008. Working in the Sky: A Diary Study on Work Engagement Among Flight Attendants. *Journal of Occupational Health Psychology,* 13(4), pp. 345-356.

Xanthopoulou, D., Bakker, A., Demerouti, E. & Schaufeli, W., 2007. The role of personal resources in the job demands–resources model. *International Journal of Stress Management,* Volume 12, p. 121–141.

Yim, C. K. (., Tse, D. K. & Chan, K. W., 2008. orgStrengthening Customer Loyalty through Intimacy and Passion: Roles of Customer—FirmAffection and Customer—Staff Relationships in Services. *Journal of Marketing Research,* 46(6), pp. 741-756.

Zeithaml, V. A., Berry, L. L. & Parasuraman, A., 1996. The Behavioral Consequences of Service Quality. *Journal of Marketing,* 60(2), pp. 31-46.

Appendix A OB Framework & Contributions

This appendix provides additional information on organizational behaviour (OB) by outlining a framework of OB as developed by (Griffin & Moorhead, 2014) as well as indicating which behavioural sciences contribute to OB.

The study of OB is dependent on the environment in which the study takes place. Every organisation has different characteristics in terms of e.g. use of technology, cultural diversity, ethical conduct, (type of) employment and the extend to globalize the product or service the organisation provides. Once the environment is known, the three areas as described in paragraph 2.1.1 come into play. Since these areas are of high importance to understanding OB, this paragraph explains the three areas by using the framework of OB of (Griffin & Moorhead, 2014) which is depicted in Figure 45. Each part of the framework is briefly explained in the text below the diagram.

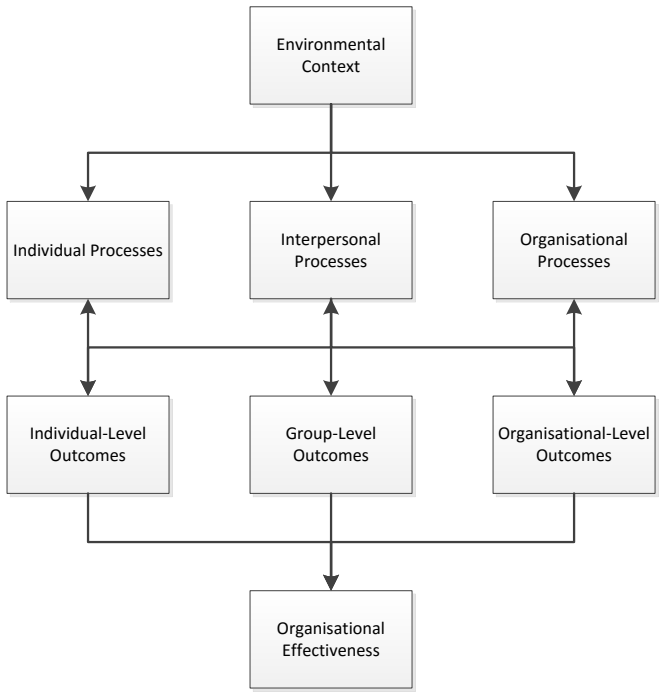


Figure 45 - Framework of OB (Griffin & Moorhead, 2014)

First, there are individual processes, which includes individual behaviour, motivation, employee performance, work stress and decision making. Individual behaviour is defined by elements of personal attitude, perception, phycology, emotion, and the workplace itself. (Griffin & Moorhead, 2014) Motivation is defined by (Griffin & Moorhead, 2014) as "*the set of forces that causes people to engage in one behaviour rather than some alternative behaviour*". Employee performance is how and to what extend employees execute their activities for the organisation. Stress is "*a state of mental or emotional strain or tension resulting from adverse or demanding circumstances*". (Anon., 2015) Work stress refers to a similar condition only than related to the job of a person. "*A problem is a distinction between an observed condition and a desired condition*." Decision making is "*part of a process leading to some kind of solution to a (perceived) problem.*" (Dr.Ir. Broekhans, 2013)

Secondly, there are interpersonal processes, which includes, leadership, politics and power, communication, groups and teams, conflict and negotiations. Leadership is defined by (Robbins & Judge, 2012) as "*the ability to influence a group toward the achievement of a vision or set of goals*". And politics is defined as "*when employees convert their power into action to exert influence, earn rewards, and advance their careers*". Power is defined by (Robbins & Judge, 2012) as "*a capacity that*

A has to influence the behaviour of B so that B acts in accordance with A's wishes". A group is "*two or more individuals, interacting and interdependent, who have come together to achieve particular objectives*" whereas a team is "*a group whose individual efforts result in a performance that is greater than the sum of the individual inputs*". (Robbins & Judge, 2012) A conflict is a "*process that begins when one party perceives that another party has negatively affected, or is about to negatively affect, something that the first party cares about*". (Robbins & Judge, 2012)

And thirdly, there are organisational processes. These involve the structure, culture and change of the organisation. A structure defines "*how job tasks are formally divided, grouped and coordinated*". (Robbins & Judge, 2012) Important topics within organisational structures are formalization, centralisation, specialisation and responsibility. (Griffin & Moorhead, 2014)

(Robbins & Judge, 2012) have created an overview of which contributions four behavioural sciences, i.e. psychology, social psychology, sociology and anthropology, have made towards OB. Their overview is provided in Figure 46 to further strengthen what OB entails.

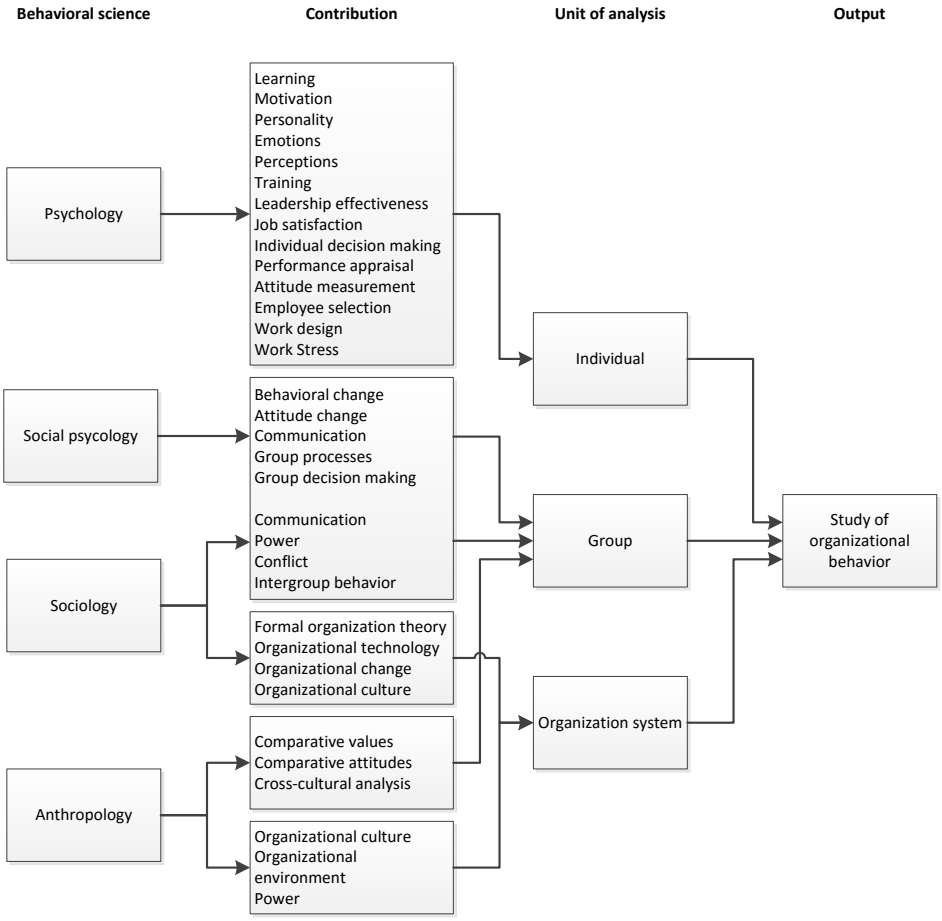


Figure 46 - Major contributions to OB (Robbins & Judge, 2012)

Appendix B CRM Framework

The conceptual framework as developed by (Payne & Frow, 2005) is presented in the figure below.

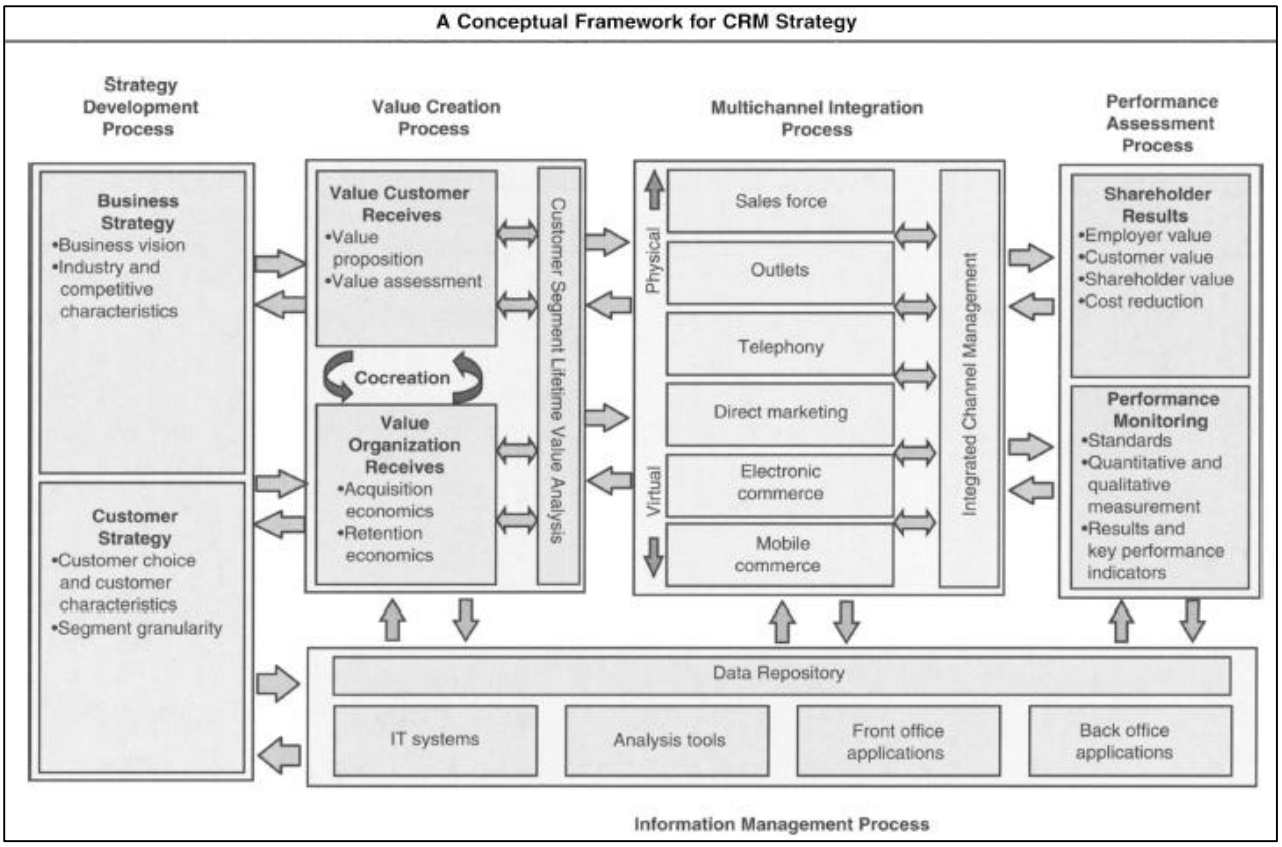


Figure 47 - Conceptual framework for CRM strategy obtained from (Payne & Frow, 2005).

Appendix C Differentiating between a job demand and job resource

The b) part of the definition of a job resource as described by (Demerouti, et al., 2001, p. 501) (see paragraph 2.3) indicates that a job resource is to reduce job demands and the associated physiological and psychological costs. It is therefore important to understand the difference between what is a job resource and a job demand. (Demerouti, et al., 2001) have developed the job demands-resources (JD-R) model. This model categorises working conditions into two categories, namely job demands and job resources. Job demands are in general positively related to exhaustion. Job resources are in general negatively related to disengagement. The model is presented graphically in Figure 48.

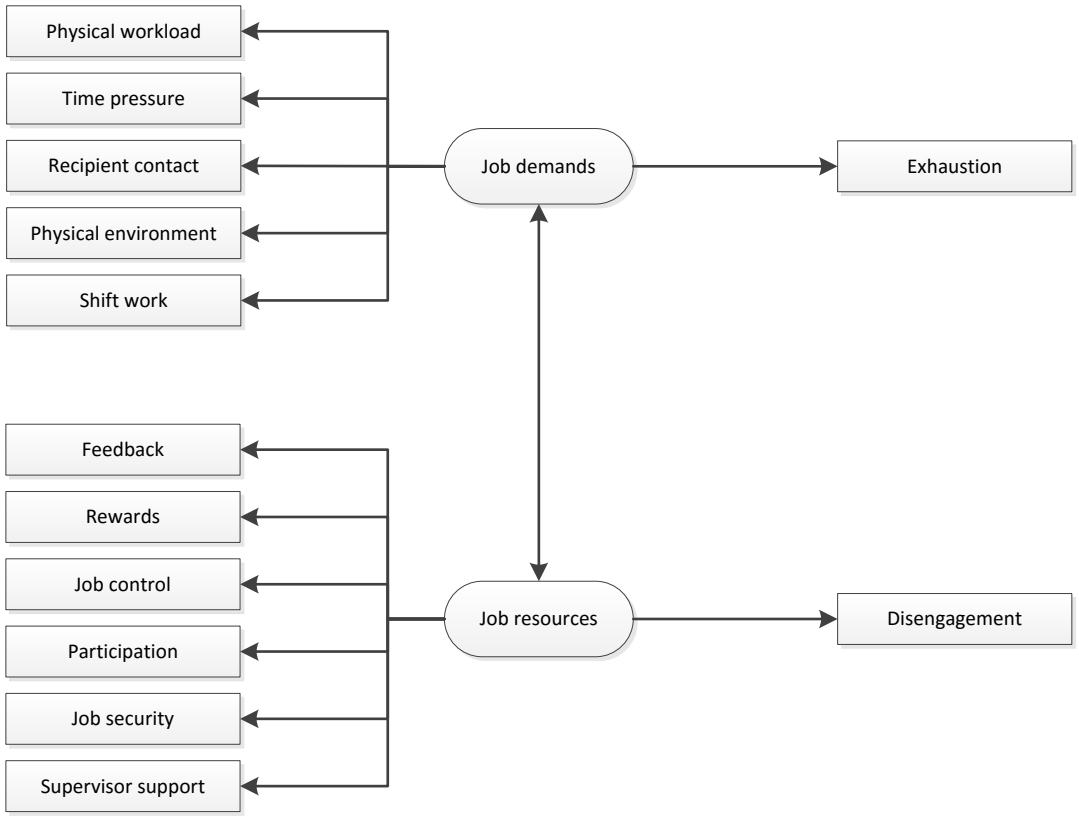


Figure 48 - The JD-R model, adapted from (Demerouti, et al., 2001, p. 502)

Appendix D List of e-Score inflight indicators, including categorization and found factors

This appendix provides an overview of all inflight indicators that are available in e-Score, including the categorization of each indicator. Subsequently, the name given to the factor containing the indicator has been presented in the final column.

Indicator	Main category	Sub category	Found factor Name
1 Overall Satisfaction	Customer loyalty	Customer loyalty	Customer Loyalty
2 Value for money	Customer loyalty	Customer loyalty	Customer Loyalty
3 Repurchase intention	Customer loyalty	Customer loyalty	Customer Loyalty
4 NPS Mean value	Customer loyalty	Customer loyalty	Customer Loyalty
5 Overall Inflight	Service Quality	Customer loyalty	Customer Loyalty
6 Special and Valued customer	Employee performance	Crew	Crew
7 Overall Cabin Crew	Employee performance	Crew	Crew
8 Personal attention of Cabin crew	Employee performance	Crew	Crew
9 Courtesy/ helpfulness of Cabin crew	Employee performance	Crew	Crew
10 Responsiveness of Cabin crew	Employee performance	Crew	Crew
11 Language skills of Cabin crew	Employee performance	Crew	Crew
12 Information given by Crew	Employee performance	Crew	Crew
13 Information given by Cockpit	Employee performance	Crew	Crew
14 Overall F&B (LH - Front)	Service Quality	Food & Beverage Front	Food & Beverage Front
15 Presentation of F&B (LH - Front)	Service Quality	Food & Beverage Front	Food & Beverage Front
16 Quality of entrée (LH - Front)	Service Quality	Food & Beverage Front	Food & Beverage Front
17 Quality of main course (LH - Front)	Service Quality	Food & Beverage Front	Food & Beverage Front
18 Quality of dessert (LH - Front)	Service Quality	Food & Beverage Front	Food & Beverage Front
19 Quality of 2nd meal-snack (LH - Front)	Service Quality	Food & Beverage Front	Food & Beverage Front
20 Quantity of food (LH - Front)	Service Quality	Food & Beverage Front	Food & Beverage Front
21 Wines (LH - Front)	Service Quality	Food & Beverage Front	Food & Beverage Front
22 Other beverages (LH - Front)	Service Quality	Food & Beverage Front	Food & Beverage Front
23 Service schedule of food and beverages (LH - Front)	Service Quality	Food & Beverage Front	Food & Beverage Front
24 Efficiency of service (LH - Front)	Service Quality	Food & Beverage Front	Food & Beverage Front
25 Overall F&B (LH - Rear)	Service Quality	Food & Beverage Rear	Food & Beverage Rear
26 Presentation of F&B (LH - Rear)	Service Quality	Food & Beverage Rear	Food & Beverage Rear
27 Quality of food (LH - Rear)	Service Quality	Food & Beverage Rear	Food & Beverage Rear
28 Quantity of food (LH - Rear)	Service Quality	Food & Beverage Rear	Food & Beverage Rear
29 Wines (LH - Rear)	Service Quality	Food & Beverage Rear	Food & Beverage Rear
30 Other beverages (LH - Rear)	Service Quality	Food & Beverage Rear	Food & Beverage Rear
31 Overall Comfort & Cabin features	Service Quality	Cabin comfort & Features	Cabin Comfort & Features
32 Comfort of seat	Service Quality	Cabin comfort & Features	Cabin Comfort & Features
33 Condition of cabin	Service Quality	Cabin comfort & Features	Cabin Comfort & Features
34 Cleanliness of lavatories	Service Quality	Cabin comfort & Features	Cabin Comfort & Features
35 Cleanliness of the cabin	Service Quality	Cabin comfort & Features	Cabin Comfort & Features
36 Amenities in lavatories	Service Quality	Cabin comfort & Features	Cabin Comfort & Features
37 Selection of Duty Free items (LH only)	Service Quality	Cabin comfort & Features	Cabin Comfort & Features
38 Overall Inflight Entertainment	Service Quality	Inflight Entertainment	Inflight Entertainment
39 Selection of movies	Service Quality	Inflight Entertainment	Inflight Entertainment
40 Selection of TV	Service Quality	Inflight Entertainment	Inflight Entertainment
41 Functioning of audio-video	Service Quality	Inflight Entertainment	Inflight Entertainment
42 Navigation and ease of use	Service Quality	Inflight Entertainment	Inflight Entertainment
43 Selection of newspapers	Service Quality	Inflight Entertainment	No factor found
44 Quality of picture	Service Quality	Inflight Entertainment	Inflight Entertainment
45 Quality of sound	Service Quality	Inflight Entertainment	Inflight Entertainment

Appendix E Results categorization and naming of factors based on factor analysis of the aggregated employee monitor dataset

This appendix provides an overview of all employee satisfaction questions part of the employee satisfaction aggregated dataset including the categorization of these questions. Subsequently, the name given to the factor containing the indicator has been presented. Finally, comment letters provide a reason why a specific question was omitted from the research. A description of the meaning of these letters can be found below the table.

Question (including number)	Main categorization	Sub category categorization	Found factor name	Comments*
1 Ik ben trots op KLM	Engagement	Dedication	Dedication	
<censored>	Engagement	Dedication	Dedication	
3 Ik zou mensen in mijn omgeving aanraden om bij KLM te komen werken	Engagement	Dedication	Dedication	
4 Als ik alles afweeg ben ik tevreden over KLM als werkgever	Engagement	Dedication	Dedication	
5 Ik heb plezier in mijn werk	Engagement	Dedication	Dedication	
7 In het algemeen ben ik tevreden over mijn werk	Engagement	Dedication	Dedication	
<censored>	Engagement	Absorption	Vigour / Absorption	
<censored>	Engagement	Absorption	Vigour / Absorption	
<censored>	Engagement	Absorption	Vigour / Absorption	
<censored>	Engagement	Absorption	Vigour / Absorption	
<censored>	Engagement	Vigour	Vigour / Absorption	
<censored>	Engagement	Vigour	Vigour / Absorption	
<censored>	Engagement	Vigour	Vigour / Absorption	
<censored>	Organizational Resources	Information	Information Resources	
<censored>	Organizational Resources	Information	Information Resources	
<censored>	Organizational Resources	Information	Information Resources	
<censored>	Organizational Resources	Information	Information Resources	
<censored>	Organizational Resources	Information	Information Resources	
<censored>	Organizational Resources	Information	Information Resources	
<censored>	Organizational Resources	Information	Information Resources	
<censored>	Organizational Resources	Information	Information Resources	
<censored>	Organizational Resources	Information	Information Resources	
<censored>	Organizational Resources	Information	Information Resources	
<censored>	Organizational Resources	Information	n/a	K
<censored>	Organizational Resources	Management	Management Resources	
<censored>	Organizational Resources	Management	Management Resources	
<censored>	Organizational Resources	Management	Management Resources	
<censored>	Organizational Resources	Management	Management Resources	
<censored>	Organizational Resources	Management	Management Resources	
<censored>	Organizational Resources	Management	Management Resources	
<censored>	Organizational Resources	Management	Management Resources	
<censored>	Organizational Resources	Management	Management Resources	
<censored>	Organizational Resources	Management	Management Resources	

Question (including number)	Main categorization	Sub category categorization	Found factor name	Comments*
<censored>	Organizational Resources	Autonomy	Training / Technology / Autonomy	
<censored>	Organizational Resources	Autonomy	Training / Technology / Autonomy	
<censored>	Organizational Resources	Technology	Training / Technology / Autonomy	
<censored>	Organizational Resources	Technology	Training / Technology / Autonomy	
<censored>	Organizational Resources	Technology	Training / Technology / Autonomy	
<censored>	Organizational Resources	Technology	Training / Technology / Autonomy	
<censored>	Organizational Resources	Technology	Training / Technology / Autonomy	
<censored>	Organizational Resources	Technology	Training / Technology / Autonomy	
<censored>	Organizational Resources	Technology & Autonomy	Training / Technology / Autonomy	
<censored>	Organizational Resources	Training	Training / Technology / Autonomy	
<censored>	Organizational Resources	Training	Training / Technology / Autonomy	
<censored>	Organizational Resources	n/a	n/a	G
<censored>	Organizational Resources	n/a	n/a	H
<censored>	Organizational Resources	n/a	n/a	H
<censored>	Organizational Resources	n/a	n/a	G
<censored>	Service Climate	Service Climate	Service Climate	
<censored>	Service Climate	Service Climate	Service Climate	
<censored>	Service Climate	Service Climate	Service Climate	
<censored>	Service Climate	Service Climate	No factor found	K
<censored>	Service Climate	Service Climate	Service Climate	
<censored>	Service Climate	Service Climate	Service Climate	
<censored>	Service Climate	Service Climate	Service Climate	
<censored>	n/a	n/a	n/a	A
<censored>	n/a	n/a	n/a	A
<censored>	n/a	n/a	n/a	A
<censored>	n/a	n/a	n/a	A
<censored>	n/a	n/a	n/a	A
<censored>	n/a	n/a	n/a	A
<censored>	n/a	n/a	n/a	A
<censored>	n/a	n/a	n/a	B
<censored>	n/a	n/a	n/a	B
<censored>	n/a	n/a	n/a	E
<censored>	n/a	n/a	n/a	E
<censored>	n/a	n/a	n/a	D
<censored>	n/a	n/a	n/a	C
<censored>	n/a	n/a	n/a	D
<censored>	n/a	n/a	n/a	D
<censored>	n/a	n/a	n/a	D
<censored>	n/a	n/a	n/a	E
<censored>	n/a	n/a	n/a	E
<censored>	n/a	n/a	n/a	D & E
<censored>	n/a	n/a	n/a	D & E
<censored>	n/a	n/a	n/a	E
<censored>	n/a	n/a	n/a	D & E
<censored>	n/a	n/a	n/a	D & E
<censored>	n/a	n/a	n/a	C & E
<censored>	n/a	n/a	n/a	C & E
<censored>	n/a	n/a	n/a	C & E
<censored>	n/a	n/a	n/a	C & E
<censored>	n/a	n/a	n/a	C & E
<censored>	n/a	n/a	n/a	C & E

Question (including number)	Main categorization	Sub category categorization	Found factor name	Comments*

* Comments descriptions

A - Due to significant differences between the answers of the various aircraft, this question was not part of the factor analysis

B - This question has a different scale and therefore rejected

C - This question relates mainly to a third-party and was therefore rejected

D - This question is related to a policy and therefore rejected

E - This question is not enough related to the main categories

F - This question could be interpreted differently

G - This question was rejected due to low absolute coefficient value (<0.50)
H - This question was rejected due to significant changes between the results of 2013 & 2014 (due to changes in KLM policies and resources)
K – This question was rejected due to multicollinearity issues.

Appendix F Results exploratory factor analysis aggregated employee satisfaction dataset

This appendix presents the complete results of SPSS for the factor analysis of the aggregated employee satisfaction dataset.

Organizational Resources - Management

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.874
Bartlett's Test of Sphericity	Approx. Chi-Square	2686.805
	df	36
	Sig.	.000

Communalities

	Initial	Extraction
<censored>	.971	.981
<censored>	.970	.747
<censored>	.963	.788
<censored>	.954	.839
<censored>	.986	.987
<censored>	.958	.741
<censored>	.977	.933
<censored>	.951	.853
<censored>	.955	.829

Extraction Method: Principal Axis Factoring.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.835	87.055	87.055	7.698	85.536	85.536
2	.729	8.104	95.158			
3	.193	2.142	97.300			
4	.126	1.404	98.704			
5	.045	.498	99.203			
6	.028	.307	99.510			
7	.019	.215	99.724			
8	.016	.175	99.899			
9	.009	.101	100.000			

Extraction Method: Principal Axis Factoring.

Factor Matrix[a]

	Factor
	1
<censored>	.991
<censored>	.864
<censored>	.888
<censored>	.916
<censored>	.993
<censored>	.861
<censored>	.966
<censored>	.924
<censored>	.910

Extraction Method: Principal Axis Factoring.
a. 1 factors extracted. 5 iterations required.

Organizational resources – Training/Technology/Autonomy

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.874
Bartlett's Test of Sphericity	Approx. Chi-Square	1413.439
	df	55
	Sig.	.000

Communalities

	Initial	Extraction
<censored>	.990	.904
<censored>	.989	.935
<censored>	.975	.975
<censored>	.967	.949
<censored>	.942	.818
<censored>	.851	.445
<censored>	.848	.445
<censored>	.963	.886
<censored>	.944	.798
<censored>	.946	.904
<censored>	.853	.647

Extraction Method: Principal Axis Factoring.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.874	80.672	80.672	8.706	79.141	79.141
2	.996	9.053	89.726			
3	.542	4.924	94.650			
4	.242	2.204	96.854			
5	.120	1.090	97.945			
6	.096	.870	98.815			
7	.052	.469	99.283			
8	.033	.304	99.588			
9	.021	.191	99.779			
10	.019	.174	99.953			
11	.005	.047	100.000			

Extraction Method: Principal Axis Factoring.

Factor Matrixa

	Factor
	1
<censored>	.951
<censored>	.967
<censored>	.987
<censored>	.974
<censored>	.904
<censored>	.667
<censored>	.667
<censored>	.941
<censored>	.893
<censored>	.951
<censored>	.804

Extraction Method: Principal Axis Factoring.
a. 1 factors extracted. 4 iterations required.

Organizational resources – Information

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.857
Bartlett's Test of Sphericity	Approx. Chi-Square	2838.771
	df	45
	Sig.	.000

Communalities

	Initial	Extraction
<censored>	.980	.748
<censored>	.985	.802
<censored>	.963	.931
<censored>	.962	.889
<censored>	.986	.773
<censored>	.950	.558
<censored>	.986	.949
<censored>	.971	.862
<censored>	.921	.646
<censored>	.976	.953

Extraction Method: Principal Axis Factoring.

Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.282	82.818	82.818	8.111	81.107	81.107
2	.950	9.502	92.320			
3	.532	5.315	97.636			
4	.087	.871	98.506			
5	.051	.514	99.020			
6	.035	.354	99.374			
7	.033	.330	99.704			
8	.014	.136	99.841			
9	.009	.093	99.934			
10	.007	.066	100.000			

Extraction Method: Principal Axis Factoring.

Factor Matrix[a]

	Factor
	1
<censored>	.865
<censored>	.896
<censored>	.965
<censored>	.943
<censored>	.879
<censored>	.747
<censored>	.974
<censored>	.928
<censored>	.803
<censored>	.976

Extraction Method: Principal Axis Factoring.
a. 1 factors extracted. 4 iterations required.

Engagement (Complete)

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.864
Bartlett's Test of Sphericity	Approx. Chi-Square	5006.565
	df	78
	Sig.	.000

Communalities

	Initial	Extraction
1 Ik ben trots op KLM	.995	.982
<censored>	.984	.975
3 Ik zou mensen in mijn omgeving aanraden om bij KLM te komen werken	.993	.981
4 Als ik alles afweeg ben ik tevreden over KLM als werkgever	.990	.990
5 Ik heb plezier in mijn werk	.992	.982
7 In het algemeen ben ik tevreden over mijn werk	.995	.989
<censored>	.980	.962
<censored>	.985	.984
<censored>	.951	.896
<censored>	.976	.897
<censored>	.994	.945
<censored>	.994	.953
<censored>	.900	.863

Extraction Method: Principal Axis Factoring.

Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.067	77.440	77.440	10.022	77.096	77.096	6.658	51.213	51.213
2	2.421	18.627	96.067	2.378	18.290	95.385	5.742	44.172	95.385
3	.166	1.280	97.347						
4	.147	1.129	98.475						
5	.085	.650	99.126						
6	.045	.347	99.473						
7	.021	.158	99.631						
8	.017	.131	99.762						
9	.012	.095	99.856						
10	.007	.057	99.913						
11	.006	.048	99.961						
12	.003	.023	99.984						
13	.002	.016	100.000						

Extraction Method: Principal Axis Factoring.

Factor Matrix[a]

	Factor	
	1	2
1 Ik ben trots op KLM	.843	.521
<censored>	.728	.667
3 Ik zou mensen in mijn omgeving aanraden om bij KLM te komen werken	.950	
4 Als ik alles afweeg ben ik tevreden over KLM als werkgever	.887	
5 Ik heb plezier in mijn werk	.818	.559
7 In het algemeen ben ik tevreden over mijn werk	.976	
<censored>	.842	-.503
<censored>	.901	
<censored>	.894	
<censored>	.871	
<censored>	.938	
<censored>	.953	
<censored>	.776	-.511

Extraction Method: Principal Axis Factoring.
a. 2 factors extracted. 4 iterations required.

Rotated Factor Matrixa

	Factor	
	1	2
1 Ik ben trots op KLM		.949
<censored>		.982
3 Ik zou mensen in mijn omgeving aanraden om bij KLM te komen werken	.524	.840
4 Als ik alles afweeg ben ik tevreden over KLM als werkgever		.926
5 Ik heb plezier in mijn werk		.961
7 In het algemeen ben ik tevreden over mijn werk	.603	.791
<censored>	.964	
<censored>	.950	
<censored>	.875	
<censored>	.898	
<censored>	.871	
<censored>	.853	
<censored>	.920	

Extraction Method: Principal Axis Factoring.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

Factor Transformation Matrix

Factor	1	2
1	.748	.663
2	-.663	.748

Extraction Method: Principal Axis Factoring.
Rotation Method: Varimax with Kaiser Normalization.

Service Climate

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.829
Bartlett's Test of Sphericity	Approx. Chi-Square	2226.262
	df	15
	Sig.	.000

Communalities

	Initial	Extraction
<censored>	.988	.986
<censored>	.991	.997
<censored>	.977	.644
<censored>	.987	.991
<censored>	.993	.986
<censored>	.982	.688

Extraction Method: Principal Axis Factoring.

Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.388	89.796	89.796	5.293	88.212	88.212
2	.564	9.402	99.198			
3	.029	.480	99.678			
4	.008	.134	99.812			
5	.007	.111	99.922			
6	.005	.078	100.000			

Extraction Method: Principal Axis Factoring.

Factor Matrix[a]

	Factor
	1
<censored>	.993
<censored>	.999
<censored>	.803
<censored>	.996
<censored>	.993
<censored>	.829

Extraction Method: Principal Axis Factoring.
a. 1 factors extracted. 5 iterations required.

Appendix G Results reliability statistics aggregated dataset

This appendix presents the complete results of SPSS for the reliability statistics of the found factors of the aggregated employee satisfaction dataset.

Organizational resources - Management

Case Processing Summary

		N	%
Cases	Valid	130	100.0
	Excludeda	0	.0
	Total	130	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.979	9

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
<censored>	152.66	13844.644	.980	.974
<censored>	152.58	14700.804	.856	.979
<censored>	153.28	14544.376	.880	.978
<censored>	152.89	14889.926	.908	.977
<censored>	152.67	14931.851	.980	.975
<censored>	152.37	14822.219	.849	.979
<censored>	152.56	14940.574	.954	.975
<censored>	153.45	13801.381	.913	.977
<censored>	153.54	14549.987	.902	.977

Organizational resources – Training/Autonomy/Technology

Case Processing Summary

		N	%
Cases	Valid	65	50.0
	Excludeda	65	50.0
	Total	130	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.973	11

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
<censored>	194.23	30349.243	.950	.968
<censored>	194.25	30913.907	.964	.968
<censored>	194.31	30144.185	.974	.967
<censored>	194.31	31611.623	.961	.968
<censored>	194.25	31048.313	.903	.970
<censored>	194.28	35856.203	.645	.977
<censored>	199.58	34655.215	.670	.976
<censored>	194.17	30740.362	.930	.969
<censored>	194.43	34119.655	.875	.972
<censored>	194.37	30585.018	.948	.968
<censored>	194.29	34655.648	.787	.974

Organizational resources – Information

Case Processing Summary

		N	%
Cases	Valid	120	92.3
	Excludeda	10	7.7
	Total	130	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.974	10

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
<censored>	179.98	25446.975	.837	.973
<censored>	179.99	25415.269	.864	.972
<censored>	180.02	24763.546	.950	.969
<censored>	179.98	25036.142	.920	.970
<censored>	180.07	24241.962	.887	.971
<censored>	180.02	24410.033	.751	.978
<censored>	180.01	24825.689	.959	.969
<censored>	180.01	25270.916	.911	.970
<censored>	180.03	25108.402	.803	.974
<censored>	179.98	24440.714	.969	.968

Engagement – Dedication

Case Processing Summary

		N	%
Cases	Valid	130	100.0
	Excludeda	0	.0
	Total	130	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.990	6

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1 Ik ben trots op KLM	99.43	13156.821	.986	.986
<censored>	99.75	12917.536	.937	.990
3 Ik zou mensen in mijn omgeving aanraden om bij KLM te komen werken	99.48	13522.856	.964	.988
4 Als ik alles afweeg ben ik tevreden over KLM als werkgever	99.39	12980.845	.992	.985
5 Ik heb plezier in mijn werk	99.42	12901.657	.979	.986
7 In het algemeen ben ik tevreden over mijn werk	99.37	13282.297	.934	.990

Engagement – Vigour / Absorption

Case Processing Summary

		N	%
Cases	Valid	130	100.0
	Excludeda	0	.0
	Total	130	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.982	7

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
<censored>	119.51	16395.632	.957	.978
<censored>	119.49	15874.810	.986	.976
<censored>	119.52	17228.096	.939	.981
<censored>	119.51	16997.399	.934	.980
<censored>	119.50	14661.229	.959	.980
<censored>	119.51	15096.143	.954	.979
<censored>	119.78	16533.741	.901	.981

Service climate

Case Processing Summary

		N	%
Cases	Valid	130	100.0
	Excludeda	0	.0
	Total	130	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.975	6

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
<censored>	99.64	13206.512	.978	.965
<censored>	99.68	13293.461	.984	.964
<censored>	99.81	14774.296	.783	.983
<censored>	99.62	13300.735	.986	.964
<censored>	99.62	13267.680	.985	.964
<censored>	99.65	13382.463	.819	.982

Appendix H Results categorization and exploratory factor analysis employee satisfaction raw dataset

This appendix provides an overview of all employee satisfaction questions part of the employee satisfaction raw dataset including the categorization of these questions. Subsequently, the name given to the factor containing the indicator has been presented. Finally, comment letters provide a reason why a specific question was omitted from the research. A description of the meaning of these letters can be found below the table.

Question ID	Question	Main category	Sub category	Found factor	Comments *
Q1_1	<censored>	Engagement	Vigour	Vigour	
Q1_2	<censored>	Organizational Resources	Technology	No factor found	
Q1_3	<censored>	Engagement	Vigour	Vigour	
Q1_4	<censored>	Engagement	Vigour	No factor found	
Q1_5	<censored>	Engagement	Absorption	No factor found	
Q1_6	<censored>	Organizational Resources	Technology	No factor found	
Q1_7	<censored>	Organizational Resources	Technology	No factor found	
Q1_8	<censored>	Organizational Resources	Technology / Autonomy	No factor found	
Q1_9	<censored>	Organizational Resources	Technology	Technology	
Q1_10	<censored>	Organizational Resources	Technology	n/a	H
Q1_11	<censored>	Organizational Resources	Technology	n/a	H
Q1_12	<censored>	Organizational Resources	Technology	No factor found	
Q1_13	<censored>	Organizational Resources	Autonomy	n/a	I
Q1_14	<censored>	Organizational Resources	Technology	No factor found	
Q1_15	<censored>	Organizational Resources	Technology	Technology	
Q1_16	<censored>	n/a	n/a		I
Q1_17	<censored>	Engagement	Vigour	n/a	I
Q1_18	<censored>	n/a	n/a		I
Q1_19	<censored>	n/a	n/a		I
Q1B_1	<censored>	n/a	n/a		I
Q1B_2	<censored>	n/a	n/a		I
Q1B_3	<censored>	n/a	n/a		A
Q1B_4	<censored>	n/a	n/a		A
Q1B_5	<censored>	n/a	n/a		A
Q1B_6	<censored>	n/a	n/a		A
Q1B_7	<censored>	n/a	n/a		A
Q1B_8	<censored>	n/a	n/a		A
Q1B_9	<censored>	n/a	n/a		A
Q2	<censored>	n/a	n/a		B
Q3	<censored>	n/a	n/a		B
Q4	<censored>	n/a	n/a		I
Q5_1	<censored>	n/a	n/a		C & E
Q5_2	<censored>	n/a	n/a		E
Q5_3	<censored>	Organizational Resources	Autonomy	Autonomy	
Q5_4	<censored>	Engagement	Absorption	Absorption	
Q5_5	<censored>	Organizational Resources	Autonomy	Autonomy	
Q5_6	<censored>	n/a	n/a		I
Q5_7	<censored>	n/a	n/a		I
Q5_8	<censored>	n/a	n/a		I
Q5_9	<censored>	Organizational Resources	Autonomy	n/a	I
Q5_10	<censored>	n/a	n/a		I
Q5_11	<censored>	Organizational Resources	Autonomy	n/a	I
Q6_1	<censored>	n/a	n/a		D
Q6_2	<censored>	n/a	n/a		C
Q6_3	<censored>	n/a	n/a		D
Q6_4	<censored>	n/a	n/a		D
Q6_5	<censored>	n/a	n/a		I
Q6_6	<censored>	n/a	n/a		D & E
Q6_7	<censored>	n/a	n/a		D & E
Q6_8	<censored>	n/a	n/a		I
Q6_9	<censored>	n/a	n/a		E
Q6_10	<censored>	n/a	n/a		E
Q6_11	<censored>	n/a	n/a		D & E
Q6_12	<censored>	n/a	n/a		D & E
Q6_13	<censored>	n/a	n/a		I
Q7_1	<censored>	Organizational Resources	Management	Unit Manager	
Q7_2	<censored>	Organizational Resources	Management	Unit Manager	
Q7_3	<censored>	Organizational Resources	Management	Unit Manager	
Q7_4	<censored>	Organizational Resources	Management	n/a	I
Q7_5	<censored>	Organizational Resources	Management	n/a	I

Question ID	Question	Main category	Sub category	Found factor	Comments *
Q7_6	<censored>	Organizational Resources	Management	n/a	I
Q7_7	<censored>	Organizational Resources	Management	n/a	I
Q7_8	<censored>	Organizational Resources	Management	Unit Manager	
Q7_11	<censored>	Organizational Resources	Management	n/a	I
Q7_12	<censored>	Organizational Resources	Management	n/a	I
Q7_13	<censored>	Organizational Resources	Management	n/a	I
Q7_9	<censored>	Organizational Resources	Management	Senior Pursor	
Q7_10	<censored>	Organizational Resources	Management	Senior Pursor	
Q8_1	Ik ben trots op KLM	Engagement	Dedication	Dedication	
Q8_2	<censored>	Engagement	Dedication	Dedication	
Q8_3	Ik zou mensen in mijn omgeving aanraden om bij KLM te komen werken	Engagement	Dedication	Dedication	
Q8_4	Ik heb plezier in mijn werk	Engagement	Dedication	Dedication	
Q8_5	<censored>	Engagement	Absorption	Absorption	
Q8_6	In het algemeen ben ik tevreden over mijn werk	Engagement	Dedication	Dedication	
Q8_7	<censored>	Organizational Resources	Management	Unit Manager	
Q8_8	<censored>	Organizational Resources	Management	Unit Manager	
Q8_9	<censored>	Organizational Resources	Management	No factor found	
Q9	Als ik alles afweeg ben ik tevreden over KLM als werkgever	Engagement	Dedication	Dedication	
Q10_1	<censored>	Service Climate	Service Climate	Factor 1	
Q10_2	<censored>	Service Climate	Service Climate	Factor 1	
Q10_3	<censored>	Service Climate	Service Climate	No factor found	
Q10_4	<censored>	n/a	n/a		I
Q11_1	<censored>	Organizational Resources	Training	No factor found	
Q11_2	<censored>	Organizational Resources	Training	Training	
Q11_3	<censored>	Organizational Resources	Training / Autonomy	Training	
Q11_4	<censored>	Engagement	Absorption	Absorption	
Q11_6	<censored>	Organizational Resources	Training	n/a	I
Q11_7	<censored>	Engagement	Dedication	n/a	I
Q12_1	<censored>	n/a	n/a		B & E
Q12_2	<censored>	n/a	n/a		B & E
Q12_3	<censored>	n/a	n/a		B & E
Q13_1	<censored>	n/a	n/a		B & E
Q13_2	<censored>	n/a	n/a		B & E
Q13_3	<censored>	n/a	n/a		B & E
Q13_4	<censored>	n/a	n/a		B & E
Q13_5	<censored>	n/a	n/a		I
Q13_6	<censored>	n/a	n/a		I
Q13_26	<censored>	n/a	n/a		B & E
Q13_7	<censored>	n/a	n/a		I
Q13_8	<censored>	n/a	n/a		I
Q13_9	<censored>	n/a	n/a		B & E
Q13_10	<censored>	n/a	n/a		B & E
Q13_11	<censored>	n/a	n/a		B & E
Q13_12	<censored>	n/a	n/a		B & E
Q13_13	<censored>	n/a	n/a		B & E
Q13_14	<censored>	n/a	n/a		B & E
Q13_15	<censored>	n/a	n/a		B & E
Q13_16	<censored>	n/a	n/a		B & E
Q13_17	<censored>	n/a	n/a		B & E
Q13_18	<censored>	n/a	n/a		B & E
Q13_19	<censored>	n/a	n/a		I
Q13_20	<censored>	n/a	n/a		I
Q13_21	<censored>	n/a	n/a		I
Q13_22	<censored>	n/a	n/a		I
Q13_23	<censored>	n/a	n/a		I
Q13_24	<censored>	n/a	n/a		I
Q13_25	<censored>	n/a	n/a		I
Q13B_1	<censored>	n/a	n/a		I
Q13B_2	<censored>	n/a	n/a		I
Q13B_3	<censored>	n/a	n/a		I
Q13B_4	<censored>	n/a	n/a		I
Q14_1	<censored>	n/a	n/a		C & E
Q14_2	<censored>	n/a	n/a		C & E
Q14_3	<censored>	n/a	n/a		C & E
Q15_1	<censored>	Service Climate	Service Climate	No factor found	
Q15_2	<censored>	Service Climate	Service Climate	Factor 2	
Q15_3	<censored>	Service Climate	Service Climate	Factor 2	

Question ID	Question	Main category	Sub category	Found factor	Comments *
Q15_4	<censored>	Service Climate	Service Climate	n/a	I
Q15_5	<censored>	Service Climate	Service Climate	Factor 2	
Q15_6	<censored>	Service Climate	Service Climate	n/a	I
Q16	<censored>	n/a	n/a		B
Q17	<censored>	n/a	n/a		B
Q17B	<censored>	n/a	n/a		I
Q18	<censored>	n/a	n/a		I
Q18B	<censored>	n/a	n/a		B
Q18C_1	<censored>	n/a	n/a		I
Q18C_2	<censored>	n/a	n/a		I
Q18C_3	<censored>	n/a	n/a		I
Q18C_4	<censored>	Organizational Resources	Autonomy	n/a	I
Q18C_5	<censored>	n/a	n/a		I
Q18C_6	<censored>	n/a	n/a		I
Q18D_1	<censored>	Organizational Resources	Information	Information	
Q18D_2	<censored>	Organizational Resources	Information	Information	
Q18D_3	<censored>	Organizational Resources	Information	No factor found	
Q18D_4	<censored>	Organizational Resources	Information	No factor found	
Q18D_5	<censored>	Organizational Resources	Information	Information	
Q18D_6	<censored>	Organizational Resources	Information	Information	
Q18D_7	<censored>	Organizational Resources	Information	No factor found	
Q18D_8	<censored>	Organizational Resources	Information	No factor found	
Q18D_9	<censored>	Organizational Resources	Information	Information	
Q18D_10	<censored>	Organizational Resources	Information	No factor found	
Q18D_11	<censored>	Organizational Resources	Information	Information	
Q18E	<censored>	n/a	n/a		I
Q18F	<censored>	n/a	n/a		I
Q18G	<censored>	n/a	n/a		J
Q19A	<censored>	n/a	n/a		J
Q19B	<censored>	n/a	n/a		J
Q19C	<censored>	n/a	n/a		J
Q20	<censored>	n/a	n/a		J
Q1_20	<censored>	Organizational Resources	Technology	n/a	I
Q6_14	<censored>	n/a	n/a		D
Q6_15	<censored>	n/a	n/a		I
Q6_16	<censored>	n/a	n/a		I
Q6_17	<censored>	n/a	n/a		D
Q7_19	<censored>	n/a	n/a		I
Q7_14	<censored>	n/a	n/a		I
Q7_15	<censored>	n/a	n/a		I
Q7_16	<censored>	n/a	n/a		I
Q7_17	<censored>	n/a	n/a		I
Q7_18	<censored>	n/a	n/a		I
Q7_20	<censored>	Organizational Resources	Management	n/a	I
Q8_10	<censored>	Engagement	Dedication	n/a	I
Q10_5	<censored>	n/a	n/a		I
Q13_27	<censored>	n/a	n/a		I
Q13_28	<censored>	n/a	n/a		I
Q13_29	<censored>	n/a	n/a		I
Q13_30	<censored>	n/a	n/a		I
Q13_31	<censored>	n/a	n/a		I
Q13_32	<censored>	n/a	n/a		I
Q13_33	<censored>	n/a	n/a		I
Q13C_1	<censored>	n/a	n/a		I
Q13C_2	<censored>	n/a	n/a		I
Q15_7	<censored>	n/a	n/a		I
Q15_8	<censored>	n/a	n/a		I
Q15_9	<censored>	n/a	n/a		I
Q18C_7	<censored>	n/a	n/a		I
Q18C_8	<censored>	n/a	n/a		I

* Comments descriptions

A - Due to significant differences between the answers of the various aircraft, this question was not part of the factor analysis

B - This question has a different scale and therefore rejected

C - This question relates mainly to a third-party and was therefore rejected

D - This question is related to a policy and therefore rejected

E - This question is not enough related to the main categories

F - This question could be interpreted differently

G - This question was rejected due to low absolute coefficient value (<0.50)
H - This question was rejected due to significant changes between the results of 2013 & 2014 (due to changes in KLM policies and resources)

I – This question is not part of the scope of research; e.g. the question has not been asked to KLM cabin crew

J - This question has an open answer/non quantitative data.

Appendix I Results exploratory factor analysis raw employee satisfaction dataset (2014 only)

Organizational resources – Autonomy

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.616
Bartlett's Test of Sphericity	Approx. Chi-Square	3882.357
	df	6
	Sig.	.000

Communalities

	Initial	Extraction
<censored>	.042	.044
<censored>	.488	.570
<censored>	.524	.823
<censored>	.181	.202

Extraction Method: Principal Axis Factoring.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.042	51.038	51.038	1.640	40.998	40.998
2	.938	23.457	74.495			
3	.725	18.120	92.615			
4	.295	7.385	100.000			

Extraction Method: Principal Axis Factoring.

Factor Matrixa

	Factor
	1
<censored>	
<censored>	.755
<censored>	.907
<censored>	

Extraction Method: Principal Axis Factoring.
a. 1 factors extracted. 21 iterations required.

Organizational resources – Technology

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.752
Bartlett's Test of Sphericity	Approx. Chi-Square	3250.623
	df	28
	Sig.	.000

Communalities

	Initial	Extraction
<censored>	.191	.317
<censored>	.155	.249
<censored>	.199	.325
<censored>	.151	.194
<censored>	.380	.547
<censored>	.125	.194
<censored>	.049	.073
<censored>	.397	.654

Extraction Method: Principal Axis Factoring.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.569	32.110	32.110	1.968	24.603	24.603	1.383	17.288	17.288
2	1.176	14.694	46.804	.584	7.298	31.901	1.169	14.613	31.901
3	.912	11.395	58.199						
4	.804	10.055	68.255						
5	.762	9.520	77.775						
6	.722	9.022	86.797						
7	.658	8.226	95.024						
8	.398	4.976	100.000						

Extraction Method: Principal Axis Factoring.

Factor Matrix[a]

	Factor	
	1	2
<censored>		
<censored>		
<censored>		
<censored>		
<censored>	.654	
<censored>		
<censored>		
<censored>	.709	

Extraction Method: Principal Axis Factoring.
a. 2 factors extracted. 23 iterations required.

Rotated Factor Matrixa

	Factor	
	1	2
<censored>		.533
<censored>		
<censored>		.537
<censored>		
<censored>	.721	
<censored>		
<censored>		
<censored>	.791	

Extraction Method: Principal Axis Factoring.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

Factor Transformation Matrix

Factor	1	2
1	.760	.650
2	-.650	.760

Extraction Method: Principal Axis Factoring.
Rotation Method: Varimax with Kaiser Normalization.

Organizational resources – Training

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.611
Bartlett's Test of Sphericity	Approx. Chi-Square	3492.107
	df	3
	Sig.	.000

Communalities

	Initial	Extraction
<censored>	.214	.235
<censored>	.494	.899
<censored>	.427	.473

Extraction Method: Principal Axis Factoring.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.976	65.871	65.871	1.607	53.562	53.562
2	.696	23.202	89.073			
3	.328	10.927	100.000			

Extraction Method: Principal Axis Factoring.

Factor Matrixa

	Factor
	1
<censored>	
<censored>	.948
<censored>	.688

Extraction Method: Principal Axis Factoring.
a. Attempted to extract 1 factors. More than 25 iterations required. (Convergence=.001). Extraction was terminated.

Organizational resources – Management

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.811
Bartlett's Test of Sphericity	Approx. Chi-Square	17304.167
	df	28
	Sig.	.000

Communalities

	Initial	Extraction
<censored>	.474	.521
<censored>	.760	.808
<censored>	.620	.669
<censored>	.752	.799
<censored>	.505	.660
<censored>	.532	.737
<censored>	.454	.428
<censored>	.239	.151

Extraction Method: Principal Axis Factoring.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.885	48.559	48.559	3.537	44.210	44.210	3.231	40.392	40.392
2	1.550	19.375	67.934	1.235	15.439	59.648	1.541	19.256	59.648
3	.955	11.941	79.875						
4	.461	5.758	85.633						
5	.415	5.191	90.824						
6	.325	4.060	94.883						
7	.256	3.200	98.084						
8	.153	1.916	100.000						

Extraction Method: Principal Axis Factoring.

Factor Matrixa

	Factor	
	1	2
<censored>	.696	
<censored>	.874	
<censored>	.793	
<censored>	.872	
<censored>		.727
<censored>		.729
<censored>	.654	
<censored>		

Extraction Method: Principal Axis Factoring.
a. 2 factors extracted. 16 iterations required.

Rotated Factor Matrixa

	Factor	
	1	2
<censored>	.717	
<censored>	.890	
<censored>	.811	
<censored>	.884	
<censored>		.809
<censored>		.844
<censored>	.606	
<censored>		

Extraction Method: Principal Axis Factoring.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

Factor Transformation Matrix

Factor	1	2
1	.931	.364
2	-.364	.931

Extraction Method: Principal Axis Factoring.
Rotation Method: Varimax with Kaiser Normalization.

Engagement (complete)

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.905
Bartlett's Test of Sphericity	Approx. Chi-Square	21405.993
	df	78
	Sig.	.000

Communalities

	Initial	Extraction
<censored>	.404	.584
<censored>	.412	.639
<censored>	.171	.159
<censored>	.196	.198
<censored>	.419	.528
Ik ben trots op KLM	.512	.585
<censored>	.333	.371
Ik zou mensen in mijn omgeving aanraden om bij KLM te komen werken	.500	.584
Ik heb plezier in mijn werk	.504	.515
<censored>	.443	.515
In het algemeen ben ik tevreden over mijn werk	.558	.606
Als ik alles afweeg ben ik tevreden over KLM als werkgever	.519	.574
<censored>	.388	.587

Extraction Method: Principal Axis Factoring.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.344	41.108	41.108	4.870	37.459	37.459	3.278	25.219	25.219
2	1.323	10.176	51.283	.898	6.908	44.367	1.734	13.341	38.560
3	1.107	8.517	59.801	.678	5.213	49.580	1.433	11.020	49.580
4	.881	6.778	66.579						
5	.791	6.081	72.660						
6	.615	4.727	77.388						
7	.550	4.232	81.619						
8	.445	3.425	85.044						
9	.437	3.361	88.406						
10	.399	3.067	91.472						
11	.389	2.994	94.466						
12	.381	2.928	97.394						
13	.339	2.606	100.000						

Extraction Method: Principal Axis Factoring.

Factor Matrixa

	Factor		
	1	2	3
<censored>		.528	
<censored>	.513	.521	
<censored>			
<censored>			
<censored>	.600		
Ik ben trots op KLM	.714		
<censored>	.563		
Ik zou mensen in mijn omgeving aanraden om bij KLM te komen werken	.698		
Ik heb plezier in mijn werk	.703		
<censored>	.659		
In het algemeen ben ik tevreden over mijn werk	.764		
Als ik alles afweeg ben ik tevreden over KLM als werkgever	.728		
<censored>	.545		

Extraction Method: Principal Axis Factoring.
a. 3 factors extracted. 18 iterations required.

Rotated Factor Matrixa

	Factor		
	1	2	3
<censored>			.725
<censored>			.763
<censored>			
<censored>			
<censored>		.647	
Ik ben trots op KLM	.727		
<censored>	.584		
Ik zou mensen in mijn omgeving aanraden om bij KLM te komen werken	.738		
Ik heb plezier in mijn werk	.636		
<censored>		.570	
In het algemeen ben ik tevreden over mijn werk	.688		
Als ik alles afweeg ben ik tevreden over KLM als werkgever	.694		
<censored>		.737	

Extraction Method: Principal Axis Factoring.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 5 iterations.

Factor Transformation Matrix

Factor	1	2	3
1	.777	.498	.385
2	-.563	.277	.779
3	.281	-.822	.496

Extraction Method: Principal Axis Factoring.
Rotation Method: Varimax with Kaiser Normalization.

Service climate (complete)

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.813
Bartlett's Test of Sphericity	Approx. Chi-Square	11285.388
	df	21
	Sig.	.000

Communalities

	Initial	Extraction
<censored>	.535	.679
<censored>	.521	.678
<censored>	.197	.208
<censored>	.200	.183
<censored>	.519	.646
<censored>	.541	.687
<censored>	.479	.573

Extraction Method: Principal Axis Factoring.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.403	48.619	48.619	2.999	42.849	42.849	2.040	29.143	29.143
2	1.103	15.763	64.381	.655	9.354	52.203	1.614	23.060	52.203
3	.883	12.617	76.998						
4	.582	8.313	85.311						
5	.388	5.546	90.857						
6	.341	4.874	95.731						
7	.299	4.269	100.000						

Extraction Method: Principal Axis Factoring.

Factor Matrixa

	Factor	
	1	2
<censored>	.730	
<censored>	.711	
<censored>		
<censored>		
<censored>	.749	
<censored>	.768	
<censored>	.698	

Extraction Method: Principal Axis Factoring.
a. 2 factors extracted. 10 iterations required.

Rotated Factor Matrixa

	Factor	
	1	2
<censored>		.761
<censored>		.774
<censored>		
<censored>		
<censored>	.762	
<censored>	.790	
<censored>	.724	

Extraction Method: Principal Axis Factoring.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

Factor Transformation Matrix

Factor	1	2
1	.769	.640
2	-.640	.769

Extraction Method: Principal Axis Factoring.
Rotation Method: Varimax with Kaiser Normalization.

Appendix J Results reliability statistics raw employee satisfaction dataset (2014 only)

Organizational resources – Autonomy

Case Processing Summary

		N	%
Cases	Valid	4488	100.0
	Excludeda	1	.0
	Total	4489	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.817	2

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
<censored>	2.23	.718	.696	.
<censored>	2.10	.562	.696	.

Organizational resources – Technology

Case Processing Summary

		N	%
Cases	Valid	4473	99.6
	Excludeda	16	.4
	Total	4489	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.742	2

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
<censored>	2.28	.639	.598	.
<censored>	2.36	.897	.598	.

Organizational resources – Training

Case Processing Summary

		N	%
Cases	Valid	4391	97.8
	Excludeda	98	2.2
	Total	4489	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.789	2

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
<censored>	3.46	1.303	.653	.
<censored>	2.81	1.113	.653	.

Organizational resources – Unit Manager

Case Processing Summary

		N	%
Cases	Valid	4094	91.2
	Excludeda	395	8.8
	Total	4489	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.895	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
<censored>	9.55	10.974	.690	.883
<censored>	9.33	10.015	.835	.850
<censored>	9.62	10.433	.775	.864
<censored>	9.32	10.055	.834	.850
<censored>	9.44	12.439	.581	.904

Organizational resources – Purser

Case Processing Summary

		N	%
Cases	Valid	4238	94.4
	Excludeda	251	5.6
	Total	4489	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.827	2

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
<censored>	2.63	.746	.706	.
<censored>	2.30	.664	.706	.

Engagement – Absorption

Case Processing Summary

		N	%
Cases	Valid	4473	99.6
	Excludeda	16	.4
	Total	4489	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.757	3

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
<censored>	4.68	2.816	.600	.676
<censored>	4.52	2.543	.571	.693
<censored>	4.48	2.088	.616	.653

Engagement – Dedication

Case Processing Summary

		N	%
Cases	Valid	4401	98.0
	Excludeda	88	2.0
	Total	4489	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.867	6

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Ik ben trots op KLM	7.79	6.176	.699	.839
<censored>	7.91	6.646	.569	.862
Ik zou mensen in mijn omgeving aanraden om bij KLM te komen werken	7.66	6.122	.696	.840
Ik heb plezier in mijn werk	7.88	6.713	.658	.847
In het algemeen ben ik tevreden over mijn werk	7.69	6.518	.704	.839
Als ik alles afweeg ben ik tevreden over KLM als werkgever	7.77	6.499	.677	.843

Engagement – Vigour

Case Processing Summary

		N	%
Cases	Valid	4480	99.8
	Excludeda	9	.2
	Total	4489	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.759	2

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
<censored>	1.82	.323	.611	.
<censored>	1.84	.307	.611	.

Service climate – Factor 1

Case Processing Summary

		N	%
Cases	Valid	4481	99.8
	Excludeda	8	.2
	Total	4489	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.821	2

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
<censored>	1.59	.307	.698	.
<censored>	1.55	.269	.698	.

Service climate – Factor 2

Case Processing Summary

		N	%
Cases	Valid	4484	99.9
	Excludeda	5	.1
	Total	4489	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

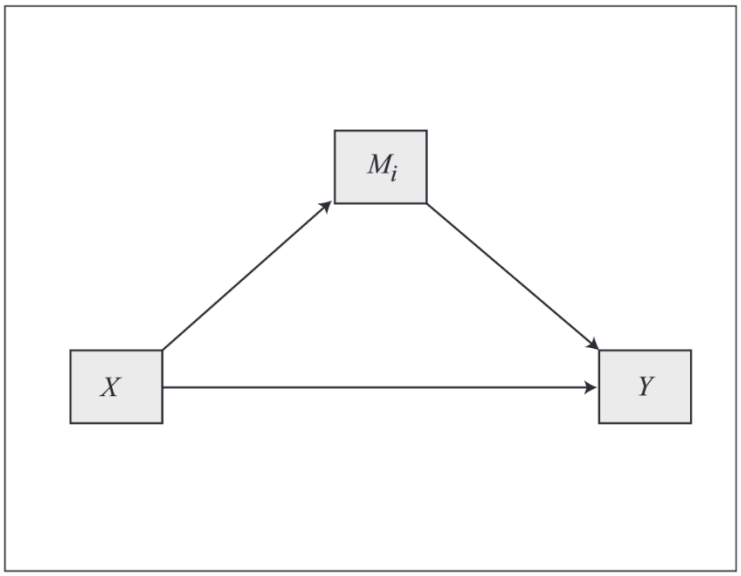
Cronbach's Alpha	N of Items
.837	3

Item-Total Statistics

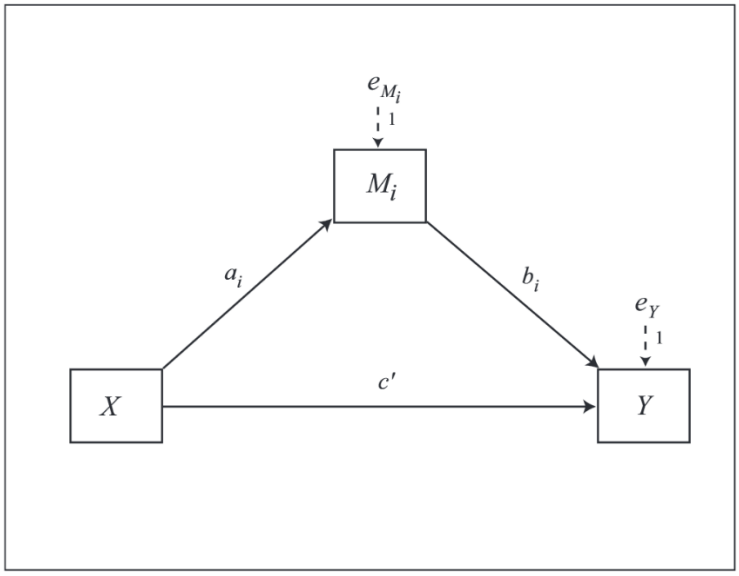
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
<censored>	2.79	.830	.701	.774
<censored>	2.82	.820	.720	.754
<censored>	2.99	.934	.683	.793

Appendix K Model 4 of the PROCESS Macro

Conceptual model



Statistical model



Source: (Hayes, 2013)

Appendix L Results PROCESS / SPSS Basic Model Employee Satisfaction 2014

```
Run MATRIX procedure:

*************** PROCESS Procedure for SPSS Release 2.13.1 **************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2013). www.guilford.com/p/hayes3

**************************************************************************
Model = 4
    Y = SC_All
    X = OR_Std3
    M = En_All

Sample size
       4489

**************************************************************************
Outcome: En_All

Model Summary
          R        R-sq         MSE           F         df1         df2           p
      ,65221      ,42538      ,12834  2073,83556     1,00000  4487,00000      ,00000

Model
              coeff          se           t           p        LLCI        ULCI
constant      ,54511      ,02626    20,76051      ,00000      ,49364      ,59659
OR_Std3       ,49886      ,01095    45,53938      ,00000      ,47738      ,52033

Covariance matrix of regression parameter estimates
            constant     OR_Std3
constant      ,00069     -,00028
OR_Std3      -,00028      ,00012

**************************************************************************
Outcome: SC_All

Model Summary
          R        R-sq         MSE           F         df1         df2           p
      ,45802      ,20978      ,13142   347,92389     2,00000  4486,00000      ,00000

Model
              coeff          se           t           p        LLCI        ULCI
constant      ,83232      ,02771    30,03336      ,00000      ,77799      ,88666
En_All        ,43644      ,01868    23,36138      ,00000      ,39982      ,47307
OR_Std3      -,05239      ,01193    -4,39096      ,00001     -,07579     -,02900

Covariance matrix of regression parameter estimates
            constant      En_All     OR_Std3
constant      ,00077     -,00027     -,00012
En_All       -,00027      ,00035     -,00013
OR_Std3      -,00012     -,00013      ,00014

************************* TOTAL EFFECT MODEL ****************************
Outcome: SC_All

Model Summary
          R        R-sq         MSE           F         df1         df2           p
      ,25051      ,06276      ,15584   282,51626     1,00000  4487,00000      ,00000

Model
              coeff          se           t           p        LLCI        ULCI
constant     1,07024      ,02474    43,25250      ,00000     1,02173     1,11875
OR_Std3       ,16533      ,00984    16,80822      ,00000      ,14604      ,18461

Covariance matrix of regression parameter estimates
            constant     OR_Std3
constant      ,00061     -,00024
OR_Std3      -,00024      ,00010

***************** TOTAL, DIRECT, AND INDIRECT EFFECTS ********************

Total effect of X on Y
      Effect          SE           t           p        LLCI        ULCI
      ,16533      ,00984    16,80822      ,00000      ,14604      ,18461

Direct effect of X on Y
      Effect          SE           t           p        LLCI        ULCI
     -,05239      ,01193    -4,39096      ,00001     -,07579     -,02900

Indirect effect of X on Y
            Effect     Boot SE    BootLLCI    BootULCI
En_All      ,21772      ,00939      ,19997      ,23618
```

```
Partially standardized indirect effect of X on Y
            Effect     Boot SE    BootLLCI    BootULCI
En_All      ,53400      ,02168      ,49396      ,57800

Completely standardized indirect effect of X on Y
            Effect     Boot SE    BootLLCI    BootULCI
En_All      ,32991      ,01346      ,30411      ,35597

Ratio of indirect to total effect of X on Y
            Effect     Boot SE    BootLLCI    BootULCI
En_All     1,31691      ,08967     1,16812     1,51527

Ratio of indirect to direct effect of X on Y
            Effect     Boot SE    BootLLCI    BootULCI
En_All    -4,15543     1,13602    -6,94816    -2,94074

R-squared mediation effect size (R-sq_med)
            Effect     Boot SE    BootLLCI    BootULCI
En_All      ,05914      ,00875      ,04255      ,07561

Preacher and Kelley (2011) Kappa-squared
            Effect     Boot SE    BootLLCI    BootULCI
En_All      ,26459      ,01074      ,24373      ,28531

Normal theory tests for indirect effect
      Effect          se           Z           p
      ,21772      ,01048    20,78194      ,00000

******************** ANALYSIS NOTES AND WARNINGS *************************

Number of bootstrap samples for bias corrected bootstrap confidence intervals:
     1000

Level of confidence for all confidence intervals in output:
    95,00

NOTE: All standard errors for continuous outcome models are based on the HC3 estimator

------ END MATRIX -----
```

Appendix M Results PROCESS / SPSS Extended Model Employee Satisfaction 2014

```
Run MATRIX procedure:

*************** PROCESS Procedure for SPSS Release 2.13.1 **************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2013). www.guilford.com/p/hayes3

**************************************************************************
Model = 4
    Y = SC_All
    X = OR_TOT
    M = En_All

Sample size
        4489
**************************************************************************
Outcome: En_All

Model Summary
           R        R-sq         MSE           F         df1         df2           p
      ,65016      ,42271      ,12894  2186,16431     1,00000  4487,00000      ,00000

Model
              coeff          se           t           p        LLCI        ULCI
constant      ,45120      ,02743    16,44811      ,00000      ,39742      ,50498
OR_TOT        ,54992      ,01176    46,75644      ,00000      ,52686      ,57298
**************************************************************************
Outcome: SC_All

Model Summary
           R        R-sq         MSE           F         df1         df2           p
      ,45406      ,20617      ,13203   352,39657     2,00000  4486,00000      ,00000

Model
              coeff          se           t           p        LLCI        ULCI
constant      ,78371      ,02811    27,88473      ,00000      ,72861      ,83881
En_All        ,39417      ,01861    21,18166      ,00000      ,35769      ,43065
OR_TOT       -,00313      ,01296     -,24138      ,80927     -,02853      ,02228

************************ TOTAL EFFECT MODEL ****************************
Outcome: SC_All

Model Summary
           R        R-sq         MSE           F         df1         df2           p
      ,29273      ,08569      ,15203   400,23268     1,00000  4487,00000      ,00000

Model
              coeff          se           t           p        LLCI        ULCI
constant      ,96156      ,02600    36,98964      ,00000      ,91059     1,01252
OR_TOT        ,21363      ,01068    20,00582      ,00000      ,19270      ,23457

***************** TOTAL, DIRECT, AND INDIRECT EFFECTS ********************

Total effect of X on Y
      Effect          SE           t           p        LLCI        ULCI
      ,21363      ,01068    20,00582      ,00000      ,19270      ,23457

Direct effect of X on Y
      Effect          SE           t           p        LLCI        ULCI
     -,00313      ,01296     -,24138      ,80927     -,02853      ,02228

Indirect effect of X on Y
           Effect     Boot SE    BootLLCI    BootULCI
En_All      ,21676      ,01002      ,19752      ,23630

Normal theory tests for indirect effect
      Effect          se           Z           p
      ,21676      ,01124    19,29048      ,00000

******************** ANALYSIS NOTES AND WARNINGS ************************

Number of bootstrap samples for bias corrected bootstrap confidence intervals:
     1000

Level of confidence for all confidence intervals in output:
    95,00

NOTE: All standard errors for continuous outcome models are based on the HC3 estimator

------ END MATRIX -----
```

Appendix N Results PROCESS / SPSS Comprehensive Model Employee Satisfaction 2014

```
Run MATRIX procedure:

*************** PROCESS Procedure for SPSS Release 2.13.1 **************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2013). www.guilford.com/p/hayes3

**************************************************************************
Model = 4
    Y = SC_All
    X = OR_TOT
   M1 = En_Absor
   M2 = En_Dedic
   M3 = En_Vigor

Sample size
       4489

**************************************************************************
Outcome: En_Absor

Model Summary
          R        R-sq         MSE           F         df1         df2           p
      ,67246      ,45220      ,30329  3269,42398     1,00000  4487,00000      ,00000

Model
              coeff          se           t           p        LLCI        ULCI
constant      ,06817      ,03629     1,87878      ,06034     -,00297      ,13931
OR_TOT        ,89552      ,01566    57,17888      ,00000      ,86482      ,92622

**************************************************************************
Outcome: En_Dedic

Model Summary
          R        R-sq         MSE           F         df1         df2           p
      ,48369      ,23395      ,20224   847,60531     1,00000  4487,00000      ,00000

Model
              coeff          se           t           p        LLCI        ULCI
constant      ,46870      ,03557    13,17637      ,00000      ,39896      ,53843
OR_TOT        ,44479      ,01528    29,11366      ,00000      ,41484      ,47474

**************************************************************************
Outcome: En_Vigor

Model Summary
          R        R-sq         MSE           F         df1         df2           p
      ,38348      ,14705      ,21662   465,00831     1,00000  4487,00000      ,00000

Model
              coeff          se           t           p        LLCI        ULCI
constant      ,97498      ,03876    25,15387      ,00000      ,89899     1,05097
OR_TOT        ,34587      ,01604    21,56405      ,00000      ,31443      ,37732

**************************************************************************
Outcome: SC_All

Model Summary
          R        R-sq         MSE           F         df1         df2           p
      ,46920      ,22015      ,12976   170,55476     4,00000  4484,00000      ,00000

Model
              coeff          se           t           p        LLCI        ULCI
constant      ,70880      ,03140    22,57050      ,00000      ,64723      ,77037
En_Absor      ,03130      ,01089     2,87449      ,00407      ,00995      ,05265
En_Dedic      ,25198      ,01675    15,04110      ,00000      ,21914      ,28483
En_Vigor      ,13592      ,01426     9,53020      ,00000      ,10796      ,16389
OR_TOT        ,02651      ,01364     1,94384      ,05198     -,00023      ,05325

************************** TOTAL EFFECT MODEL ****************************
Outcome: SC_All

Model Summary
          R        R-sq         MSE           F         df1         df2           p
      ,29273      ,08569      ,15203   400,23268     1,00000  4487,00000      ,00000

Model
              coeff          se           t           p        LLCI        ULCI
constant      ,96156      ,02600    36,98964      ,00000      ,91059     1,01252
OR_TOT        ,21363      ,01068    20,00582      ,00000      ,19270      ,23457

***************** TOTAL, DIRECT, AND INDIRECT EFFECTS ********************
```

```
Total effect of X on Y
      Effect          SE           t           p        LLCI        ULCI
      ,21363      ,01068    20,00582      ,00000      ,19270      ,23457

Direct effect of X on Y
      Effect          SE           t           p        LLCI        ULCI
      ,02651      ,01364     1,94384      ,05198     -,00023      ,05325

Indirect effect of X on Y
              Effect     Boot SE    BootLLCI    BootULCI
TOTAL         ,18712      ,01080      ,16744      ,20820
En_Absor      ,02803      ,00991      ,00909      ,04789
En_Dedic      ,11208      ,00726      ,09771      ,12598
En_Vigor      ,04701      ,00470      ,03855      ,05684
(C1)         -,08405      ,01373     -,11049     -,05527
(C2)         -,01898      ,01125     -,04228      ,00234
(C3)          ,06507      ,00934      ,04775      ,08424

Normal theory tests for specific indirect effects
              Effect          se           Z           p
En_Absor      ,02803      ,00977     2,87043      ,00410
En_Dedic      ,11208      ,00839    13,35686      ,00000
En_Vigor      ,04701      ,00540     8,70903      ,00000

Specific indirect effect contrast definitions
(C1)    En_Absor    minus       En_Dedic
(C2)    En_Absor    minus       En_Vigor
(C3)    En_Dedic    minus       En_Vigor

************************ ANALYSIS NOTES AND WARNINGS *************************

Number of bootstrap samples for bias corrected bootstrap confidence intervals:
     1000

Level of confidence for all confidence intervals in output:
    95,00

NOTE: All standard errors for continuous outcome models are based on the HC3 estimator

------ END MATRIX -----
```

Appendix O (raw dataset) Results of all resource specific comprehensive models

This appendix provides a more detailed review of the results of the resource specific comprehensive models as presented in paragraph 5.3.5.

Autonomy

For this model, the factor autonomy (OR_AUTON), was used for organizational resources, dedication for dedication (EN_DEDIC), vigour for vigour (EN_VIGOR), absorption for absorption (EN_ABSOR) and factor 1 and 2 for service climate (SC_ALL).

The results of the analysis suggest that autonomy is positively related to dedication (a1 = .27, p = .0000), vigour (a2 = .27, p = .0000) and absorption (a3 = .69, p = .0000). Dedication, vigour and absorption positively predicted service climate (b1 = 0.26, p = .0000; b2 = 0.14, p = .0000; b3 = 0.03, p = .0044). A bootstrap confidence interval for the indirect effect of autonomy (ab) using 1000 bootstrap samples was 0.127 to 0.162, meaning that there was evidence of an indirect effect of autonomy on service climate through work engagement. The relation between autonomy was found to be non-significantly related to service climate directly (c' = .02, p=.1096) whereas the total effect of autonomy was found to be positively related to service climate (c = .15, p=.0000). The results have also been summarized in Figure 49 for easy readability.

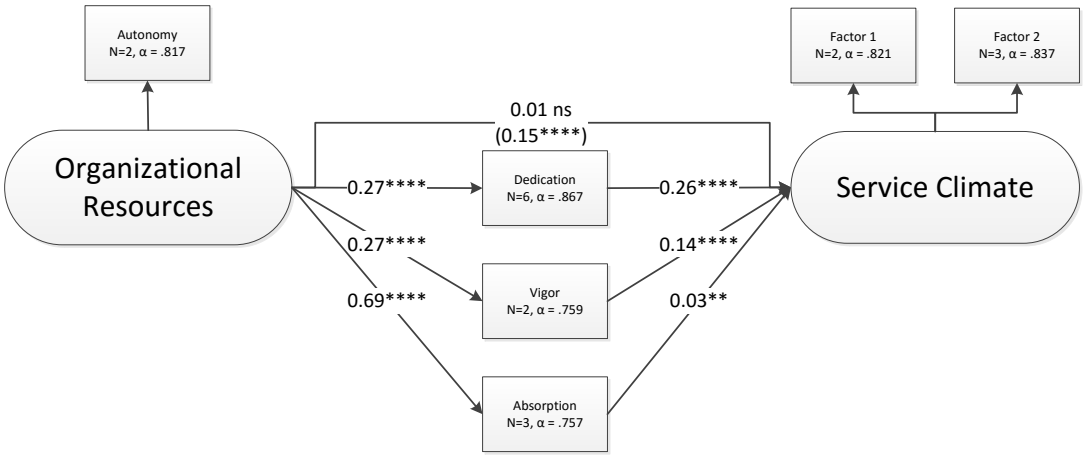


*Figure 49 - Resource specific comprehensive model using only the autonomy factor of organizational resources for employee satisfaction of the raw dataset, using only data of 2014. Effect size significance: ns for non-significant; ** p<0.01; **** p<0.0001.*

Technology

For this model, the factor technology (OR_TECH), was used for organizational resources, dedication for dedication (EN_DEDIC), vigour for vigour (EN_VIGOR), absorption for absorption (EN_ABSOR) and factor 1 and 2 for service climate (SC_ALL).

The results of the analysis suggest that technology is positively related to dedication (a1 = .21, p = .0000), vigour (a2 = .14, p = .0000) and absorption (a3 = .25, p = .0000). Dedication, vigour and absorption positively predicted service climate (b1 = 0.26, p = .0000; b2 = 0.14, p = .0000; b3 = 0.04, p = .0000). A bootstrap confidence interval for the indirect effect of technology (ab) using 1000 bootstrap samples was 0.050 to 0.081, meaning that there was evidence of an indirect effect of technology on service climate through work engagement. The relation between technology was found to be negatively related to service climate directly (c' =-.02, p=.0103) whereas the total effect of

technology was found to be positively related to service climate (c = .07, p=.0000). The results have also been summarized in Figure 50 for easy readability.

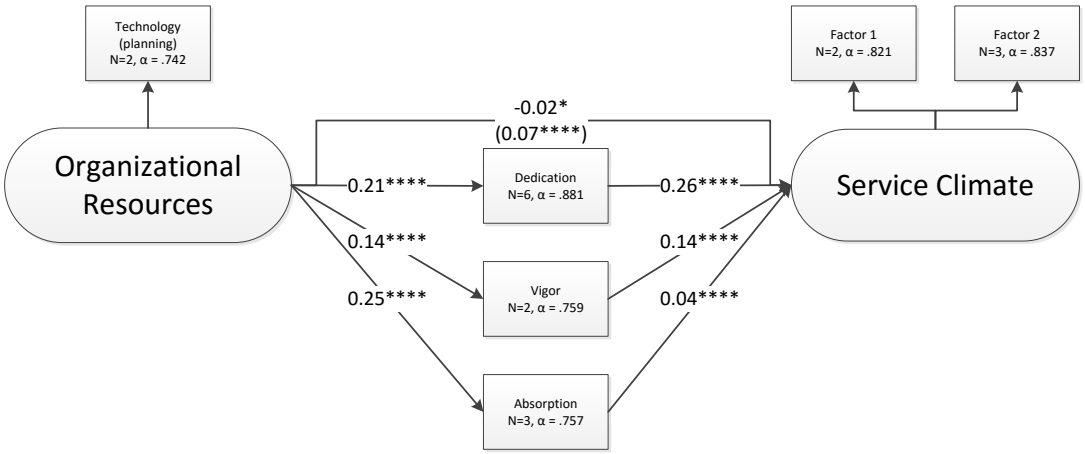


*Figure 50 - Resource specific comprehensive model using only the technology factor of organizational resources for employee satisfaction of the raw dataset, using only data of 2014. Effect size significance: * p<0.05; **** p<0.0001.*

Training

For this model, the factor training (OR_TRAIN), was used for organizational resources, dedication for dedication (EN_DEDIC), vigour for vigour (EN_VIGOR), absorption for absorption (EN_ABSOR) and factor 1 and 2 for service climate (SC_ALL).

The results of the analysis suggest that training is positively related to dedication (a1 = .16, p = .0000), vigour (a2 = .12, p = .0000) and absorption (a3 = .47, p = .0000). Dedication, vigour and absorption positively predicted service climate (b1 = 0.25, p = .0000; b2 = 0.14, p = .0000; b3 = -.01, p = .1142). A bootstrap confidence interval for the indirect effect of training (ab) using 1000 bootstrap samples was 0.059 to 0.082, meaning that there was evidence of an indirect effect of training on service climate through work engagement. The relation between training was found to be non-significantly related to service climate directly (c' =-.01, p=.0103) whereas the total effect of training was found to be positively related to service climate (c = .07, p=.0000). The results have also been summarized in Figure 51 for easy readability.

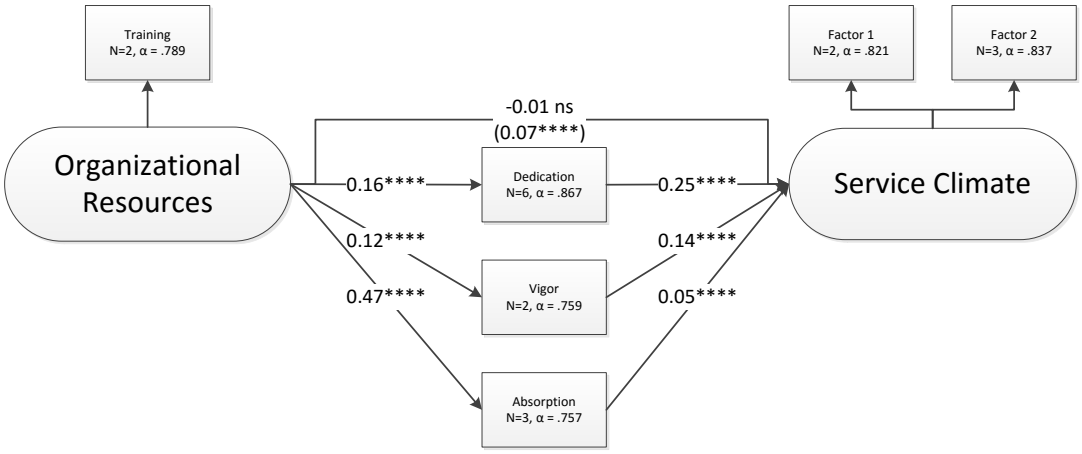


*Figure 51 - Resource specific comprehensive model using only the training factor of organizational resources for employee satisfaction of the raw dataset, using only data of 2014. Effect size significance: ns for non-significant; **** p<0.0001.*

Management – Unit Manager

For this model, the factor management - unit manager (OR_UMGR), was used for organizational resources, dedication for dedication (EN_DEDIC), vigour for vigour (EN_VIGOR), absorption for absorption (EN_ABSOR) and factor 1 and 2 for service climate (SC_ALL).

The results of the analysis suggest that management - unit manager is positively related to dedication (a1 = .21, p = .0000), vigour (a2 = .13, p = .0000) and absorption (a3 = .34, p = .0000). Dedication, vigour and absorption positively predicted service climate (b1 = 0.25, p = .0000; b2 = 0.14, p = .0000; b3 = -.04, p = .0002). A bootstrap confidence interval for the indirect effect of management - unit manager (ab) using 1000 bootstrap samples was 0.089 to 0.119, meaning that there was evidence of an indirect effect of management - unit manager on service climate through work engagement. The relation between management - unit manager was found to be positively related to service climate directly (c' =.02, p=.0037) whereas the total effect of management - unit manager was found to be positively related to service climate (c = .10, p=.0000). The results have also been summarized in Figure 51 for easy readability.

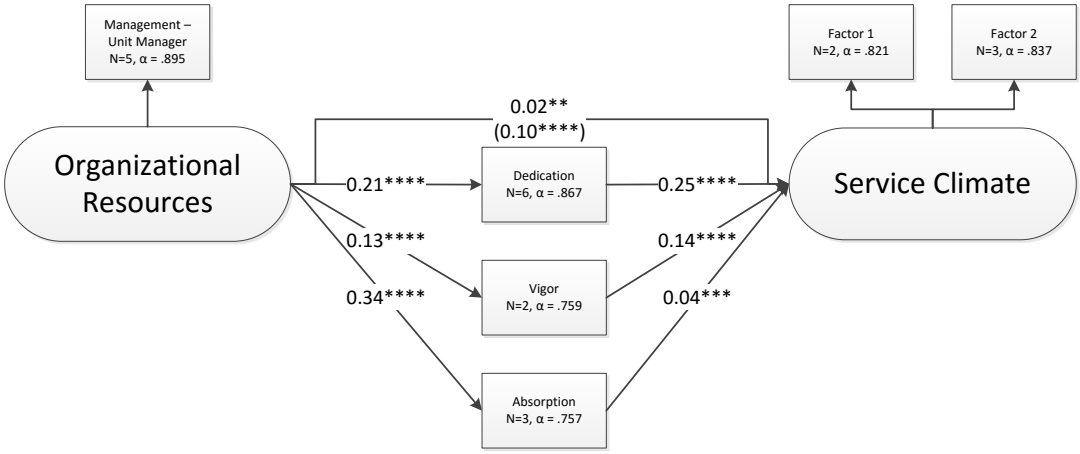


*Figure 52 - Resource specific comprehensive model using only the management, unit manager factor of organizational resources for employee satisfaction of the raw dataset, using only data of 2014. Effect size significance: ** p<0.01; **** p<0.0001.*

Management - (Senior) Purser

For this model, the factor management – (senior) purser (OR_SPUR), was used for organizational resources, dedication for dedication (EN_DEDIC), vigour for vigour (EN_VIGOR), absorption for absorption (EN_ABSOR) and factor 1 and 2 for service climate (SC_ALL).

The results of the analysis suggest that management - (senior) purser is positively related to dedication (a1 = .19, p = .0000), vigour (a2 = .22, p = .0000) and absorption (a3 = .39, p = .0000). Dedication, vigour and absorption positively predicted service climate (b1 = 0.26, p = .0000; b2 = 0.13, p = .0000; b3 = -.03, p = .0017). A bootstrap confidence interval for the indirect effect of management - (senior) purser (ab) using 1000 bootstrap samples was 0.010 to 0.130, meaning that there was evidence of an indirect effect of management - (senior) purser on service climate through work engagement. The relation between management - (senior) purser was found to be positively related to service climate directly (c' =.03, p=.0034) whereas the total effect of management - (senior) purser was found to be positively related to service climate (c = .12, p=.0000). The results have also been summarized in Figure 51 for easy readability.

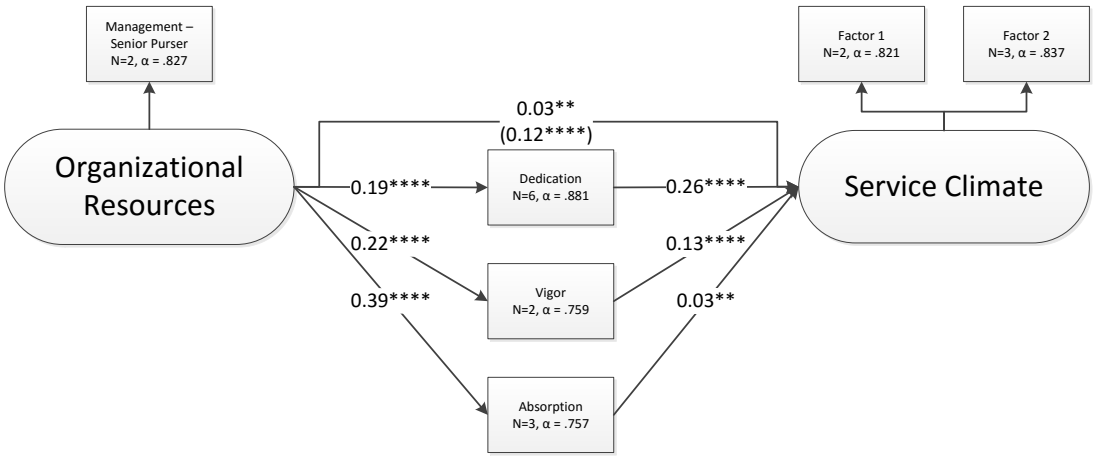


*Figure 53 - Resource specific comprehensive model using only the management, (senior) purser factor of organizational resources for employee satisfaction of the raw dataset, using only data of 2014. Effect size significance: ** p<0.01; **** p<0.0001.*

Appendix P Results categorization and exploratory factor analysis customer satisfaction dataset

This appendix provides an overview of all customer satisfaction indicators part of the dataset exported from e-Score, including the categorization of these questions. Subsequently, the name given to the factor containing the indicator has been presented.

Indicator	Main category	Sub category	Found factor Name
1 Overall Satisfaction	Customer loyalty	Customer loyalty	Customer Loyalty
2 Value for money	Customer loyalty	Customer loyalty	Customer Loyalty
3 Repurchase intention	Customer loyalty	Customer loyalty	Customer Loyalty
4 NPS Mean value	Customer loyalty	Customer loyalty	Customer Loyalty
5 Overall Inflight	Service Quality	Customer loyalty	Customer Loyalty
6 Special and Valued customer	Employee performance	Crew	Crew
7 Overall Cabin Crew	Employee performance	Crew	Crew
8 Personal attention of Cabin crew	Employee performance	Crew	Crew
9 Courtesy/ helpfulness of Cabin crew	Employee performance	Crew	Crew
10 Responsiveness of Cabin crew	Employee performance	Crew	Crew
11 Language skills of Cabin crew	Employee performance	Crew	Crew
12 Information given by Crew	Employee performance	Crew	Crew
13 Information given by Cockpit	Employee performance	Crew	Crew
14 Overall F&B (LH - Front)	Service Quality	Food & Beverage Front	Food & Beverage Front
15 Presentation of F&B (LH - Front)	Service Quality	Food & Beverage Front	Food & Beverage Front
16 Quality of entrée (LH - Front)	Service Quality	Food & Beverage Front	Food & Beverage Front
17 Quality of main course (LH - Front)	Service Quality	Food & Beverage Front	Food & Beverage Front
18 Quality of dessert (LH - Front)	Service Quality	Food & Beverage Front	Food & Beverage Front
19 Quality of 2nd meal-snack (LH - Front)	Service Quality	Food & Beverage Front	Food & Beverage Front
20 Quantity of food (LH - Front)	Service Quality	Food & Beverage Front	Food & Beverage Front
21 Wines (LH - Front)	Service Quality	Food & Beverage Front	Food & Beverage Front
22 Other beverages (LH - Front)	Service Quality	Food & Beverage Front	Food & Beverage Front
23 Service schedule of food and beverages (LH - Front)	Service Quality	Food & Beverage Front	Food & Beverage Front
24 Efficiency of service (LH - Front)	Service Quality	Food & Beverage Front	Food & Beverage Front
25 Overall F&B (LH - Rear)	Service Quality	Food & Beverage Rear	Food & Beverage Rear
26 Presentation of F&B (LH - Rear)	Service Quality	Food & Beverage Rear	Food & Beverage Rear
27 Quality of food (LH - Rear)	Service Quality	Food & Beverage Rear	Food & Beverage Rear
28 Quantity of food (LH - Rear)	Service Quality	Food & Beverage Rear	Food & Beverage Rear
29 Wines (LH - Rear)	Service Quality	Food & Beverage Rear	Food & Beverage Rear
30 Other beverages (LH - Rear)	Service Quality	Food & Beverage Rear	Food & Beverage Rear
31 Overall Comfort & Cabin features	Service Quality	Cabin comfort & Features	Cabin Comfort & Features
32 Comfort of seat	Service Quality	Cabin comfort & Features	Cabin Comfort & Features
33 Condition of cabin	Service Quality	Cabin comfort & Features	Cabin Comfort & Features
34 Cleanliness of lavatories	Service Quality	Cabin comfort & Features	Cabin Comfort & Features
35 Cleanliness of the cabin	Service Quality	Cabin comfort & Features	Cabin Comfort & Features
36 Amenities in lavatories	Service Quality	Cabin comfort & Features	Cabin Comfort & Features
37 Selection of Duty Free items (LH only)	Service Quality	Cabin comfort & Features	Cabin Comfort & Features
38 Overall Inflight Entertainment	Service Quality	Inflight Entertainment	Inflight Entertainment
39 Selection of movies	Service Quality	Inflight Entertainment	Inflight Entertainment
40 Selection of TV	Service Quality	Inflight Entertainment	Inflight Entertainment
41 Functioning of audio-video	Service Quality	Inflight Entertainment	Inflight Entertainment
42 Navigation and ease of use	Service Quality	Inflight Entertainment	Inflight Entertainment
43 Selection of newspapers	Service Quality	Inflight Entertainment	No factor found
44 Quality of picture	Service Quality	Inflight Entertainment	Inflight Entertainment
45 Quality of sound	Service Quality	Inflight Entertainment	Inflight Entertainment

Appendix Q Results exploratory factor analysis customer satisfaction dataset

This appendix presents the complete results of SPSS for the factor analysis of the customer satisfaction dataset.

Customer loyalty

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.863
Bartlett's Test of Sphericity	Approx. Chi-Square	5657.554
	df	10
	Sig.	.000

Communalities

	Initial	Extraction
1 Overall Satisfaction	.902	.956
2 Value for money	.613	.547
3 Repurchase intention	.772	.766
4 NPS Mean value	.830	.803
5 Overall Inflight	.860	.884

Extraction Method: Principal Axis Factoring.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.144	82.888	82.888	3.956	79.112	79.112
2	.469	9.380	92.268			
3	.198	3.956	96.224			
4	.119	2.380	98.604			
5	.070	1.396	100.000			

Extraction Method: Principal Axis Factoring.

Factor Matrix[a]

	Factor
	1
1 Overall Satisfaction	.978
2 Value for money	.740
3 Repurchase intention	.875
4 NPS Mean value	.896
5 Overall Inflight	.940

Extraction Method: Principal Axis Factoring.
a. 1 factors extracted. 6 iterations required.

Crew

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.933
Bartlett's Test of Sphericity	Approx. Chi-Square	6727.456
	df	28
	Sig.	.000

Communalities

	Initial	Extraction
6 Special and Valued customer	.728	.652
7 Overall Cabin Crew	.802	.757
8 Personal attention of Cabin crew	.920	.906
9 Courtesy/ helpfulness of Cabin crew	.918	.907
10 Responsiveness of Cabin crew	.900	.885
11 Language skills of Cabin crew	.637	.629
12 Information given by Crew	.878	.887
13 Information given by Cockpit	.750	.725

Extraction Method: Principal Axis Factoring.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.542	81.772	81.772	6.349	79.358	79.358
2	.475	5.931	87.703			
3	.330	4.124	91.827			
4	.282	3.526	95.353			
5	.149	1.862	97.215			
6	.099	1.238	98.452			
7	.069	.868	99.320			
8	.054	.680	100.000			

Extraction Method: Principal Axis Factoring.

Factor Matrix[a]

	Factor
	1
6 Special and Valued customer	.808
7 Overall Cabin Crew	.870
8 Personal attention of Cabin crew	.952
9 Courtesy/ helpfulness of Cabin crew	.952
10 Responsiveness of Cabin crew	.941
11 Language skills of Cabin crew	.793
12 Information given by Crew	.942
13 Information given by Cockpit	.851

Extraction Method: Principal Axis Factoring.
a. 1 factors extracted. 4 iterations required.

Food & beverage front

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.943
Bartlett's Test of Sphericity	Approx. Chi-Square	855.309
	df	55
	Sig.	.000

Communalities

	Initial	Extraction
14 Overall F&B (LH - Front)	.860	.818
15 Presentation of F&B (LH - Front)	.901	.895
16 Quality of entrée (LH - Front)	.907	.914
17 Quality of main course (LH - Front)	.857	.823
18 Quality of dessert (LH - Front)	.865	.820
19 Quality of 2nd meal-snack (LH - Front)	.819	.769
20 Quantity of food (LH - Front)	.876	.832
21 Wines (LH - Front)	.701	.640
22 Other beverages (LH - Front)	.799	.756
23 Service schedule of food and beverages (LH - Front)	.866	.792
24 Efficiency of service (LH - Front)	.772	.620

Extraction Method: Principal Axis Factoring.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.880	80.732	80.732	8.678	78.894	78.894
2	.649	5.902	86.634			
3	.378	3.434	90.068			
4	.269	2.443	92.511			
5	.194	1.762	94.274			
6	.151	1.368	95.642			
7	.134	1.221	96.863			
8	.118	1.073	97.936			
9	.084	.766	98.703			
10	.081	.738	99.441			
11	.061	.559	100.000			

Extraction Method: Principal Axis Factoring.

Factor Matrix[a]

	Factor
	1
14 Overall F&B (LH - Front)	.905
15 Presentation of F&B (LH - Front)	.946
16 Quality of entrée (LH - Front)	.956
17 Quality of main course (LH - Front)	.907
18 Quality of dessert (LH - Front)	.906
19 Quality of 2nd meal-snack (LH - Front)	.877
20 Quantity of food (LH - Front)	.912
21 Wines (LH - Front)	.800
22 Other beverages (LH - Front)	.869
23 Service schedule of food and beverages (LH - Front)	.890
24 Efficiency of service (LH - Front)	.787

Extraction Method: Principal Axis Factoring.
a. 1 factors extracted. 4 iterations required.

Food & beverage rear

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.923
Bartlett's Test of Sphericity	Approx. Chi-Square	7016.267
	df	15
	Sig.	.000

Communalities

	Initial	Extraction
25 Overall F&B (LH - Rear)	.862	.857
26 Presentation of F&B (LH - Rear)	.909	.940
27 Quality of food (LH - Rear)	.877	.866
28 Quantity of food (LH - Rear)	.841	.862
29 Wines (LH - Rear)	.731	.731
30 Other beverages (LH - Rear)	.829	.825

Extraction Method: Principal Axis Factoring.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.231	87.180	87.180	5.082	84.693	84.693
2	.297	4.956	92.137			
3	.185	3.084	95.221			
4	.128	2.135	97.356			
5	.088	1.468	98.824			
6	.071	1.176	100.000			

Extraction Method: Principal Axis Factoring.

Factor Matrix[a]

	Factor
	1
25 Overall F&B (LH - Rear)	.926
26 Presentation of F&B (LH - Rear)	.970
27 Quality of food (LH - Rear)	.930
28 Quantity of food (LH - Rear)	.929
29 Wines (LH - Rear)	.855
30 Other beverages (LH - Rear)	.908

Extraction Method: Principal Axis Factoring.
a. 1 factors extracted. 4 iterations required.

Cabin comfort & features

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.904
Bartlett's Test of Sphericity	Approx. Chi-Square	3435.366
	df	21
	Sig.	.000

Communalities

	Initial	Extraction
31 Overall Comfort & Cabin features	.671	.604
32 Comfort of seat	.659	.632
33 Condition of cabin	.823	.885
34 Cleanliness of lavatories	.749	.620
35 Cleanliness of the cabin	.771	.801
36 Amenities in lavatories	.800	.801
37 Selection of Duty Free items (LH only)	.394	.395

Extraction Method: Principal Axis Factoring.

Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.031	71.873	71.873	4.738	67.691	67.691
2	.671	9.590	81.464			
3	.562	8.032	89.495			
4	.247	3.531	93.026			
5	.207	2.963	95.988			
6	.148	2.121	98.109			
7	.132	1.891	100.000			

Extraction Method: Principal Axis Factoring.

Factor Matrix[a]

	Factor
	1
31 Overall Comfort & Cabin features	.777
32 Comfort of seat	.795
33 Condition of cabin	.941
34 Cleanliness of lavatories	.788
35 Cleanliness of the cabin	.895
36 Amenities in lavatories	.895
37 Selection of Duty Free items (LH only)	.628

Extraction Method: Principal Axis Factoring.
a. 1 factors extracted. 5 iterations required.

Inflight entertainment

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.906
Bartlett's Test of Sphericity	Approx. Chi-Square	4092.093
	df	28
	Sig.	.000

Communalities

	Initial	Extraction
38 Overall Inflight Entertainment	.666	.666
39 Selection of movies	.793	.687
40 Selection of TV	.761	.677
41 Functioning of audio-video	.824	.814
42 Navigation and ease of use	.816	.823
43 Selection of newspapers	.357	.304
44 Quality of picture	.770	.684
45 Quality of sound	.743	.711

Extraction Method: Principal Axis Factoring.

Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.663	70.793	70.793	5.365	67.062	67.062
2	.810	10.122	80.915			
3	.578	7.226	88.141			
4	.306	3.820	91.960			
5	.230	2.879	94.839			
6	.160	1.995	96.835			
7	.138	1.731	98.565			
8	.115	1.435	100.000			

Extraction Method: Principal Axis Factoring.

Factor Matrix[a]

	Factor
	1
38 Overall Inflight Entertainment	.816
39 Selection of movies	.829
40 Selection of TV	.823
41 Functioning of audio-video	.902
42 Navigation and ease of use	.907
43 Selection of newspapers	
44 Quality of picture	.827
45 Quality of sound	.843

Extraction Method: Principal Axis Factoring.
a. 1 factors extracted. 4 iterations required.

Appendix R Results reliability statistics customer satisfaction dataset

Customer loyalty

Case Processing Summary

		N	%
Cases	Valid	988	87.8
	Excluded[a]	137	12.2
	Total	1125	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.942	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1 Overall Satisfaction	26.744	4.166	.940	.910
2 Value for money	27.399	4.268	.725	.955
3 Repurchase intention	26.588	4.386	.838	.929
4 NPS Mean value	25.199	4.770	.857	.931
5 Overall Inflight	26.849	4.086	.911	.915

Crew

Case Processing Summary

		N	%
Cases	Valid	613	54.5
	Excludeda	512	45.5
	Total	1125	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.968	8

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
6 Special and Valued customer	47.416	13.081	.805	.967
7 Overall Cabin Crew	46.754	12.847	.865	.964
8 Personal attention of Cabin crew	47.361	12.096	.932	.960
9 Courtesy/ helpfulness of Cabin crew	46.816	12.586	.933	.960
10 Responsiveness of Cabin crew	47.016	12.431	.922	.961
11 Language skills of Cabin crew	46.880	13.218	.779	.969
12 Information given by Crew	47.406	12.656	.923	.961
13 Information given by Cockpit	47.563	13.311	.837	.966

Food & beverage front

Case Processing Summary

		N	%
Cases	Valid	59	5.2
	Excludeda	1066	94.8
	Total	1125	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.976	11

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
14 Overall F&B (LH - Front)	60.558	36.237	.900	.973
15 Presentation of F&B (LH - Front)	60.144	35.693	.939	.972
16 Quality of entrée (LH - Front)	60.436	34.533	.950	.971
17 Quality of main course (LH - Front)	60.808	35.754	.889	.973
18 Quality of dessert (LH - Front)	60.551	36.212	.903	.973
19 Quality of 2nd meal-snack (LH - Front)	61.056	35.299	.868	.974
20 Quantity of food (LH - Front)	60.488	36.321	.895	.973
21 Wines (LH - Front)	60.198	37.086	.782	.976
22 Other beverages (LH - Front)	60.000	36.738	.865	.974
23 Service schedule of food and beverages (LH - Front)	60.095	36.692	.875	.974
24 Efficiency of service (LH - Front)	59.853	36.641	.780	.976

Food & beverage rear

Case Processing Summary

		N	%
Cases	Valid	838	74.5
	Excludeda	287	25.5
	Total	1125	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.970	6

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
25 Overall F&B (LH - Rear)	28.285	7.647	.912	.964
26 Presentation of F&B (LH - Rear)	27.997	7.462	.951	.959
27 Quality of food (LH - Rear)	28.605	7.527	.915	.963
28 Quantity of food (LH - Rear)	28.238	7.771	.914	.963
29 Wines (LH - Rear)	28.537	7.702	.840	.971
30 Other beverages (LH - Rear)	27.987	7.989	.895	.966

Cabin comfort & features

Case Processing Summary

		N	%
Cases	Valid	553	49.2
	Excludeda	572	50.8
	Total	1125	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.931	7

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
31 Overall Comfort & Cabin features	32.366	7.336	.774	.920
32 Comfort of seat	33.215	6.930	.760	.924
33 Condition of cabin	31.738	6.881	.896	.908
34 Cleanliness of lavatories	32.061	7.427	.740	.924
35 Cleanliness of the cabin	31.279	7.293	.851	.914
36 Amenities in lavatories	32.087	7.501	.850	.915
37 Selection of Duty Free items (LH only)	32.232	7.649	.625	.935

Inflight entertainment

Case Processing Summary

		N	%
Cases	Valid	539	47.9
	Excludeda	586	52.1
	Total	1125	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.947	7

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
38 Overall Inflight Entertainment	29.330	10.476	.796	.941
39 Selection of movies	29.135	10.450	.797	.941
40 Selection of TV	29.707	10.438	.783	.942
41 Functioning of audio-video	30.140	10.044	.886	.933
42 Navigation and ease of use	30.037	10.125	.884	.934
44 Quality of picture	30.862	9.967	.805	.941
45 Quality of sound	30.701	10.645	.819	.940

Appendix S Case summary customer satisfaction dataset

The table below provides an overview of the number of cases used for the analysis of the customer satisfaction data. Note that a single case represents a long haul KLM route for one month. A value is only provided by e-Score after being given at least 50 answers to the applicable question.

Table 2 - Case Processing Summary (Customer satisfaction dataset)

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
1 Overall Satisfaction	988	87.8%	137	12.2%	1125	100.0%
2 Value for money	1005	89.3%	120	10.7%	1125	100.0%
3 Repurchase intention	1014	90.1%	111	9.9%	1125	100.0%
4 NPS Mean value	1015	90.2%	110	9.8%	1125	100.0%
5 Overall Inflight	1007	89.5%	118	10.5%	1125	100.0%
6 Special and Valued customer	1005	89.3%	120	10.7%	1125	100.0%
7 Overall Cabin Crew	1012	90.0%	113	10.0%	1125	100.0%
8 Personal attention of Cabin crew	617	54.8%	508	45.2%	1125	100.0%
9 Courtesy/ helpfulness of Cabin crew	616	54.8%	509	45.2%	1125	100.0%
10 Responsiveness of Cabin crew	617	54.8%	508	45.2%	1125	100.0%
11 Language skills of Cabin crew	615	54.7%	510	45.3%	1125	100.0%
12 Information given by Crew	615	54.7%	510	45.3%	1125	100.0%
13 Information given by Cockpit	617	54.8%	508	45.2%	1125	100.0%
14 Overall F& B (LH - Front)	140	12.4%	985	87.6%	1125	100.0%
15 Presentation of F& B (LH - Front)	64	5.7%	1061	94.3%	1125	100.0%
16 Quality of entrée (LH - Front)	66	5.9%	1059	94.1%	1125	100.0%
17 Quality of main course (LH - Front)	66	5.9%	1059	94.1%	1125	100.0%
18 Quality of dessert (LH - Front)	66	5.9%	1059	94.1%	1125	100.0%
19 Quality of 2nd meal-snack (LH - Front)	62	5.5%	1063	94.5%	1125	100.0%
20 Quantity of food (LH - Front)	67	6.0%	1058	94.0%	1125	100.0%
21 Wines (LH - Front)	65	5.8%	1060	94.2%	1125	100.0%
22 Other beverages (LH - Front)	66	5.9%	1059	94.1%	1125	100.0%
23 Service schedule of food and beverages (LH - Front)	66	5.9%	1059	94.1%	1125	100.0%
24 Efficiency of service (LH - Front)	67	6.0%	1058	94.0%	1125	100.0%
25 Overall F&B (LH - Rear)	966	85.9%	159	14.1%	1125	100.0%
26 Presentation of F&B (LH - Rear)	854	75.9%	271	24.1%	1125	100.0%
27 Quality of food (LH - Rear)	855	76.0%	270	24.0%	1125	100.0%
28 Quantity of food (LH - Rear)	852	75.7%	273	24.3%	1125	100.0%
29 Wines (LH - Rear)	844	75.0%	281	25.0%	1125	100.0%
30 Other beverages (LH - Rear)	850	75.6%	275	24.4%	1125	100.0%
31 Overall Comfort & Cabin features	1009	89.7%	116	10.3%	1125	100.0%
32 Comfort of seat	557	49.5%	568	50.5%	1125	100.0%
33 Condition of cabin	554	49.2%	571	50.8%	1125	100.0%
34 Cleanliness of lavatories	554	49.2%	571	50.8%	1125	100.0%
35 Cleanliness of the cabin	556	49.4%	569	50.6%	1125	100.0%
36 Amenities in lavatories	555	49.3%	570	50.7%	1125	100.0%
37 Selection of Duty Free items (LH only)	925	82.2%	200	17.8%	1125	100.0%
38 Overall Inflight Entertainment	996	88.5%	129	11.5%	1125	100.0%
39 Selection of movies	542	48.2%	583	51.8%	1125	100.0%
40 Selection of TV	540	48.0%	585	52.0%	1125	100.0%
41 Functioning of audio-video	543	48.3%	582	51.7%	1125	100.0%
42 Navigation and ease of use	542	48.2%	583	51.8%	1125	100.0%
43 Selection of newspapers	543	48.3%	582	51.7%	1125	100.0%
44 Quality of picture	543	48.3%	582	51.7%	1125	100.0%
45 Quality of sound	542	48.2%	583	51.8%	1125	100.0%

Appendix T Results PROCESS / SPSS Overall Model Customer Satisfaction

```
Run MATRIX procedure:

*************** PROCESS Procedure for SPSS Release 2.13.1 **************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2013). www.guilford.com/p/hayes3

**************************************************************************
Model = 4
    Y = CL_All
    X = SQ_All
    M = EP_Crew

Sample size
       1011

**************************************************************************
Outcome: EP_Crew

Model Summary
           R        R-sq         MSE           F         df1         df2           p
      ,76015      ,57783      ,11393  1110,02325     1,00000  1009,00000      ,00000

Model
              coeff          se           t           p        LLCI        ULCI
constant     2,63357      ,12435    21,17863      ,00000     2,38955     2,87758
SQ_All        ,75387      ,02263    33,31701      ,00000      ,70946      ,79827

Covariance matrix of regression parameter estimates
            constant      SQ_All
constant      ,01546     -,00280
SQ_All       -,00280      ,00051

**************************************************************************
Outcome: CL_All

Model Summary
           R        R-sq         MSE           F         df1         df2           p
      ,84425      ,71275      ,07881  1138,59285     2,00000  1008,00000      ,00000

Model
              coeff          se           t           p        LLCI        ULCI
constant     1,14201      ,11877     9,61525      ,00000      ,90895     1,37508
EP_Crew       ,42751      ,02631    16,24888      ,00000      ,37588      ,47914
SQ_All        ,47532      ,02871    16,55837      ,00000      ,41899      ,53165

Covariance matrix of regression parameter estimates
            constant     EP_Crew      SQ_All
constant      ,01411     -,00155     -,00061
EP_Crew      -,00155      ,00069     -,00058
SQ_All       -,00061     -,00058      ,00082

************************ TOTAL EFFECT MODEL ****************************
Outcome: CL_All

Model Summary
           R        R-sq         MSE           F         df1         df2           p
      ,79799      ,63679      ,09956  1554,82814     1,00000  1009,00000      ,00000

Model
              coeff          se           t           p        LLCI        ULCI
constant     2,26788      ,11307    20,05745      ,00000     2,04601     2,48976
SQ_All        ,79761      ,02023    39,43131      ,00000      ,75791      ,83730

Covariance matrix of regression parameter estimates
            constant      SQ_All
constant      ,01278     -,00228
SQ_All       -,00228      ,00041

***************** TOTAL, DIRECT, AND INDIRECT EFFECTS ********************

Total effect of X on Y
      Effect          SE           t           p        LLCI        ULCI
      ,79761      ,02023    39,43131      ,00000      ,75791      ,83730

Direct effect of X on Y
      Effect          SE           t           p        LLCI        ULCI
      ,47532      ,02871    16,55837      ,00000      ,41899      ,53165

Indirect effect of X on Y
```

```
            Effect     Boot SE    BootLLCI    BootULCI
EP_Crew     ,32228      ,02314      ,27820      ,36870

Partially standardized indirect effect of X on Y
            Effect     Boot SE    BootLLCI    BootULCI
EP_Crew     ,61587      ,04256      ,53377      ,69361

Completely standardized indirect effect of X on Y
            Effect     Boot SE    BootLLCI    BootULCI
EP_Crew     ,32244      ,02077      ,28307      ,36699

Ratio of indirect to total effect of X on Y
            Effect     Boot SE    BootLLCI    BootULCI
EP_Crew     ,40406      ,02933      ,34811      ,46390

Ratio of indirect to direct effect of X on Y
            Effect     Boot SE    BootLLCI    BootULCI
EP_Crew     ,67803      ,08492      ,53400      ,86532

R-squared mediation effect size (R-sq_med)
            Effect     Boot SE    BootLLCI    BootULCI
EP_Crew     ,54132      ,02102      ,49610      ,57860

Preacher and Kelley (2011) Kappa-squared
            Effect     Boot SE    BootLLCI    BootULCI
EP_Crew     ,34770      ,01952      ,30918      ,38434

Normal theory tests for indirect effect
      Effect          se           Z           p
      ,32228      ,02208    14,59925      ,00000

****************** ANALYSIS NOTES AND WARNINGS ************************

Number of bootstrap samples for bias corrected bootstrap confidence intervals:
     1000

Level of confidence for all confidence intervals in output:
    95,00

NOTE: Some cases were deleted due to missing data.  The number of such cases was:
  114

NOTE: All standard errors for continuous outcome models are based on the HC3 estimator

------ END MATRIX -----
```

Appendix U Reducing impact of service failure on customer satisfaction

This paragraph therefore provides insights into possible methods airlines should consider once the model into the relationship between employee and customer satisfaction is implemented.

The authors of (Vaerenbergh, et al., 2014) performed a meta-analysis to develop a conceptual framework of the relationship between service failure attribution and the outcomes in terms of loyalty intention and negative word-of-mouth intention. According to the authors, customers want to understand why a service failure occurs when they experience it, e.g. when customers need to wait for a delayed aircraft; customers will actively attempt to determine the cause of the service failure, such as an ATC restriction, technical malfunction, severe weather or improper management. (Vaerenbergh, et al., 2014) The causes customers attempt to determine effect customer emotions, satisfaction and behavioural intentions and can be categorized into three categories: stability, controllability and locus of causality. (Vaerenbergh, et al., 2014) Stability refers to the degree of whether the cause is temporary versus permanent. Controllability refers to whether the cause could have been prevented and locus of causality refers to the extent to which the cause is attributed to a third-party. (Weiner, 2000) Because of the limited availability of studies that include locus of causality, this attribution category was left out of the meta-analysis of (Vaerenbergh, et al., 2014).

In terms of satisfaction, a split was made between transaction-specific satisfaction and overall satisfaction. Transaction-specific satisfaction is the satisfaction of a customer of a particular part of the service, whereas overall satisfaction refers to the customer's satisfaction of the service provided by the organization, and other organization related experiences as a whole. (Vaerenbergh, et al., 2014) Most studies (more than 70%) analysed by (Vaerenbergh, et al., 2014) were found to apply cognitive evaluation ("I am satisfied with the service offered in the aircraft") of transaction-specific and overall satisfaction. The remaining studies applied emotional evaluation ("I was happy with the flight on this particular occasion"). The literature review performed by Vaerenbergh, et al., 2014) revealed that if customers consider the cause of a service failure a recurring issue of the service provider, this results in a lower transaction-specific and overall satisfaction. Furthermore, when customer perceive that a service provider could have controlled the service failure but failed to do so, customers are likely to conclude that the service provider made the choice of treating customers badly or does not have the resources to improve the service. The resultant is customer churn, negative word-of-mouth or complaints. (Vaerenbergh, et al., 2014) A complaint, according to Vaerenbergh, et al., 2014), is likely to be caused by a stability attribution cause.

The research of (Vaerenbergh, et al., 2014) also included the theory of (Geert-hofstede.com, 2015), taking into account the original four dimensions of culture.

- High power distance cultures are less likely to develop service failure attributions and more likely to accept what happened due to the fact that these cultures accept unequal distribution of power (Geert-hofstede.com, 2015) (Vaerenbergh, et al., 2014).
- Customers with a low cultural score on individualism are more likely to blame a service provider to service failures since they are more likely to pursue conflicts with out-group members. (Vaerenbergh, et al., 2014)
- Masculine culture members are less tolerant to service failure since they value performance standards, consistency and accuracy of procedures (Vaerenbergh, et al., 2014)
- For high uncertainty avoidance cultures, no significant support was found that they are more likely to negatively experience a service failure. (Vaerenbergh, et al., 2014) Even though high uncertainty avoidance cultures feel uncomfortable with unexpected situations.

The researchers of (Vaerenbergh, et al., 2014) found significant support that controllability and stability attributions result in an increase of negative emotions. Moreover, support was found that stability attributions are negatively related to transaction-specific satisfaction and overall satisfaction. Controllability attributions were found to have (through negative emotions) a stronger indirect effect on transactional satisfaction than stability attributions. Moreover, controllability attributions were found to have a direct effect on transactional satisfaction, even when negative emotions are part of the conceptual model. No support was found for the direct relationship between stability and controllability attributions with outcomes, i.e. loyalty intention and negative word-of-mouth intention. The complete results of the model of (Vaerenbergh, et al., 2014) can be found in Figure 54.

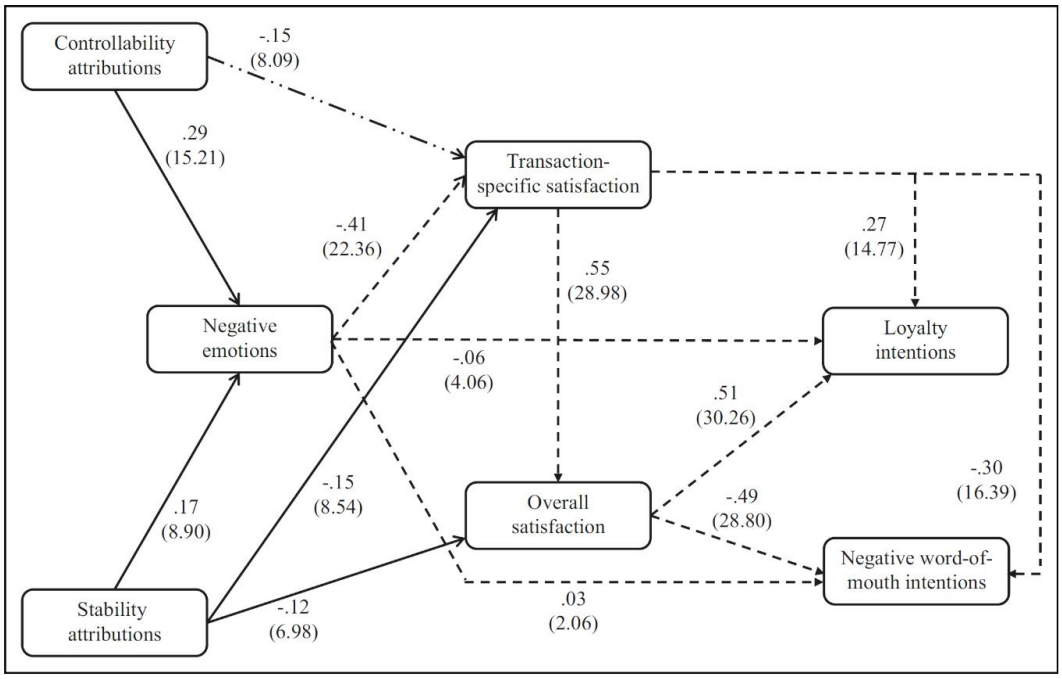


Figure 54 - Conceptual model obtained from (Vaerenbergh, et al., 2014, p. 390). Filled lines represent direct consequences of causal attributions, dotted lines represent indirect consequences of causal attributions and the dashed-dotted line indicates an added path on the basis of modification indices. T-values are presented in parentheses, non-significant relations are not included in this model

Service failure response

The authors of (Vaerenbergh, et al., 2014) propose various relevant managerial implications. The response of an organisation to a service failure should occur during three points in time: before the customer can form attributional causes, when the attributional causes are formed, and well after the attributional causes have been formed. The appropriate response during the three points in time is presented below.

- When a service failure has occurred and customers start to actively seek attributional causes companies should provide a fast, clear, on-the-spot answer to what caused the failure to help customers understand whether the failure was controllable or stable. By applying this method, companies prevent the formation of incorrect attributions and supress negative emotions. Moreover, it is recommended by (Vaerenbergh, et al., 2014) to make sure both complaining and non-complaining customers are provided with accurate information about the service failure.

- Once the attributional causes are formed by customers, they need to be managed by the company. Controllability attributions are likely to cause negative emotions and lower transaction-specific satisfaction. As a result, a company must lower these negative emotions, e.g. by apologising, showing empathy and being on time with a response. A quick compensation should be offered to lower the effects of the service failure on the transaction-specific satisfaction. In case of a stability attribution, a company must not only deal with the negative emotions and offer a compensation, but may also provide want to provide management (high level) support to the customer in case the service failure is more likely to be permanent.
- When a customer has defined an attributional cause well, the company should provide proof that the company is engaged in finding a permanent solution to the service failure. This can be achieved by requesting and using customer feedback to improve the service process.

Finally, (Vaerenbergh, et al., 2014) suggest that frontline employees should be provided with training to distinguish the type of attribution causes customers make. As a result, employees are more likely to identify whether a customer finds a service failure attribution to be controllable or stable and provided relevant feedback to the customer. A customer indicating "my flight is always delayed" is likely to have a stability attribution as cause.


F7
F9