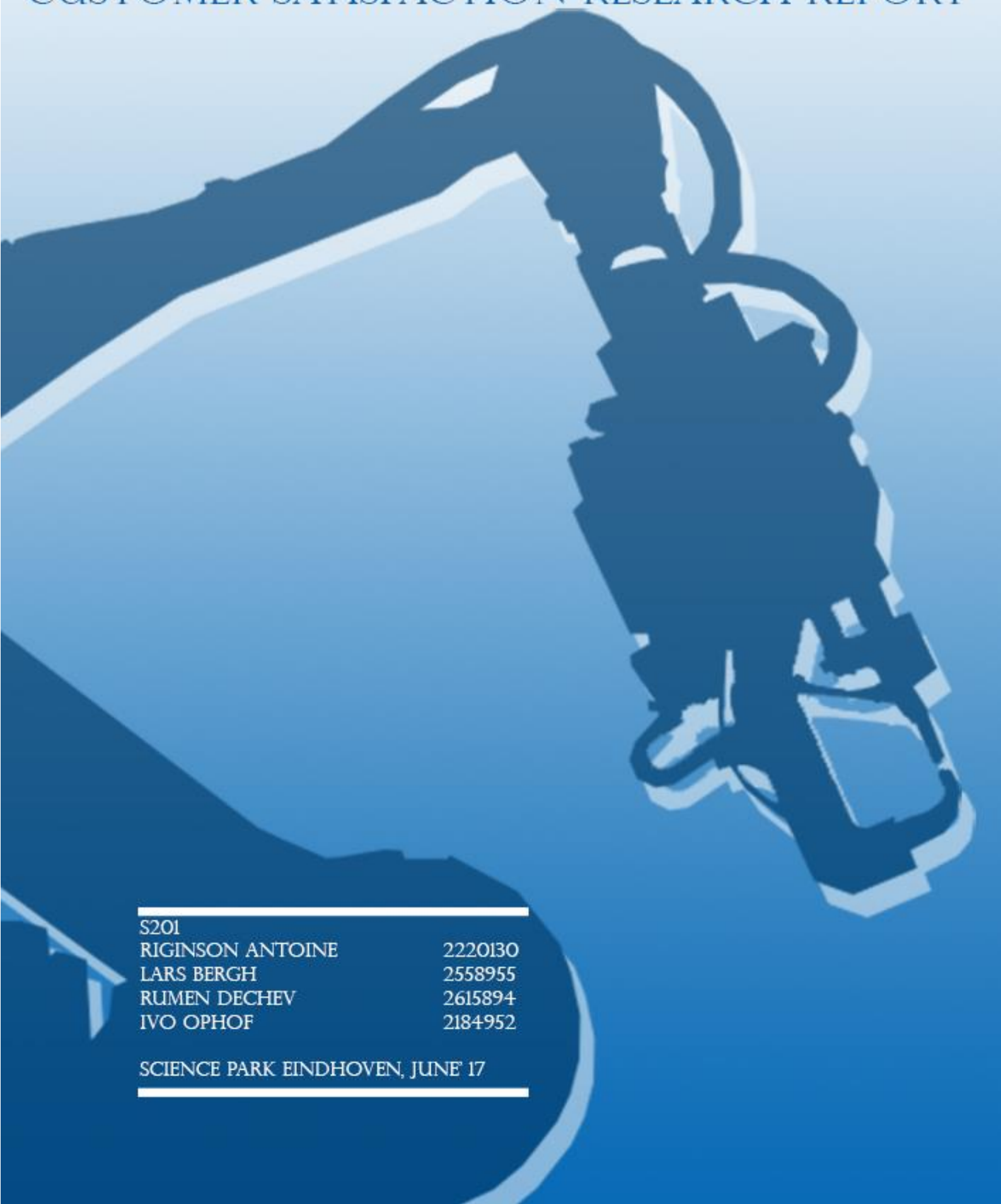


YASKAWA

CUSTOMER SATISFACTION RESEARCH REPORT



S201	2220130
RIGINSON ANTOINE	2558955
LARS BERGH	2615894
RUMEN DECHEV	2184952
IVO OPHOF	

SCIENCE PARK EINDHOVEN, JUNE 17

YASKAWA

Customer satisfaction Research Report

Client

Managing director
YASKAWA Benelux

Marketing specialist
YASKAWA Benelux

Supervisors

Mr. Deleu	Employee Fontys, Industrial Engineering and Management Fontys University of Applied Sciences
Mrs. Van den Heuvel	Employee Fontys, Industrial Engineering and Management Fontys University of Applied Sciences
Mr. Baas	Employee Fontys, Industrial Engineering and Management Fontys University of Applied Sciences

Authors

Mr. Antoine 2220130	Student, Industrial Engineering and Management Fontys University of Applied Sciences
Mr. Bergh 2558955	Student, Industrial Engineering and Management Fontys University of Applied Sciences
Mr. Dechev 2615894	Student, Industrial Engineering and Management Fontys University of Applied Sciences
Mr. Ophof 2184952	Student, Industrial Engineering and Management Fontys University of Applied Sciences

Group S201	Science Park Eindhoven, June 17, 2016
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Summary

The company for which the project was done is YASKAWA Benelux B.V. YASKAWA Benelux B.V. is a company that sells robot arms and precision motion apparatus. The company is divided in three divisions namely: Drives and Motion, Service and Robotics. The project group was assigned to conduct customer satisfaction research.

Project goals

The goals of this project were to:

- Create a survey that could be used at all YASKAWA locations in Europe;
- Conduct a statistical analysis of the received data to create a baseline for YASKAWA Benelux B.V. to analyse its performance;
- Get insight in the customer satisfaction of YASKAWA Benelux B.V. through the survey;
- Formulate recommendations for YASKAWA Benelux B.V. on how to take action or in what areas to improve on the services they provide.

Research question

When conducting the research, a target group was selected. The target group of this research was formulated as all customers that had done business with one or multiple YASKAWA Benelux B.V. divisions in the last three years. The research questions that followed was the following:

“To what extent are the customers of YASKAWA Benelux B.V. satisfied with the processes and services surrounding the delivered products from the divisions; Robotics, Drives & motion and Services?”

Methods of research

To answer the research question three different information sources were used. These information sources were the following:

- Interviews with managers;
- Open & Closed questions in the survey;
- Interviews with customers.

Before the data that was gathered through these sources could be thoroughly analysed some statistical groundwork was put into place. To lay the statistical groundwork a number of values were determined and calculated.

Like mentioned before the target group was formulated as the customers that had done business with YASKAWA Benelux B.V. in the last three years. The population size of this target group (amount of customers) that received a survey was 145. Out of these 145 surveys 47 surveys were filled out. When conducting the survey, a preferred reliability of 95% and an inaccuracy of 5% were for sample. The actual reliability that was realized was 95% and the actual inaccuracy was 12%. This meant that the sample was too small to get to the 5% inaccuracy mark, but could still be used for comprehensive conclusions.

The analysis

After this, the previously mentioned information sources were used to conduct the thorough analyses. The following analyses were conducted on the gathered data:

- Internal analysis
- External analysis

The internal analysis was done to get insight into the perspective of the managers and what they think is important for customers. This analysis was done with the SERVQUAL (service quality model) as well as the interviews with managers. These methods of research resulted in the following points that were considered worthy of investigation by managers for the survey:

- response time;
- Quality of the products;
- The degree to which managers think along with customers;
- Quality of the service contract;
- Quality of the news updates YASKAWA provides;
- The way YASKAWA caters to specific customer needs;
- The availability of right products.

After the internal analysis, the external analysis was conducted. The external analysis was made up of the survey, the analysis of the survey, interviews with customers, porter's five forces model, the SWOT analysis and the confrontation matrix. For the purpose of this summary only the most important points from this analysis will be mentioned.

During the analysis of the results of the survey, a table was made to showcase potential points of improvement for YASKAW Benelux B.V. In the following table these top 10 worst scoring questions are mentioned. The questions that are highlighted in red could actually be addressed by YASKAWA Benelux B.V. itself and are not dependent on any other entity within the entire YASKAWA organization.

Question number	Worst scoring	Grade
1	To what degree are you satisfied with the order confirmation of Drives and Motion?	6.4
2	How satisfied are you with the promised delivery time of YASKAWA?	6.6
3	How satisfied are you with the actual delivery time of the YASKAWA products?	6.7
4	How satisfied are you with the quotation that YASKAWA sent to you prior to ordering?	6.8
5	To what degree are you satisfied with the spare part service of YASKAWA?	6.8
6	How satisfied are you with the received information by YASKAWA concerning their new products and services?	6.9
7	To what degree are you satisfied with the way YASKAWA approaches your company with a new product or services?	7.0
8	To what degree are you satisfied with the time it takes YASKAWA to solve your problems?	7.0
9	How satisfied are you with the quality of the information on the YASKAWA website?	7.0
10	How satisfied are you with the accessibility of the right information for you as a customer on the website?	7.2

Besides the worst scoring questions, the open questions and the interviews with customers were also analyzed. Combining the information gathered from the table above, the open survey questions and the interviews with customers led to a number of points that need to be improved upon according to customers. The following list demonstrates these points:

- It would be beneficial to meet up with customers (more frequently);
- Delivery time too long;
- Communication towards customers should be looked into (newsletter or otherwise);
- The drives and motion order confirmation is lacking;
- The quotations could be better;
- The way YASKAWA Benelux B.V. approaches companies with new product and service information.

The way these issues could potentially be addressed will be clarified further in the recommendations.

Also, other approaches were taken to further answer the research question. To further answer the research question as stated earlier, the actual customer satisfaction levels had to be calculated. In the

following table the satisfaction levels were stated of each of the three divisions as well as the overall satisfaction level. Also, four dimensions were created that grouped similar questions together. These satisfaction levels are also shown in the table below.

Satisfaction level	grade	Standard deviation
Robotics	7,4	0,2
Service	7,5	0,5
Drives & Motion	7	0,9
Friendliness	8,5	0,0
Responsiveness	7	0,3
Reachability	7,5	0,0
Information	7,4	0,0
Overall satisfaction	7,4	0,5

Conclusions and recommendations

Finally, conclusions could be drawn and recommendations could be made. In general customers are quite satisfied with the services and processes that YASKAWA Benelux B.V. has in place. This however does not mean that there is no room for improvement. As can be seen by the worst scoring questions table there are multiple things that YASKAWA Benelux B.V. could improve upon.

YASKAWA Benelux B.V. also has a number of things that it should not change. When it comes to friendliness of the personnel YASKAWA Benelux B.V. should aim for incremental improvements while putting the focus on the things that do need to be improved upon. This leads to the advice that is stated in the following paragraph.

The advice provided in this report is to continue to adopt one integrated ERP system. The reason for this is that it will tackle most of the quotation or order verification issues because there will be a centralized system to take care of these problems. Because this ERP system will not be fully implemented until march of 2017 temporarily recommendations are made. The following recommendations are stated:

- YASKAWA Benelux B.V. should look into the quotations on what issues/ challenges there are;
- Order verification should be more detailed with specs on the sold robot;
- There should be more info about robots send to customers so they can see themselves what robot fits their needs the best.

It is also recommended that YASKAWA Benelux B.V. looks into the possibilities of improving upon the delivery time. Because YASAKWA Benelux B.V. has no influence on the promised nor the actual delivery time this can be done by communication with the YASKAWA subsections that influence these issues.

Foreword

YASKAWA is a company that produces and provides solutions for companies in the form of manufacturing robots and precision motion apparatus. YASKAWA is a multinational company with thousands of employees. The subsection YASKAWA Benelux B.V. has hired a group of students to conduct customer satisfaction research. In this report the customer satisfaction research that has been done for YASKAWA Benelux B.V. will be discussed and elaborated on.

This document will make the connection between the problem statement, the analysis that follows this problem statement and the conclusions and recommendations that this has resulted in.

The customer satisfaction research was conducted for YASKAWA Benelux B.V. in light of the *“The Voice of the Customer”* project. The company is responsible for handling sales and service for the Benelux area. YASKAWA Benelux B.V. can be divided into three departments namely: Drives and motion, Robotics and service.

The company is coping with many customer satisfaction challenges in the various departments. The main reason for these challenges is the rapid growth that company has experienced in recent years. To keep track of the customer satisfaction level and the possible opportunities for improvement yearly surveys are done. In 2015 the first customer satisfaction research was conducted in the form of a relatively basic survey. Now in 2016 YASKAWA Benelux B.V. want to get a deeper understanding of the customer satisfaction and the possible opportunities for improvement that it could exploit.

The scope of the research limits itself to the YASKAWA Benelux B.V. and its customers. Other regions besides the Benelux are have not been researched during this project. Within YASKAWA Benelux B.V. all three different departments have had their customer satisfaction levels investigated throughout the research.

We would like to thank the employees of YASKAWA Benelux B.V. that have assisted us in the completion of our project. We would like to especially thank the Managing director as well as the Marketing specialist of YASKAWA Benelux B.V. for guiding us throughout the project. Also the managers from the divisions Robotics, Drives and Motion and Service have been very helpful in their efforts to supply the project with the right information and we would like to thank them for these efforts.

Finally, we want to thank our tutor and other teachers from the Industrial Engineering department that have provided us with helpful tips, tricks and information.

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Glossary

ISD (Interactive Service Delivery) model:	A model used to visualize dimensions for a survey.
Variable chart:	A model used to create different dimensions for a survey.
SPSS:	Software package used for statistical analysis.
SERVQUAL model:	A model used to measure and compare the perceived quality of services to the actual quality of the services.
Preliminary research:	Research that contains information that needs to be verified and is inconclusive in nature.
Macro business environment:	External environment that the company cannot influence.
Meso business environment:	External environment that the company can influence.
Supply chain:	The network created amongst companies for the producing, handling and/or distributing of a specific product.
TCS clients:	Total customer support clients.
Research unit:	The group that is going to be researched.
Cronbach alpha:	Method used to determine consistency between questions that form a dimension.
Chi squared method:	A method to test a statistical dependency.
Standard deviation:	A measure of the dispersion of the data from its mean.
Porter's five forces model:	Model that identifies and analyses five competitive forces that shape an industry.
SWOT- analysis:	A SWOT analysis is a model that identifies the strengths, weaknesses, opportunities and threats of an organization.
ERP- system:	Enterprise resource planning system.
Reliability:	The extent to which a measurement is independent of chance.

Chapter 1: Introduction

To give insight into the foundations of the research that has been conducted a number of points are elaborated on. First, the problem statement and the assignment are described. Secondly, the company and research goals are stated. These goals will tie in with the problem statement and the assignment. Lastly, the methods of research, anonymity and confidentiality, pre conditions, target group and the report structure are described to clarify the foundation on which the research rests.

1.1 Problem statement

YASKAWA is a company that produces and provides solutions for companies in the form of manufacturing robots and precision motion apparatus. Within YASKAWA there are a number of regions that are represented by different subsections worldwide. YASKAWA Benelux B.V. is the subsection that deals with the business YASKAWA has in the Benelux. YASKAWA Benelux B.V. itself is made up of three departments namely: Service, Robotics and Drives & Motion (see Annex 4 for organisational structure). Because YASKAWA Benelux B.V. is a growing subsection of YASKAWA as a whole it needs to keep its customers satisfied to ensure continuity. To ensure that a high level of satisfaction is achieved YASKAWA Benelux B.V. plans to do a yearly survey to get insight in the processes that need improvement. Last year the first survey was done to serve this purpose. This survey was relatively short and not very in depth. The goal of YASKAWA Benelux B.V. for this year was to do a survey that would be more in depth to really pinpoint the potential issues in their processes. This “problem” led directly to the assignment that was provided by YASKAWA Benelux B.V.

1.2 Assignment

The assignment that YASKAWA Benelux B.V. wanted to be pursued had to revolve around B2B customer satisfaction research. YASKAWA Benelux B.V. created a survey last year to get a sense of customer satisfaction levels. To create a solid new baseline, YASKAWA Benelux B.V. has let an external group do research into the customer satisfaction levels of the three divisions. These three divisions are Robotics, Drives and Motion and Service. This research was focused on the processes and services surrounding the products instead of the products themselves. The survey also had to have specific questions related to every division to get more insight into the satisfaction within every department independently. The research question that followed from this assignment was stated as such:

“To what extent are the customers of YASKAWA Benelux B.V. satisfied with the processes and services surrounding the delivered products from the divisions; Robotics, Drives & motion and Services?”

To successfully complete the assignment a number of key figures in the company and in Fontys University were regularly contacted for information or insight concerning the assignment (see Annex 3 for these key figures).

1.3 Company goal and research goal

To showcase the usefulness of the research a list of YASKAWA business goals was compiled. The following business goals were compiled into a comprehensive list:

- Constantly developing and improving technologies that will attract global attention;
- Always emphasise product quality;
- Respond to customer needs in accordance with the market trends;
- Get better insight in customer satisfaction levels;

This report intent to improve YASKAWA Benelux B.V. on the last two points. The reason for this is that both these points have to do with customer needs and satisfaction. To help YASKAWA Benelux B.V. pursue its goals the following research goals were set:

- Create a survey that could be used at all YASKAWA locations in Europe;
- Conduct a statistical analysis of the received data to create a baseline for YASKAWA Benelux B.V. to analyse its performance;
- Get insight in the customer satisfaction of YASKAWA Benelux B.V. through the survey;
- Formulate recommendations for YASKAWA Benelux B.V. on how to take action or in what areas to improve on the services they provide.

1.4 Methods of research used

To give a clearer view of the way in which the research has been conducted the methods of research used will be stated in the following piece. The methods that were used were the same for all three divisions apart from certain details specific to department that the customer will select in the survey. The conducted research has a qualitative and a quantitative component.

The quantitative component was conducted in the form of a survey. First, relevant dimensions were created based on the ISD model. This model was used because it gives clear insight into the company and its services. (see Annex 23 for an example of an ISD model). After this, relevant questions were formulated for every dimension. These dimensions and their questions were compiled into a variable chart (see Annex 1). Based on this variable chart the survey was formed by ordering the questions (Annex 2). This ordering of questions was based on the chronological way in which customers would encounter all different elements within the company. This means pre-sales then sales and finally after sales in that order. After this the survey was sent out to all relevant customers in the target group. After this, statistical analyses in SPSS were used to determine the internal consistency within groups of questions as well as the strength of the connection between certain dimensions. There were also tables, graphs and standard deviation calculations done to clarify some of the research. Also the SERVQUAL model was used. This model was used to conduct an internal analysis of the company. The SERVQUAL model showed the gaps between the perceived service and the actual service level.

The qualitative part of the research was conducted by using an interview format. First, the managers from the different departments were interviewed to get insight in every division in the company. After the interviews with the managers a few customers were contacted to schedule an interview. These interviews were used to get deeper insight in the satisfaction levels of these customers as well as having them give input for the survey that would be conducted later on.

1.5 Anonymity and confidentiality

Concerning the anonymity and confidentiality of the research a number of agreements have been made between the company, the project group and Fontys. First of all, it was agreed upon that none of the companies that have received the survey would be mentioned by name in any of the reports that were created by the group. The reason for this was that Fontys demands the project group to operate in such a way that keeps the customers of YASKAWA Benelux B.V. anonymous. Also, none of the names of the employees at YASKAWA Benelux B.V. could be mentioned in any of the reports except for the contract itself. This was done to prevent YASKAWA Benelux B.V. from losing certain competitive edges that it currently has.

1.6 Pre conditions

While discussing the project with the company manager of YASKAWA Benelux B.V. a number of restrictions were set on the research regarding this project. These include:

- Names of managers and key figures in the company may not be revealed;
- The names and companies that took part in this research cannot be revealed;
- the research is restricted to B2B;
- The research has to be completed in 18 weeks.

1.7 Target group & Defining the term customer

The target group that has been researched includes all customers that do business with the Robotics, Drives and Motion or Service division (or any combination of the three). A customer (as used in the research question) is defined as a company that has done business with YASKAWA Benelux B.V. in the last three years. The reasoning behind this definition is that only recent customers could form an educated opinion on the current YASKAWA Benelux B.V. services and processes.

1.8 Justification of report structure

There are two types of report structures that could have been chosen for this report. These choices were the pyramid structure and the funnel structure. The pyramid structure starts with the conclusions and then works backwards to explain where the conclusions came from and what research has been conducted to back this up. The funnel approach is the exact opposite. The funnel report starts with the research that has been done and then clarifies how this research led to the following conclusions. This report follows a funnel structure. The reason for this choice is the fact that it is easier for the reader to see what information was gathered to come to the final conclusions because the funnel structure is chronological in nature.

Chapter 2: Current situation at YASKAWA Benelux B.V.

To get insight into the way the company operates and what relevant starting information is available, preliminary research was conducted. This was done in the form of interviews with YASKAWA Benelux B.V. personnel. In these interviews there was information gathered that could be taken into consideration while conducting the research. The current situation forms the baselines of the research because it states what the current situation is. This research is conducted with the idea of bringing the company closer to a desired situation

2.1 Marketing activities & identified issues

First, information was gathered concerned the current marketing activities that YASKAWA Benelux B.V. conducts. A list of these activities can be seen in Annex 5. The marketing activities are divided into 3 sections:

- Exhibitions;
- Advertisement;
- General marketing activities.

YASKAWA Benelux B.V. uses a lot of advertisement compared to the exhibitions and general marketing activities.

Secondly, the issues that were already to some degree identified when it comes to customer satisfaction were compiled Annex 6. The most important that were then identified were the following:

- Limited engineering support;
- Long reaction time;
- Lower after sales service;
- Complex and slow logistics;
- Poor internal reputation regarding internal and external customer service.

These issues were identified during the last survey that was conducted.

Finally, the supply chain was mapped to get insight in the processes that influence YASKAWA Benelux B.V. indirectly. According to the managing director most manufacturing is done in Japan. From Japan products are shipped to the European storage locations in Germany or customised in Sweden. When products are being ordered they get transported from the German storages to the customer.

2.2 Company positioning and environmental factors

To get deeper insight into the company prior to the customer satisfaction research, further research was done. First the products YASKAWA Benelux B.V. sells were mapped as well as the industries in which these products were used. More details concerning these matters can be found in Annex 7.

After this, the way these products were placed inside the market and the degree to which these are competitive was researched. It turned out that YASKAWA Benelux B.V. is most at home in the differentiation section of porters “Competitive strategy model”. YASKAWA Benelux B.V. fits this section because of the high level of uniqueness of their products combined with the broadness of the industries in which they operate. For information about the company positioning can be found in Annex 8.

Finally, the Macro (external influences that cannot be controlled) and the Meso (outside factors that can be influenced) business environments were mapped. This was done to get a sense of the external influences that the company has to deal with while operating. From the examination of the different

environmental factors it can be concluded that YASKAWA Benelux B.V. finds itself in a highly competitive fast growing market. Also the technological progress is very fast and the political incentives to stimulate innovation in the Netherlands is growing. (see Annex 9).

2.3 Client portfolio & Financial statement

YASKAWA does not limit itself to one or a few industries when doing business. The clients they have are spread across many industries. A few examples of these industries are the following:

- Agriculture;
- Automotive;
- Chemistry / Plastic;
- Crane / Hoist;
- Electric/ Electronics;
- Wood;
- Lab automation;
- Food;
- Lift;
- Marine & Offshore;
- Metal;
- Textile.

More about the client portfolio can be found in Annex 7. The actual client list cannot be disclosed due to confidentiality issues. Because of these same reasons there can be no financial information disclosed from the company.

Chapter 3: Used methods of data collection

After mapping the current situation, the data was gathered. The research was done by gathering information through three different sources. The information that was needed to answer the research questions was gathered through the following sources:

- Interviews with managers;
- Open & Closed questions in the survey;
- Interviews with customers.

The data that was gathered through these three different sources then converged to more comprehensive issues or points that could be addressed with recommendations. In the following piece the research will be described that was done to come to the results that will follow in Chapter 4.

3.1 Interviews with managers

First, there were interviews with managers. These interviews were done to get insight in every department separately and to get a feeling of the way processes worked in each of these departments. The interviews were also used to identify the issues that the managers already saw within the company. After this, the interviews were used to create the SERVQUAL model to get a feeling of the by managers perceived quality. The summarized results of these interviews can be found in paragraph 4.1.2.

3.2 Interviews with customers

After creating a preliminary version of the survey, interviews were conducted with customers. These interviews were done to conduct a so called “pilot survey”. This was done by asking questions to understand the needs that the customers currently have. Also, questions were asked to find out if there were certain areas that YASKAWA Benelux B.V. could improve upon. The questioned areas could then also be used in the survey to get further insight in the points that the customers would address. The summarized results of these interviews can be found in chapter 4.2.2.

3.3 The survey

After the interviews with the managers and the customers a final survey was created based on the input gathered from the interviews. The final survey can be found in Annex 2.

When the survey was completed a plan had to be established as to how customers would be approached. A list of customers was received from the marketing manager with all the relevant contacts that had to be approached. It was determined that this had to be done through a twofold approach.

First, customers would receive an email with an offer letter (Annex 18) that included a link to the survey. After two weeks of waiting for responses, a phone call was conducted to remind the customers to fill in the survey. This call was based on a phone script that was written prior to calling (phone script can be found in Annex 19). For a more detailed description of the way customers were approached and what was taken in consideration for it see Annex 11. For a more detailed description of the way non response was dealt with see Annex 12.

Also, some importance questions were asked in the survey. These questions were asked to get a sense of the link between the satisfaction of the customer in certain areas and how important the customers consider these areas to be. The links that were found between satisfaction and importance were further discussed in paragraph 4.2.1.5.

3.4: Collected data and statistical groundwork

To effectively collect data and calculate the reliability and accuracy a target group had to be selected. In the case of this research the target group made up out of Drives and Motion customers as well as TCS (total customer support services) customers. It is important to note that all TCS customers own YASKAWA robots, because it is impossible to be a service customer without owning a robot. This means that they of course have also had experience with the sales department which makes this research entail all three divisions.

3.4.1 The way data was collected

To calculate the response rate, reliability and accuracy data needed to be collected through the survey. To get a maximum response rate a series of approaches and follow ups were used and conducted. First, the survey was sent out to all TCS and Drives and Motion contacts via email. This was done through the email list provided by the company. This email list contained all the contacts that were in direct contact with YASKAWA Benelux B.V. Two weeks later there was a follow up round. In this follow up all people within the companies that had not yet filled in the survey were called and reminded of the survey in a friendly way. During this follow up all people that could not be reached were sent a reminder to still fill in the survey. During these calls customers were also stimulated to fill in the survey by sending it to them again if they so preferred. This was done to minimize the amount of effort that customers had put in.

3.4.2 Population size

The target group that was chosen entailed all the customers that have done business with the TCS, Drives and Motion and Robotics department in the last three years. This meant that the population size was as big as the target group because all customers within the target group were approached.

The population size in this case entails all the TCS, Robotics and Drives and Motion customers that have direct experience with the YASKAWA Benelux B.V. services and procedures during their business with YASKAWA Benelux B.V. Based on TCS, Robotics and Drives and Motion customer base files, received from the company, a final list of 153 customers was compiled. 145 of these would eventually form the population due to removal of certain companies from the list. These removed contacts were removed from the list to get a reliable population. The reasons for removal were invalid phone numbers, bankruptcy of the company in question, or lack of experience with YASKAWA Benelux B.V. services and products. These issues were found during the telephone calls that were made to remind the companies to fill in the survey.

3.4.3 Sample size & response

After sending out the survey a waiting period of two weeks started. Two weeks after the survey was sent out about 32% of surveys were filled in. In this survey the sample size and thus the response was 47. There was a certain response needed within this sample to calculate reliability.

3.4.4 Reliability

To get the highest relevant reliability level, the reliability percentage needed was set to 95%. This reliability is accompanied by an inaccuracy of 5%. To achieve this level of reliability and accuracy 105 responses were needed which translated to a response rate of 72.4%. In the research done for YASKAWA Benelux B.V. a response rate of 32.4% was realized. This entailed 47 finished surveys out of the 145 total surveys.

3.4.5 Inaccuracy

With a population size of 145 and a sample size of 47 the inaccuracy was calculated. The calculated inaccuracy was 12%. This means that the inaccuracy level is higher than the preferred 5% inaccuracy.

stated in the previous paragraph. This however, does not mean that the results gathered within the sample can be ignored. This only means that the results are a little less certain than if the preferred response was met. To see the formula and the calculations that were made see Annex 20.

Chapter 4: Analysis of the collected data

After gathering the data from the survey and the interviews the results could be mapped. These results were based on the data gathered from the open and closed questions from the survey as well as the information gathered from the interviews with customers and managers.

The results can be split up in a number of different results being the following:

- Internal analysis
- External analysis

Each of these analysis can be split up further into different subsections.

4.1 Internal analysis

The internal analysis consists out of two different sections. The first part is the SERVQUAL model in which the customer perspective is compared to the personnel's perspective. The second parts consist of the interviews with managers to get a better understanding of what customers need in their perspective.

4.1.1 SERVQUAL model

For the internal analysis of YASKAWA Benelux B.V. the SERVQUAL model was used. SERVQUAL is short for Service Quality. This model gives a good impression of what the customers think of the quality of the service compared to what the perceives this quality to be.

The SERVQUAL model uses 5 gaps to measure the differences between expected service and actual service quality. The survey was conducted to showcase the actual service quality and the interviews with managers were done to measure the perceived service quality. After this the differences between the actual service quality and the perceived service quality were mapped.

The first gap defines the difference between service that the customer expects and the things that management thinks the customers expects.

The second gap is the gap between the perceptions that management has concerning customer expectations and the translation of these perceptions into quality specifications. This defines if the management perception is correctly translated into quality specifications.

The third gap is the gap between translation of perceptions into quality specifications and service delivery. This gap defines if the quality specifications are in line with the tasks surrounding the service of the personnel. This basically states the degree to which employees are doing their job properly.

The fourth gap is the gap between service delivery and external communication. This defines how well the actual service is compared to the communicated service.

The fifth and last gap is the gap between the perceptions that management has of what the customers want and the expectations that the customer has related to services. This clarifies the difference between what the management thinks that the customer experiences and what the customer actually experiences.

SERVQUAL

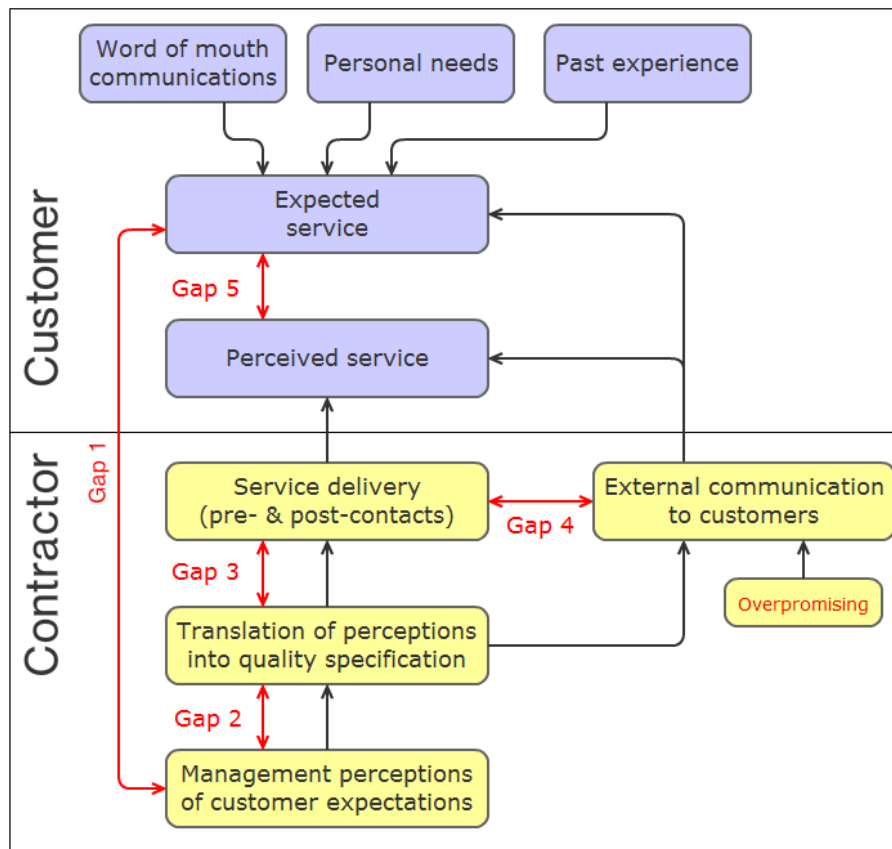


Figure 1: SERVQUAL model

To come to clear conclusions using the SERVQUAL model a number of interviews have been held with customers but also with managers of YASKAWA Benelux B.V. Also, the results of the survey have been taken into account in the internal analysis.

4.1.2 Interviews with managers

During the project three managers were interviewed. The interviewed managers were the managers of Drives and Motion, Robotics and Service. The most important points that they recommended to incorporate into the survey were questions related to the following points:

- response time;
- Quality of the products;
- The degree to which managers think along with customers;
- Quality of the service contract;
- Quality of the news updates YASKAWA provides;
- The way YASKAWA caters to specific customer needs;
- The availability of right products.

To get more insight into the interviews with managers see Annex 14.1 to 14.3.

4.2 External analysis

The external analysis can be split up in three different sections. These sections are the following:

- The survey
- The interviews (with customers and managers)
- Other external factors (5 forces model by porter)

After compiling the information and conclusions from these three points a general conclusion was formed. This conclusion can be found in paragraph 4.2.4.

4.2.1 Survey

After conducting the survey, a lot of data was gathered. To convert this data to make it useful, a number of actions were performed to form sufficient conclusions afterwards. The data was organized and certain calculations were conducted to make the data more insightful. The data was split up into the following points:

- Survey (open and closed questions);
- Worst and best scoring questions;
- Cronbach Alpha, Chi squared method (cross referencing dimensions);
- Relationship between importance questions and satisfaction.

These points will be discussed separately in the following paragraphs.

4.2.1.1 *Information gathered from open questions*

During the survey three different open questions were asked. Each open question related to one of the three departments. The following three open questions and the main points per question are stated beneath:

What would you like to see changed when it comes to the Robotics department of YASKAWA and why?

- More information on robots;
- Reaction time to questions shorter;
- Delivery time shorter.

What would you like to see changed when it comes to the Drives and Motion department and why?

- Repair handling should go smoother;
- Delivery time shorter.

What would you like to see changed in the way YASKAWA provides their Services and why?

- Shorter reaction time;
- Delivery time should be shorter;
- Better expectations for delivery time of products.

All three questions related to the things that the customers of those divisions would like to see changed. The reason for asking these questions was that this gives direct insight in the customer its dire needs from the company. It also gives insight in where the company is currently lacking.

4.2.1.2 information gathered from closed questions

After gathering the information from the survey in lime survey a number of calculations could be done. These calculations have given some general insight into the different satisfaction levels of certain departments, dimensions and even gave insight into the overall satisfaction level. First, the overall satisfaction in each department and the overall satisfaction were calculated. After this, the satisfaction was calculated of the friendliness, responsiveness, reachability and information dimensions. More information about these dimensions and what they are based on can be found in paragraph 4.2.1.6. The following table shows these satisfaction levels and their standard deviation.

Table 1: Grades based on survey

Satisfaction level	grade	Standard deviation
Robotics	7,4	0,2
Service	7,5	0,5
Drives & Motion	7	0,9
Friendliness	8,5	0,0
Responsiveness	7	0,3
Reachability	7,5	0,0
Information	7,4	0,0
Overall satisfaction	7,4	0,5

The data shows that there are relatively small differences between the three departments. This however does not mean that no difference should be noticed. The average satisfaction level of the Drives and Motion department is the lowest for example. This has been taken in consideration when making decisions on what to improve upon.

The dimensions that had their satisfaction levels checked show a large amount of variation between their values. As can be seen in the table, Friendliness seems to score very high when the other dimensions score considerably lower. In the next paragraph the connection will be made between the dimensions that were investigated and the importance that customers attribute to these dimensions.

4.2.1.3 Worst scoring questions (closed questions)

One of the ways in which the company processes that YASKAWA Benelux B.V. should improve upon was determined was through the worst scoring questions. The worst scoring questions were determined by looking at the closed questions from the survey that received the lowest average score. In the table below the top 10 worst questions are shown. In the table the number 1 indicates the worsts scoring question and the number 10 indicates the 10th worst scoring question. Based on this top 10 there were the following two things checked before focusing on possible ways of improving on these points:

- The degree to which YASKAWA Benelux B.V. can influence the causes of the problem that causes the dissatisfaction;
- Representativeness and reliability of the scores.

First of all, the questions that YASKAWA Benelux B.V. could have an influence on were selected. This narrowed the 10 worst scoring questions down to 5 questions that were highlight in red in the table below.

Table 2: Worst scoring questions

Question number	Worst scoring	Grade
1	To what degree are you satisfied with the order confirmation of Drives and Motion?	6.4
2	How satisfied are you with the promised delivery time of YASKAWA?	6.6
3	How satisfied are you with the actual delivery time of the YASKAWA products?	6.7
4	How satisfied are you with the quotation that YASKAWA sent to you prior to ordering?	6.8
5	To what degree are you satisfied with the spare part service of YASKAWA?	6.8
6	How satisfied are you with the received information by YASKAWA concerning their new products and services?	6.9
7	To what degree are you satisfied with the way YASKAWA approaches your company with a new product or services?	7.0
8	To what degree are you satisfied with the time it takes YASKAWA to solve your problems?	7.0
9	How satisfied are you with the quality of the information on the YASKAWA website?	7.0
10	How satisfied are you with the accesibility of the right information for you as a customer on the website?	7.2

Secondly, the representativeness of the 5 remaining questions were determined by calculating the standard deviation and the borders that come with it within every question. This was done to get a sense of how spread out the answers of the questions really were. This analysis led to the following:

Table 3: Worst 5 scoring questions with SD

Question	X mean	Standard deviation	Left border	Right border
To what degree are you satisfied with the order verification of the Drives and Motion department?	6,4	2,0	4,4	8,4
How satisfied are you with the quotation received from YASKAWA prior to ordering?	7,4	1,6	5,8	9,0
To what degree are you satisfied with the information you get about the new products and services of YASKAWA?	7,5	1,6	5,9	9,1
To what degree are you satisfied with the way YASKAWA approaches you with new products and services?	7,0	1,8	5,2	8,7
To what degree are you satisfied with the time it takes YASKAWA to solve your problems?	7,0	2,1	4,9	9,0

As can be seen in the table above the standard deviation is quite high. The borders indicate the values between which 68% of the sample lies. The great deviation from the mean means that the values do not cluster extremely closely to the mean. This unreliability should be taken in consideration when addressing the problems that underlie the worst scoring questions. For a more precise look into these numbers see Annex 22.

4.2.1.4 Best scoring questions (closed questions)

After determining the worst scoring questions, the best scoring questions were considered. This was done to give insight in the areas that YASKAWA Benelux B.V. performs very well at. This could help YASKAWA Benelux B.V. put the focus on the lesser scoring questions rather than mainly improving on their best scoring points. The following points scored very well at YASKAWA Benelux B.V.:

Table 4: Best scoring questions

Question number	Best scoring	Grade
1	How satisfied are you with the friendliness of the Sales personnel?	8.5
2	To what degree are you satisfied with the friendliness of the YASKAWA personnel over the phone?	8.5
3	To what degree are you satisfied with the programming done on your robot?	8.3

The results from this table show that YASKAWA Benelux B.V. does very well in the area of Friendliness and programming. These are the areas in which YASKAWA Benelux B.V. should keep progressing incrementally while focusing on improving on other aspects.

4.2.1.5 Relationship between importance questions and response

To determine if the satisfaction level is even relevant for the company to improve upon importance of certain dimensions have been checked. If a customer is very dissatisfied about something but does not consider it to be that important it might be not that relevant to improve upon this point.

The first importance question was related to delivery time. As can be seen in paragraph 4.2.1.3. the actual delivery time and promised delivery time are the second and third worst scoring questions. This, even though they are considered to be extremely important scoring a 4.4 out of 5.

Table 5: Importance questions

Importance questions	Average grade	Standard deviation
How important is delivery time for you as a customer? On a scale from 1 to 5 with 1 being 'not very important' and 5 being 'very important'.	4.4	1.0
How important is reachability of the YASKAWA personnel for you as a customer? On a scale from 1 to 5 with 1 being 'not very important' and 5 being 'very important'.	4.5	0.9
How important is packaging of the product for you as a customer? On a scale from 1 to 5 with 1 being 'not very important' and 5 being 'very important'.	3.5	1.1

The next importance question relates to reachability of YASKAWA Benelux B.V. As can be seen in paragraph 4.2.1.2 the average grade for the reachability dimensions is a 7.5. This should definitely be looked at because there is room for improvement and the importance of reachability is extremely high namely a 4.5 out of 5.

The final importance questions were related to packaging. Even though this scores a decent 3.5 out of 5 it was never mentioned in any of the open questions or interviews. Because of these reasons it can be assumed that it is should not be YASKAWA Benelux B.V. its priority to look into this.

4.2.1.6 Cronbach Alpha

Calculating the Cronbach Alpha was done in a number of different steps. First, a number of dimensions were formed. These formed dimensions are **reachability information friendliness** and **responsiveness**. These dimensions grouped 2 or 3 questions to create new relevant dimensions that could be compared with one another.

To see if these dimensions could be compared a Cronbach Alpha was calculated per dimension. The Cronbach Alpha is calculated to ensure the consistency of the questions that are grouped. The following result was obtained for the Cronbach Alpha:

Table 6: Cronbach per dimension

Dimension	Questions used per dimension	Cronbach Alpha
1. Information	C1, C2	0.69
2. Friendliness	C6, D6	0.60
3. Responsetime	E1, E2, E3	0.92
4. Reachability	D3, D4, D5	0.87

More in depth results on the Cronbach alpha and the dimensions can be found in Annex 15.

4.2.1.7 The Chi-squared method and scatter plot

After determining the degree to which questions can be grouped into certain dimensions by using Cronbach Alpha, the strength of the relationship between certain dimensions could be researched. Researching the strength of these relationships was done with the Chi-squared method as well as using a scatter plot.

4.2.1.7.1 The Chi-squared method

The Chi-squared method can only be used if two requirements are met.

First of all, the dimensions that were compared though the Chi-squared method had to meet the 0.6 Cronbach Alpha value. Since the Responsiveness, information and Reachability dimensions are the three dimensions that achieved these requirement, they were the three parameters that could be compared.

Secondly, dimensions that have been compared had to have some kind of logical relationship between them. This was determined by asking oneself if there were any logical correlations between the two dimensions. This means that two completely distinct dimensions with no logical relationship between themselves cannot be compared even if they both meet the 0.6 Cronbach Alpha value.

Since Responsiveness and Reachability were the only two dimensions that could be grouped and would still satisfy both requirements, their relationship could be calculated by using the Chi-squared method. The reasoning for this is that there is a logical relationship between how easy is it to reach the company and how well the responsiveness is.

With these points in mind the Chi-squared was calculated. The Chi-Squared method checks if the dimensions are independent. This independence can be considered the null hypothesis. If the Asymptotic significance falls below 0.05, then with 95% confidence can be stated that the null hypothesis can be rejected. Because the asymptotic value is extremely low as can be seen in the figure below, the null hypothesis can be rejected. This means that there is a relationship between Responsiveness and Reachability.

Table 7: chi-square and significance

Chi-Squared	Asymptotic significance
12.3	0.000

For more in depth information on how the Chi-squared was calculated see annex 10.

Note: There are too many cells that have a value lower than 5 which makes the Chi-squared value not extremely reliable in this case.

4.2.1.7.2 Scatter plot

To verify the dependency of the two variables even further a scatter plot was created. This scatter plot shows the linear relationship between the variables Responsiveness and Reachability.

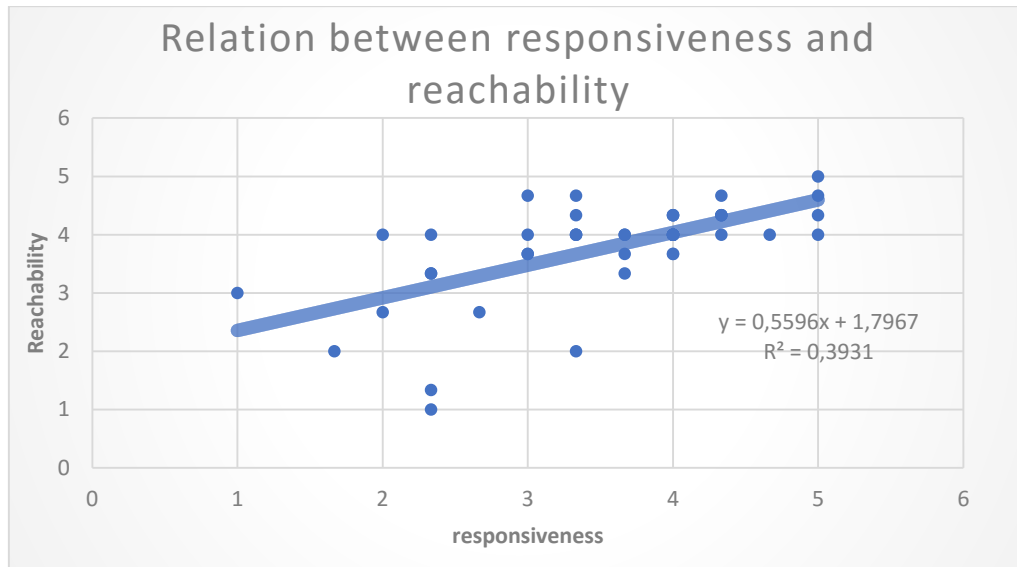


Figure 2: Relation 2 dimensions

The R squared value shows the strength of the dependency between the two variables. The relatively low R squared value indicated a moderate relationship between the two variables.

4.2.2 Interviews with customers

For the external analysis three different customers were interviewed. Prior to these interviews it was asked of the customers if they wanted their identity disclosed or not. Neither of these customers wanted to be mentioned by company or name. The following reoccurring points were found:

- It would be beneficial to meet up with customers (more frequently);
- Delivery time is very important;
- Communication towards customers should be looked into (newsletter or otherwise).

For more in depth information about the customer interviews see Annex 14.3 to 14.6.

4.2.3 Porter's five forces model

Porter's five forces model is used to determine the position of YASKAWA Benelux B.V. compared to the competition as well as the position of YASKAWA Benelux B.V. in the market and branche they are in. In this model five dimensions are used to determine YASKAWA Benelux B.V.'s position. **The supplier power**; this is the power of suppliers to influence the pricing of the products. **The buyer power**; this is the power of the customer to influence the pricing of the products. **Competitive rivalry**; this indicates the strength of the competition in the industry the company is in. **The threat of substitution**; this is the extend to which there is a replacement for the products and services. The last dimension is **The threat of new entry**; this indicates how easy or hard new competitors can enter the market.

By thinking of these 5 forces it is possible to decide whether to invest in this market/industry or not. Also this model is used to analyse the strengths and weaknesses of the position of the company and the ability to make profit in this industry/sector. In the figure below the five forces were analysed for YASKAWA benelux B.V. based on information aquired from the company as well as competitors in the industry.



Figure 3: Porter's five forces model for YASKAWA Benelux B.V.

Based on the model above, the conclusion was be drawn that the industry is hard to get in because of the needed capital and knowledge. The industry however can also very profitable because of the fast rate of growth within the industry. There are limited number of substitutes and competitors and therefor only a few other existing brands.

4.3 SWOT- analysis

The SWOT- analysis is used to determine the strengths, weaknesses, threats and opportunities for a company. By using the SWOT- analysis the internal and external factors were compared; this way the company can find out where improvement is needed, but also if there are any opportunities or threats related to this improvement. Also, the company can find out what areas they excel in. With the use of the SWOT- analysis the opportunities accompanying this strength can be found as well as the threats to this strength. For the internal input for the SWOT- analysis of YASKAWA Benelux B.V. the survey, the interviews with customers, the interviews with managers and the SERVQUAL model were used. For the external input on the SWOT- analysis the survey and the external analysis of the market were used. A good overview of the disquisition of the strengths, weaknesses, opportunities and threats can be found in annex 16 and 17.

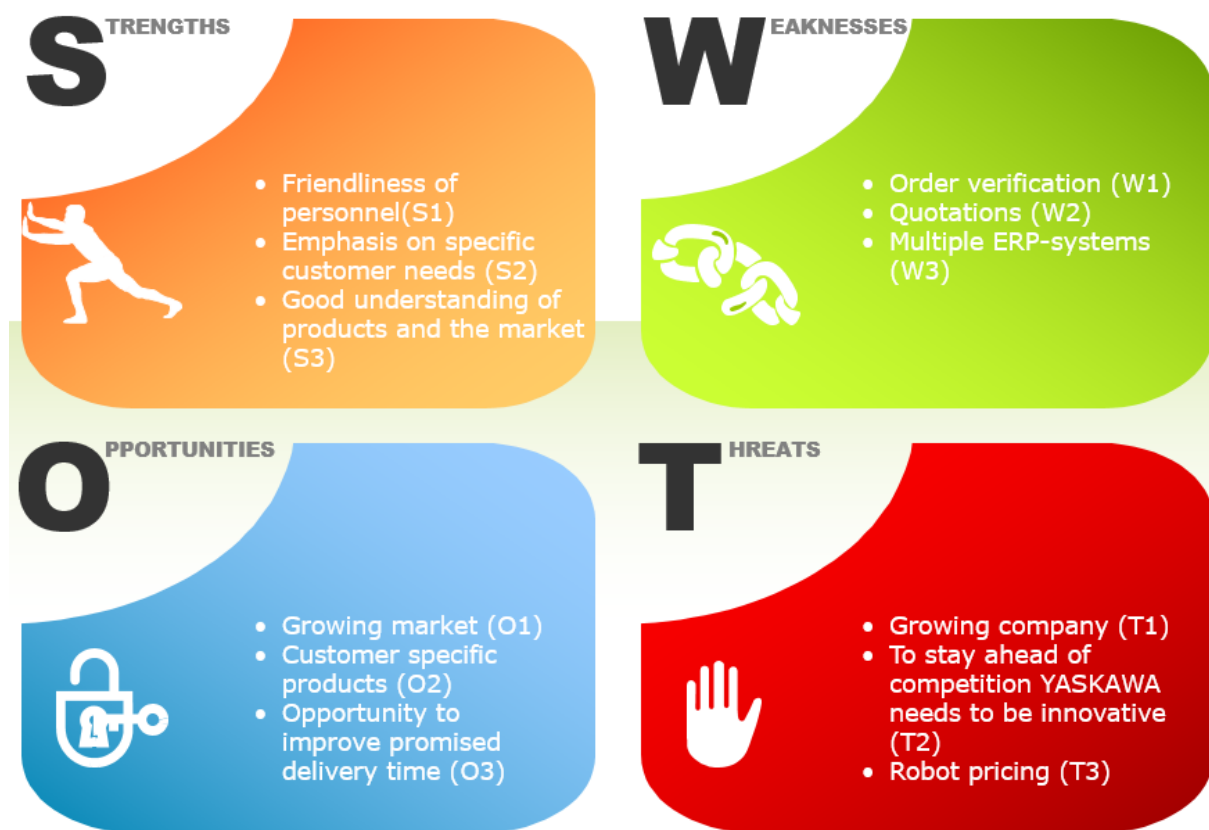


Figure 4: SWOT analysis

4.4 Confrontation matrix based on SWOT

		Opportunities				Threats			
		01	02	03		T1	T2	T3	
s t r e n g t h									
	S1	+	+	0		-	-	0	
	S2	++	++	+		-	0	0	
	S3	++	+	+		0	0	0	
w e a k n e s s									
	W1	-	0	-		-	0	0	
	W2	-	-	-		-	0	-	
	W3	--	--	--		--	0	0	

Chapter 5: Conclusions & recommendations

After all the data was analyzed and the results were in, conclusions could be formulated. Based on these conclusions, recommendations were made to inform the company on the actions that they could take to improve on certain processes. Also, it will be mentioned what the company is already doing well and what things they should keep pursuing.

5.1 Conclusions internal analysis

The internal analysis lead to multiple conclusions. The interviews with the managers indicated that the following points were subjects of interest that could be improved upon according to the managers.

- Response time;
- The degree to which managers think along with customers;
- Quality of the service contract;
- Quality of the news updates YASKAWA provides;
- The way YASKAWA caters to specific customer needs.

These were the perceived points where improvement would be possible according to managers. These could then be compared to the interviews with the customers. The interviews with the managers also indicated that some points of improvement were known well and that they are open for improvements in these areas.

5.2 Conclusions external analysis

The external analysis also led to a number of conclusions. First of all, the general satisfaction of the customers is relatively high scoring a 7.4. None of the questions scored lower than a 6.4 which indicates a certain degree of satisfaction in all areas. This however does not mean that there are no areas of relative dissatisfaction (the questions that score the lowest). The items that scored worst were:

- The drives and motion order confirmation;
- The promised and the actual delivery time;
- The quotations;
- The way YASKAWA Benelux B.V. approaches customers with new products or services.

The interviews with customers indicated that they are overall satisfied and get what they expected but there is always room for improvement.

5.3 Recommendations

Based on the internal and external analysis the advice is to continue to adopt one ERP-system for YASKAWA Benelux B.V. This way the problems concerning order verification, having multiple ERP-systems and quotations can be tackled.

Also the strengths that YASKAWA Benelux B.V. has should be maintained. The friendliness of the personnel, the emphasis on customer needs and the good understanding of products and market should be maintained or incrementally improved upon. The focus however should be improving on the weaknesses stated in the last paragraph.

Because YASKAWA Benelux B.V. is already in the process of implementing an ERP-system its very likely that some of this issues will become less prevalent or will solve themselves as the ERP-system is implemented. It is recommended to check the customer satisfaction next year and compare it to this year to see if the quotation and order verification problems have been resolved. The impact of this recommendation is very limited because it is already being executed.

Because it will take until march 2017 before the ERP-system is implemented some other measures could be taken in the meanwhile. Also, some additional solutions will be provided that are not covered by the new ERP-System. The following solutions are proposed:

- Quotations should be more detailed;
- Order verification should be more detailed with specs on the sold robot;
- There should be more info about robots send to customers so they can see themselves what robot fits their needs best.

5.4 Strategic intent

To set the strategic intent of the company the three attributes of Hamel and Prahalad are used. They divide the strategic intent into:

- Sense of direction: a view for the long-term or competitive position the company hopes to be in in the future.
- Sense of discovery: A view on what the company still wants to discover.
- Sense of destiny: A goal that employees perceive as valuable.

In a conversation with the marketing specialist of YASKAWA Benelux B.V. the following attributes followed for YASKAWA Benelux B.V.:

- Sense of direction: continuously improve relationship with customers, double the income.
- Sense of discovery: into human trionics market', more green solutions, energy saving.
- Sense of destiny: seeing how solutions help customers to pursue their goals/ businesses.

This research ties in very well with the sense of direction that YASKAWA Benelux B.V. has. The reason for this is that the research tries to map the ways in which customer satisfaction could be improved upon.

5.5 Discussion

After conducting the research there was a moment of reflection to see what things could have gone wrong or what things could be done better next time. During this reflection there were a number of things that were found that could resulted into false conclusions or other inaccuracies.

First of all, the sample size could have been bigger. The bigger the sample size the more representative the sample is to the entire population. Also the accuracy of the sample would improve when the sample size would be bigger.

Secondly, the amount of interviews with customers could have been more. This improves the input for the survey as well as the SERVQUAL model. Because of the timeframe this was hard to plan.

Third, Because of the limited reply on the survey for the internal analysis by YASKAWA Benelux B.V. personnel, the internal analysis was not on the level as intended. With better response comes a better fit internal analysis.

Literature list

- Armstrong, P. K. (1988). *principles of marketing*. England: Pearson.
- Baarda, B. (2014). *Research, this is it!* Groningen: Noordhoff Uitgevers.
- Company information. (2016). Retrieved from YASKAWA: <https://www.yaskawa.com/pycprd/about-us/about-yaskawa>
- contributer, P. a. (2014). *SWOT Analysis Examples for Every Business Situation*. Retrieved from PESTLE analysis: <http://pestleanalysis.com/swot-analysis-examples/>
- Cronbach's Alpha. (n.d.). Retrieved from SPSS Handboek: http://www.spsshandboek.nl/cronbachs_alpha/
- De DESTEP analyse. (2015, February 23). Retrieved from Modelmatig: <http://modelmatig.nl/marketing/externe-analyse/destep-analyse/>
- Eelants, M. (2014, April 14). *DESTEP - analyse*. Retrieved from marketingmodellen.com: <http://www.marketingmodellen.com/destep-analyse/>
- Fedoroff, P. (n.d.). *Explanation of the SERVQUAL Methodology of Zeithaml, Parasuraman and Berry ('88)*. Retrieved from 12manage: http://www.12manage.com/methods_zeithaml_servqual.html
- Nieuwenhuis, M. (2010). *The art of management*.
- Sample size calculator. (n.d.). Retrieved from Creative Research Systems: <http://www.surveysystem.com/sscalc.htm>
- Taylor, N. F. (2016, April 1). *SWOT Analysis: What It Is and When to Use It*. Retrieved from Business news daily: <http://www.businessnewsdaily.com/4245-swot-analysis.html>
- team, M. T. (n.d.). *Porter's five forces*. Retrieved from MindTools: https://www.mindtools.com/pages/article/newTMC_08.htm
- Team, M. T. (n.d.). *SWOT analysis*. Retrieved from MindTools: https://www.mindtools.com/pages/article/newTMC_05.htm
- Vermaak, L. d. (2003). *Learning to change*. London: SAGE publication.
- Wiliam, M. (2006, October 10). *Reliability*. Retrieved from Research methods Knowledge base: <http://www.socialresearchmethods.net/kb/reliable.php>
- Yates, R. F. (n.d.). *Tables for Biological Agricultural and Medical Research*. Edinburgh: Oliver & Boyd. Retrieved from <http://www2.lv.psu.edu/jxm57/irp/chisquar.html>

Annex 1: Final variable chart

Indicators	Number	Questions	Variable
A1. Function	A1.1	What function do you fulfill within the company?	open question
A2. Department	A1.2	With what department(s) from YASKAWA do you do business?	multiple choice + can choose more options
B1. Actual and promised delivery time	B1.2.1	How satisfied are you with the promised delivery time of YASKAWA?	multiple choice
	B1.2.2	How satisfied are you with the actual delivery time of the YASKAWA products?	multiple choice
	B1.2.3	How important is delivery time for you as a customer?	1 to 5 scale
B4. Quality of Sales	B1.5.1	How satisfied are you with the knowledge about products and services of the Sales personnel?	multiple choice
	B1.5.2	How satisfied are you with the friendliness of the Sales personnel?	multiple choice
		How satisfied are you with:	
C1. Availability	C1.1	the availability of the YASKAWA help desk?	multiple choice
	C1.2	How important is the availability of the YASKAWA personnel for you as a customer?	1 to 5 scale
C3. Site	C1.3.1	the accesibility of the right information for you as a customer on the website?	multiple choice
	C1.3.2	the quality of the information on the YASKAWA website?	multiple choice
C4. Communication channels	C1.4.1	To what degree are you satisfied with the clarity on whom to contact when issues arise?	multiple choice
	C1.4.2	To what degree are you satisfied with the reachability of the YASKAWA contact person that you need to contact when an issue arises?	multiple choice
	C1.4.3	To what degree are you satisfied with the way YASKAWA approaches your company with a new product or services?	multiple choice
	C1.4.4	How satisfied are you with the received information by YASKAWA concerning their new products and services?	multiple choice
D1. Reporting	D1.1	How satisfied are you with the quotation that YASKAWA sent to you prior to ordering?	multiple choice
	D1.1		multiple choice
		How satisfied are you with:	
E2. Information in advance	E1.2.1	the information given concerning the product or service prior to ordering?	multiple choice
E3. Listening and making suggestions	E1.3.1	the degree to which YASKAWA listens to your problem and caters the products or services to you as a customer?	multiple choice
	E1.3.2	the knowledge of the personnel who made suggestions concerning products or services to fulfill your specific needs?	multiple choice
E4. Phone friendliness	E1.4	the friendliness of the YASKAWA personnel over the phone?	multiple choice
E5. Service	E1.5		multiple choice
		How satisfied are you with:	
F1. Responsetime	F1.1.1	the time it takes YASKAWA to solve your problems?	multiple choice
	F1.1.2	the time it takes YASKAWA to respond to your request?	multiple choice
F2. Settling complaints	F1.2	the way in which YASKAWA settled your complaint?	multiple choice
		How satisfied are you with:	
G1. Packaging	G1.1	the packaging of the product?	multiple choice
	G1.2	How important is the packaging of the product for you as a customer?	1 to 5 scale
H. Robotics	H1.1	To what degree are you satisfied with the available product options you got at the Robotics department?	multiple choice
	H1.2	To what degree are you satisfied with the way the account manager helps identify your situation and cater to your specific needs?	multiple choice
	H1.3	What would you like to see changed concerning the YASKAWA Robotics department, and why?	open question
	H1.4	How satisfied are you with the order verification of the robotics department?	multiple choice
	H1.5	To what degree are you satisfied with the promised specifications compaired to the actual specifications on your robot?	multiple choice
I. Drives and motion	I1.1	To what degree are you satisfied with the order confirmation of Drives and Motion?	multiple choice
	I1.2	In what way do you look for new products or services for your company?	multiple choice + other namely
	I1.4	What would you like to see changed concerning the YASKAWA drives and motion division, and why?	open question
	I1.4	To what degree are you satisfied with the available product options you got at the Drives and Motion department?	
J. Service	J1.1	To what extent are you satisfied with the training given at your site?	multiple choice
	J1.2	To what degree are you satisfied with the responsiveness in case of a problem with your robot?	multiple choice
	J1.3	To what degree are you satisfied with the quality of our preventive maintenance service?	multiple choice
	J1.4	To what degree are you satisfied with the programming service done by YASKAWA?	multiple choice
	J1.5	To what degree are you satisfied with the spare part service of YASKAWA?	multiple choice
	J1.6	To what degree are you satisfied with the corrective maintenance done to your robot?	multiple choice
	J1.7	To what degree are you satisfied with the answers you received concerning the technical questions you had?	multiple choice
	J1.8	What would you like to see differently in the services that YASKAWA provides or the way YASKAWA provides these services and why?	open question

Figure 6: Final variable scheme

Annex 2: Survey

Dutch	Type of question	Options				Code in Limesurvey
Welke functie bekleed u binnen uw bedrijf?	open question	open				a1
Met welke afdeling van YASKAWA doet u zaken?	multiple choice	(1) Drives and motion, (2) Robotics, (3) Service				a2
In welke mate bent u tevreden met de toegankelijkheid van de juiste informatie op de website voor u als klant?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				b1
In welke mate bent u tevreden met de kwaliteit van de informatie op de YASKAWA website?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				b2
In welke mate bent u tevreden met de informatie die u over de producten aangereikt kreeg voordat u bestelde?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				c1
Hoe tevreden bent u met de offerte die u van YASKAWA ontvangen heeft voor het bestellen van producten?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				c2
Hoe tevreden bent u met de mate waarin YASKAWA naar u luistert en haar producten aanbeveelt op basis van uw specifieke behoeftes?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				c3
In welke mate bent u tevreden met de kennis van het personeel die producten aanbevelen om aan uw behoeftes te voldoen?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				c4
In welke mate bent u tevreden met de product- en servicekennis van het verkoop personeel?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				c5
Hoe tevreden bent u met de vriendelijkheid van het verkoop personeel?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				c6
In welke mate bent u tevreden met de manier waarop YASKAWA u benaderd met nieuwe producten of services?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				c7
Hoe tevreden bent u met de door YASKAWA beloofde leveringstijd?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				c8
Hoe belangrijk is leveringstijd voor u?	5 point scale	van niet erg belangrijk tot erg belangrijk				c9
Hoe tevreden bent u met de werkelijke levertijd van YASKAWA?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				d1
In welke mate bent u tevreden met de informatie die u krijgt over de nieuwste producten en services van YASKAWA?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				d2
In welke mate bent u tevreden met de beschikbaarheid van de YASKAWA help desk?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				d3
In welke mate bent u tevreden met de duidelijkheid over wie u moet contacteren als er een probleem ontstaat?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				d4
In welke mate bent u tevreden met de bereikbaarheid van deze contactpersoon?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				d5
In welke mate bent u tevreden over de vriendelijkheid van het YASKAWA personeel aan de telefoon?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				d6
Hoe belangrijk is de bereikbaarheid van het YASKAWA personeel voor u?	5 point scale	van niet erg belangrijk tot erg belangrijk				d7
In welke mate bent u tevreden met de tijd die het YASKAWA kost om uw problemen op te lossen?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				e1
In welke mate bent u tevreden over de tijd die het YASKAWA duurt om op uw verzoek te reageren?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				e2
In welke mate bent u tevreden met de manier waarop YASKAWA uw problemen oplost?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				e3
In welke mate bent u tevreden met de manier waarop uw product verpakt was?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				e4
Hoe belangrijk is de verpakking van uw product voor u?	5 point scale	van niet erg belangrijk tot erg belangrijk				e5
Robotics						
In welke mate bent u tevreden met de beschikbare product opties die u heeft bij de Robotics afdeling?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				f1
In welke mate bent u tevreden met de manier waarop de account manager uw situatie identificeert en uw behoefte vervult?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				f2
In welke mate bent u tevreden met de order verificatie van de Robotics afdeling?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				f5
In welke mate bent u tevreden met de ontvangen specificaties op uw robot in verhouding tot de beloofde specificaties op uw robot?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				f3
Wat zou u graag anders zien met betrekking op de YASKAWA Robotics afdeling en waarom?	open question	open				f4
Drives and Motion						
In welke mate bent u tevreden met de beschikbare product opties die u heeft bij de Drives and Motion afdeling?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				g1
In welke mate bent u tevreden met de order verificatie van de Drives and Motion afdeling?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				g2
Op welke manier zoekt u voor uw bedrijf nieuwe producten en services in de branch waar YASKAWA actief is?	multiple choice	(1) beurzen (2) YASKAWA website (3) andere websites (4) anders, namelijk:				g3
Wat zou u graag anders zien met betrekking op de YASKAWA Drives and Motion afdeling en waarom?	open question	open				g4
Service						
In welke mate bent u tevreden met de training die u op uw locatie ontvangen hebt?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				h1
In welke mate bent u tevreden met responsiviteit van YASKAWA als er een probleem is met uw robot?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				h2
In welke mate bent u tevreden met de kwaliteit van het preventieve onderhoud service?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				h3
In welke mate bent u tevreden met het programmeer service die YASKAWA u verleent heeft?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				h4
In welke mate bent u tevreden met de Spare parts service van YASKAWA?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				h5
In welke mate bent u tevreden met correctief onderhoud gedaan bij uw robot?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				h6
In welke mate bent u tevreden met het antwoord dat u ontving bij het stellen van technische vragen?	multiple choice	(1) erg tevreden (2) tevreden (3) niet tevreden/ontevreden (4) ontevreden (5) erg ontevreden				h7
Wat zou u graag anders zien in de services die YASKAWA verleend of de manier waarop YASKAWA deze services verleend en waarom?	open question	open				h8

Annex 3: key figures

Principles

Managing director
YASKAWA Benelux

Marketing specialist
YASKAWA Benelux

Drives and motion manager
YASKAWA Benelux

Service manager
YASKAWA Benelux

Robotics manager
YASKAWA Benelux

Supervisors

Mr. Deleu	Employee Fontys, Industrial Engineering and management Fontys University of applied science
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Mrs. Van den Heuvel	Employee Fontys, Industrial Engineering and management Fontys University of applied science
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Authors

Mr. Antoine 2220130	Student, Industrial Engineering and management Fontys University of applied science
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Mr. Bergh 2558955	Student, Industrial Engineering and management Fontys University of applied science
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Mr. Dechev 2615895	Student, Industrial Engineering and management Fontys University of applied science
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Mr. Ophof 2184952	Student, Industrial Engineering and management Fontys University of applied science
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Annex 4: organizational structure

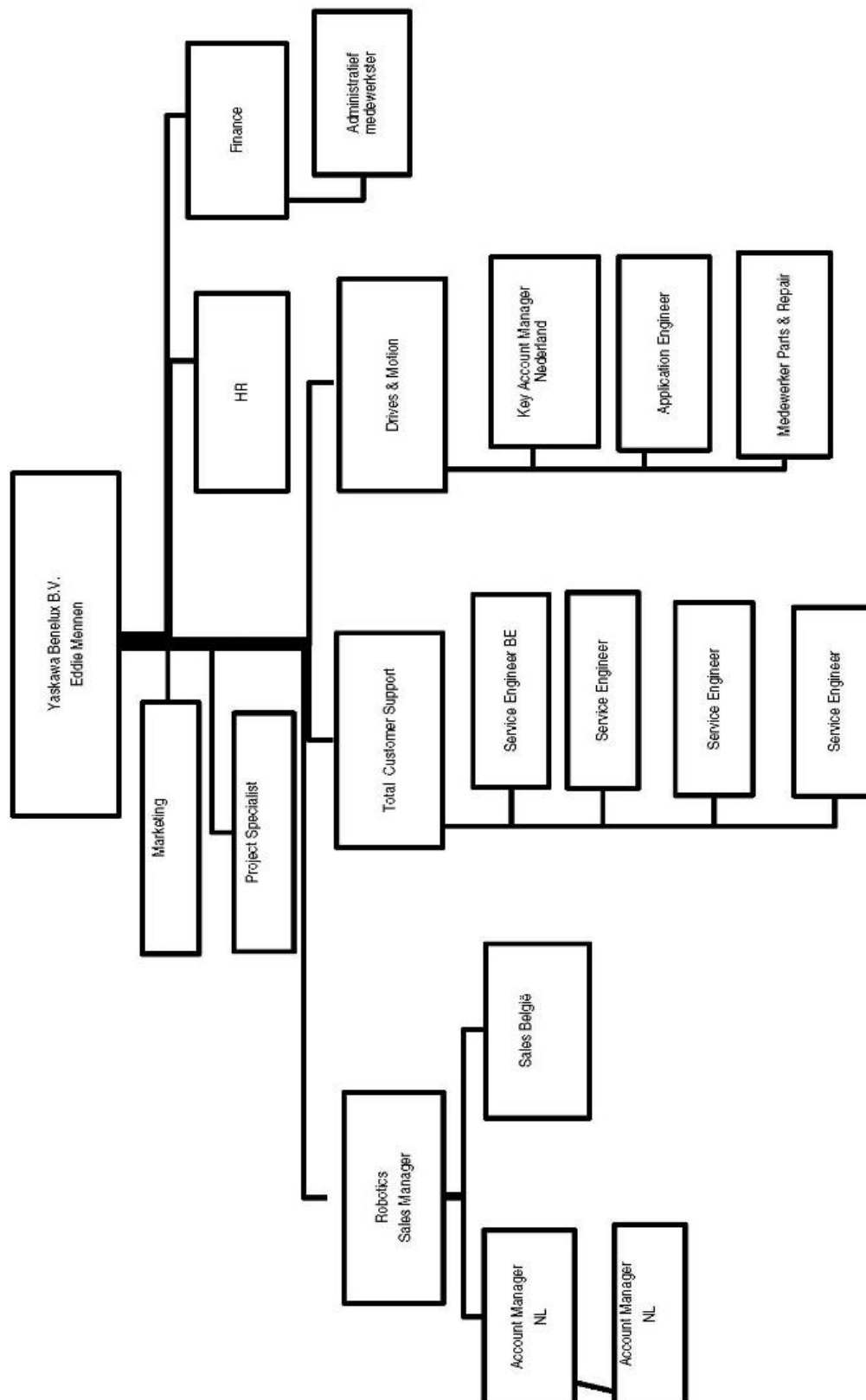


Figure 8: Organizational structure

Annex 5: Marketing activities

YASKAWA Benelux marketing activities consist of an online site via which the company can be reached, news and press about the company can be read. The company hosts events around Europe to get new customers, improve their current relationships and present new innovations. The following table shows their currently planned marketing activities in respective categories for the fiscal year 2016.

Table 8: Marketing activities YASKAWA

Show Marketing activities for FY 2016 ^[6]	
EXHIBITIONS	GENERAL
	PSV High Tech Lounge
TECHNI SHOW (MK)	Translation website
EMPACK UTRECHT (Emi)	Give-aways
HIGH TECH DISCOVERY ROUTE	demo Days
VISION ROBOTICS & MECHATRONICS Veldhoven	Calendars and Christmas cards
wots	GENERAL
Wots ROBOTICS PAVILION	PSV High Tech Lounge
METAVAK / NIL GORINCHEM (KBL)	Translation website
PRECISION FAIR	Give-aways
ADVERTISEMENT	
Automation PMA	
Metaalvak	
Supply & Demand (Technishow special)	
Industrial info	
Market supply Metal (Technishow special)	
LINK Magazine	
Trade journal Vision & Robotics	
Stiphout Forward sponsorship	
welding	
Metaalvak	
LINK Magazine	
Metallerie NL	
Metallerie B	
metal News	
Motion Control	
Food Process	
Automation PMA Wots Special	
A & B	
Vision & Robotics	
Mechatronics and Machine	
Metallerie B	

Annex 6: Identified issues

In 2015 a brief customer satisfaction research was conducted. This research resulted in the discovery of the following problems in the current situation:

- Limited engineering support;
- Complex and slow logistics;
- The after sales service is lower than competitors;
- Long reaction time;
- Poor internal reputation regarding internal and external customer service.

Annex 7: Product marked combinations

YASKAWA has products in a lot of industries. YASKAWA is active in the following industries:

- Agriculture;
- Automotive;
- Chemistry / Plastic;
- Crane / Hoist;
- Electric/ Electronics;
- Wood;
- Lab automation;
- Food;
- Lift;
- Marine & Offshore;
- Metal;
- Textile.

YASKAWA has the following three divisions; drives and motion, service and robotics. Within these divisions they make robots used for four applications. The robotics can be used for handling and mounting / welding and cutting / packaging and palletizing / painting. Within these areas there are several products. There are five types of robots made for handling and mounting, three types of robots for welding and cutting, four types of robots for packaging and palletizing and two types of robots for painting.

Annex 8: Company positioning and competitiveness

To express the way YASKAWA is positioned in the market, the managing director was asked if he thought whether the target scope of YASKAWA is big or small and if they have a big advantage in comparison with other competitors. The following graph was showed to him with the question if he wanted to place YASKAWA in it. This graph is the 'Competitive strategy model' of Porter.

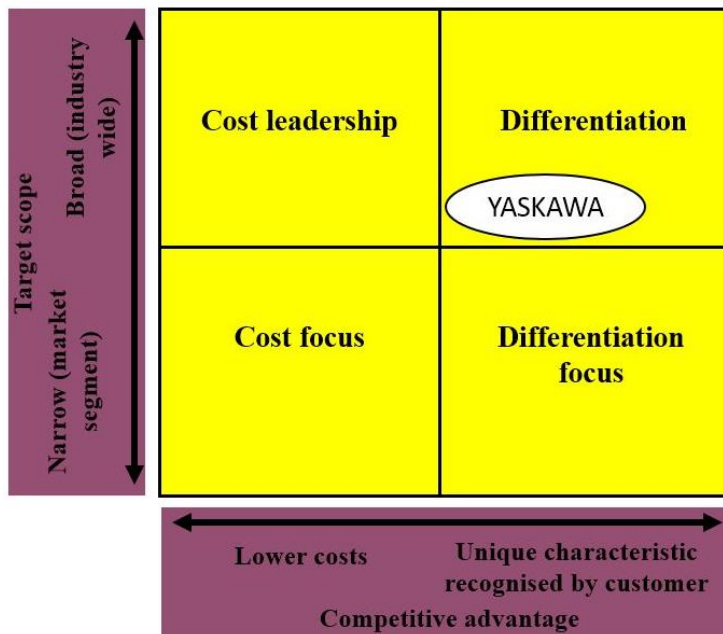


Figure 9: Competitive strategy model

The managing director thought YASKAWA has high technical knowledge (this was also mentioned by several customers in the survey done in 2015) and a broad industry scope.

YASKAWA is satisfied with the quality of the products they produce (this is also confirmed by the customers). The company specializes in developing of new robots, training their customers how to operate and program the products they buy. They also deliver and install the products according to the customer's needs. The installation will not always be done by YASKAWA itself. Sometimes the more experienced customers prefer to install the robots themselves or let an external company do this for them. YASKAWA also offers their clients a three-day programing course to teach them how to operate and program YASKAWA's robot software.

YASKAWA has many competitors in different areas some of their big competitors are the following:

Arc welding:

- Valkwelding – specialized in welding, direct and rapid service delivery to the customer
- Rolan robotics – specialized in robotic systems for industrial application.
- Cloos – specialized in laser welding, gas welding and metal arc welding.

Global:

- ABB – power and automation technologies that enable utility, industry and transport.
- Fanuc – specialized in purpose build machines for wire cut EDM, electric injection molding, milling and drilling.
- Kuka – specialized in manufacturing of robots and robotic systems.

Annex 9: Business environment factors

To finally know how satisfied customers are with YASKAWA an internal and external analysis was done. In this chapter the focus will be on the external part, the business environment. The business environment is divided into meso and macro factors.

Macro factors

The macro factors are the factors that are external to the company. The macro factors cannot be controlled or influenced. The macro environment consists of the larger societal forces that affect the micro environment. There are different kind of factors like the demographical factor, the economical factor, the social factor, the technological factor, the ecological factor and the political factor.

Demographical factor

YASKAWA has settlements all over the world. They produce all robotics in Japan and then ship the parts to different distribution centres. The distribution centre for the robotics in Europe is settled in Germany.

Economical factor

Since 2010 the demand for industrial robots has accelerated due to the ongoing trend toward automation. In 2014 there was a growth of 29% of robots installed, this is by far the highest level of increase ever recorded in one year. The total worldwide stock of operational industrial robots at the end of 2014 was in the range of 1,481,000 to 1,725,000 units. The increase of robots installed also indicates that the sales were going up. This increase of instalments over the last several years has a big influence on the robotics market. In Europe the market went up with 5% in 2014. Between 2010 and 2014 there is an increase of 22% in the robotic stock. In 2014 the sales value increased by 13%.

Technological factor

When it comes to the technological aspects many developments have made it possible to have companies like YASKAWA to grow. Not only have the price of electronics and robots dropped, but also the capabilities of these robots and electronics have increased dramatically. These innovations created many possibilities for more complex automation technologies to take hold in increasingly more industries.

Social factor

On the social aspect of automation many things have changed over the years. The discussions concerning automation of processes in companies has grown in size. More and more people start to be concerned about job security because of these technological automation breakthroughs. Even though there are concerns, there are also increasing numbers of people supporting these industries to relief humanity of repetitive labour intensive work.

Political factor

In the political sphere many things have changed over the years. The Dutch government has put increasingly more focus on stimulating focus innovation in the Netherlands, and mainly in the Eindhoven region. To accomplish these goals there have been certain measures put into place. The most useful regulation shift for companies like YASKAWA has taken place in the form of subsidy laws. These laws stimulate companies to settle in the Eindhoven region by giving them financial benefits.

Meso factors

With meso environment is meant the environment outside the company that can be influenced. The meso environment can be divided in the customers, the industry, the suppliers, the competitors, the supply chain and publics.

Customers

YASKAWA has customers all over the world. In this project the focus will be on the TCS customers in the Benelux area. Eventually this project will function as a baseline for the surveys of YASKAWA around Europe.

The Industry

Earlier the branches were mentioned that YAWKAWA is active in. You can find these branches at the chapter 'product marked combinations' in Annex 7.

The suppliers

YASKAWA Benelux deals only with customers and not with production. All parts will be produced at YAWKAWA in Japan. From there it will be shipped to Germany for the distribution of Europe.

The competitors

YASKAWA is active in a lot of industries what indirectly indicates they have a lot of competitors. The top 3 competitors of arc welding and global competitors were mentioned by the managing director. The top 3 competitors of arc welding are:

- Valkwelding
- Rolan robotics
- Cloos

And global competitors are:

- ABB
- Fanuc
- Kuka

The supply chain

The YASKAWA Benelux subsidiary deals only with customers and not production. In that regard, not much detail can be obtained from their operations concerning the Supply of material to end products. Nevertheless, according to the managing director, some parts are manufactured in Sweden and final assembly are done in manufacturing subsidiary Germany in which the end products are complete for the customers with parts from Japan.

Annex 10: Chi-method calculations

To calculate the chi-squared a number of steps were taken. First the values of each of the three questions per dimension were put next to each other in excel. After that the average value was calculated of every respondent within these three questions. This indicates the average grade that a customer gives in a given dimension. (see table 9).

Table 9: average grade per dimension

e1	e2	e3	Responsiveness	d1	d2	d3	Reachability
4	4	4	4,0	5	4	4	4,3
4	5	5	4,7	4	4	4	4,0
5	5	5	5,0	4	4	5	4,3
5	4	4	4,3	5	4	4	4,3
4	5	4	4,3	5	5	4	4,7
5	5	5	5,0	5	4	5	4,7
4	4	4	4,0	4	4	4	4,0
4	4	4	4,0	4	4	4	4,0
4	4	3	3,7	3	3	4	3,3
4	2	3	3,0	4	4	4	4,0
4	3	4	3,7	4	4	4	4,0
4	4	4	4,0	5	4	4	4,3

After this, each dimension was transformed into two variables. All values with a value between 1 and 3 were transformed to the value 1 (indicating dissatisfaction or neutrality). All values with a value between 3.01 and 5 were transformed to value 2 (indicating satisfaction). (this was done for both dimensions). Based on these new variables the Chi-Squared was calculated through SPSS. The following results were obtained through this calculation:

Table 7: chi square and significance

Chi-Squared	Asymptotic significance
12.3	0.000

Annex 11: How will potential respondents be approached and why?

To approach potential respondents a plan had been created. It had been determined that of all divisions one or two customers should be approached via the managers of those divisions within YASKAWA Benelux B.V. With these customers, interviews were held to improve on the survey that was created. For every customer the survey will be send to the relevant person within that company to acquire the most relevant data possible. The survey will be accompanied by an offer letter that will inform the customers on the reasoning behind the survey and the intentions that are there. There are a lot of other factors for the offer letter that can be found in annex 12.

Annex 12: Planning for obtaining response and approaching the non-responses.

A good response rate was obtained by following processes which will achieve an appropriate level of quality during all of the survey planning and implementation steps. There is no one single factor, other than perhaps compulsion, which can produce on its own a high response rate. The factors which can influence coverage and response rates for any survey include:

- The quality of the survey frame (in terms of population coverage & contact details);
- Time between frame creation and contact with respondents;
- Method of data collection (e.g. mail, personal interview, telephone interview, computer assisted interviewing);
- Sampling method;
- Time of year;
- Length of collection period;
- Response load imposed by a survey (length of interview, difficulty or sensitivity of subject matter, periodicity of survey) as well as total load across all collections;
- Questionnaire design and layout;
- Follow-up (methodology & targeting);
- Prior respondent experience with same sort of survey;
- Prior respondent experience with statistical agency;
- Legal obligations (for respondents and statistical agency);
- Protection of confidentiality of information provided;
- Experience and ability of collection & follow up staff (selection criteria, training, performance management);
- Workload of collection & follow up staff;
- Communication strategy;
- Total budget and its allocation to various operations;
- Language of the questionnaire;
- Cultural background of the respondents;
- Importance seen of the survey by respondents, directly or for important users;
- Use and effectiveness of respondent incentives.

Annex 13: Concrete planning for obtaining response.

In order to get as much response as possible an interview and pilot survey was conducted with some of the customers of YASKAWA Benelux B.V. before sending the main survey to all of their customers. The survey was sent through e-mail to all of the YASKAWA customers in the Benelux area, also an incentive was provided in a form of a robot that was won by filling the survey.

Annex 14: Transcripts from the interviews

14.1: Interview with Service manager

Which indicators are important looking at the service department (to the customers?)

- Response time;
- Quality;
- Updates on delivery time if unexpected things happen;
- A good price-quality comparison;
- Reachability (who to call when having problems?);
- Communication channels need to be clear;
- Good news letters?
- Quality of service contract?
- Proper documentation of projects and sales.

Any other tips to get a better survey up?

-

14.2 Interview with Drives and motion manager

Job description:

Drives and motion makes precision motion components. Think of frequency regulators and Servo solutions. There are around 64 relevant competitors for the Drives and motion department.

What indicators are important for the customer? Mainly what should be asked in a survey?

I recommend asking open question like: what is your advice towards YASKAWA to improve upon or handle differently?

Are there any other questions that would be good to ask in a survey that would be sent out to Drives and Motion customers?

- Are you informed about the latest innovations within YASKAWA?
- In what way do you look for new products or services?
- Are you looking for new products and services?

14.3 Interview with the Robotics manager

Could you give a brief description of your job as a sales manager and what your department does within YASKAWA Benelux.

I am responsible for the Robotics sales department. People order through me and my colleagues. We are responsible for keep the customer contacts strong and steady. We also try to discuss with clients how we can better satisfy their needs. Outside of this Cold acquisition happens very rarely.

What indicators are important looking at the Robotics department? And what is important for the customers of this department?

- Response time;
- Thinking along with the customers;
- Availability of the right products;
- Are account managers creative enough to solve specific customer needs.

Any other tips to get a better survey?

Call people for them to respond. It's more of a personal touch.

14.4 Interview with Company 1 (anonymous)

Could you briefly talk about the way you and your company have done business with YASKAWA?

As a company we buy YASKAWA robots for out full integrated solutions that we provide. In these instances, we are the ones that provide the service to customers. We mainly use YASKAWA as a consultant.

What would you like to point out to YASKAWA from a customer perspective to improve upon the services that YASKAWA provides?

My company needs the right information at the right time. YASKAWA Service sometimes does not allow for this. There are no promises make even though we need clarity a lot. Also the products are very good but the software options are sometimes lacking. The delivery time is very good though.

I am not satisfied with the reaction time. The solutions are usually good when we have issues. We used to do business with Germany. In Germany they had more knowledge about the products. The consultants sometimes don't have enough knowledge.

On basis of what criteria do you judge the suppliers that you have?

We judge our suppliers on knowledge, delivery time and reaction time.

What would you like to see improved upon in the services that YASKAWA provides, or what would you like to mention concerning the services YASKAWA provides?

- Reaction speed;
- Knowledge management;
- Delivery reliability.

I doubt the way the processes are ensured into the company. A lot of processes do not seem to be standardized.

The reaction time and delivery reliability has become better over time but can still be improved. Feedback seems to be taken into account.

I would like to become more like partners with YASKAWA instead of just a customer.

I do think that they are understaffed.

14.5 Interview with company 2 (anonymous)

Could to describe the way in which you as a person and your company have contact with YASKAWA and how that is going?

About 20 years ago at the start of the company we came in contact with YASKAWA. We have been doing business with them ever since.

Could you describe the process of pre-sales, sales and after sales and what things you encounter during these processes?

When we need a robot we send an order to YASKAWA. These orders are handled by directly contacting Edwin the robotics sales manager. I then receive an email or a call in which I hear when the robot will be delivered. This delivery is usually a little bit later than originally planned.

In some instances, communication is lacking. In some instances, the robots have settings that don't match the needs that we have supplied them with multiple times. IO modules are often missing. This is usually resolved quickly though.

Every time the software person has to send a list of parameters to YASKAWA. Even when this is done mistakes are still made. Lately it has been improving but it used to be wrong about 75% of the time. In these cases, the parameter settings were wrong or input/output modules were missing. It's standard to have two of them but we need four for our specific applications.

What would you like to see changed in the services that YASKAWA provides?

I would like to see order confirmation as well as a lot less problems with the specifications. I would like to see more of that personal contact between the two companies as well as the streamlining of order processing.

The specifications and delivery time are not met quite often. I would like to see that change.

What would you like to point out to YASKAWA from a customer perspective?

I would like to point out to YASKAWA that it would be beneficial to have meetings with customers to discuss delivery times and conditions to improve the customer experience.

I would like to point out that the Service department sometimes does not respond that well. I would just like to see the problem fixed instead of been forwarded to someone else that also cannot resolve my problem.

On the basis of what criteria do you judge your suppliers that you have?

One of the most important things for us is that a supplier wants to be a strategic partner and not just a normal supplier. A strategic partner solves problems helps satisfy the need of the customer and puts quality as his highest priority. Also improvement plans are important to a long term partnership between two companies. Also agreements have to be made when it comes to ways to solve technical problems or to ensure correct delivery times.

It would also be nice to be able to order the Robot as late as possible to minimize risk.

In what way does your company look for new products or services?

Sales personnel come by. Usually they have an idea and then they try to make that idea fit the company its needs.

14.6 Interview with company 3 (anonymous)**Could you tell us something about in which way you did business with YASKAWA and the quality of the contact that MOBA has with YASKAWA**

In 2011 I first did business with YASKAWA. One of the reasons for choosing YASKAWA was that it was a world leader in its segments. There were more possibilities when it came to other companies but we had the best connection with the YASKAWA so it worked. YASKAWA has supported us very well when it came to technical support and supplying information. This was well done from The Netherlands, Germany and Japan.

One of the key points that we are interested in is collaborating robots. This is something that YASKAWA as well as competitors supply, but other suppliers are a lot louder when it comes to promoting these things.

It is also good to note that because the competition is a lot louder when it comes to promotion that YASKAWA its new products are obscured.

Communication has always been good. Back in 2011 there were some technical problems. These would always be solved though.

What would you like to see changed or improved upon in the services that YASKAWA provides?

There should be more meetings between the engineers and the German location, So both parties could really work with the latest developments.

I would also like to see YASKAWA look into the ways of communication with its customers. They send a newsletter for example that I usually don't read because we work so closely with them. I wonder if news letters are relevant to other customers. This might be a good question to ask next year in the survey.

What points would you recommend YASKAWA to improve upon from a customer perspective.

We would like YASKAWA to keep improving on its delivery time. Even though we are satisfied it is always better to have a faster delivery time.

Also the prices of spare parts are quite high in our opinion. If it would be possible to drop these prices that would be better for us obviously. In some cases, it would be better for customers to buy a new robot instead of buying spare parts.

We would also like some more meetings to discuss show we can further develop our professional relationship. It has already been determined by YASKAWA that these meetings will take place in the future.

On basis of what criteria do you judge your suppliers that you have. And how well is YASKAWA performing in these areas?

- We like it when a supplier tries to really helps us by making suggestions based on our specific needs, as well as supply us with the right information like what is possible and what isn't and how much it will cost. YASKAWA does this very well in my opinion.
- We also want good pricing when we buy a lot from a certain supplier. This pricing would preferably be fixed by means of a contract. We are very happy that YASKAWA does this.
- Delivery time is also very important for us. The delivery time is very good in my opinion. This might also have to do with the fact that we are a large customer for them and are a known customer with well-established logistics to our company.

In what way do you as a company look for new products or services?

As a company we attend trade shows. We also get approached by potential suppliers.

Annex 15: Consistency, cross-reference and substantiation of SPSS analysis

For the analysis of the gathered data SPSS was used to perform consistency calculations using Cronbach Alpha and Cross-referencing calculation by using the Chi squared method.

To calculate the different relationships between certain dimensions a couple of questions had to be bundled to create the different dimensions. There were 4 dimensions found in the survey where questions could be bundled. Each of these dimensions have two or three questions that represent that specific dimensions. In the piece below the dimension are named as well as the questions that make up that dimensions. To calculate the consistency between the grouped questions the Cronbach Alpha calculating was conducted through SPSS.

The different dimensions are:

- **The first** dimension is **Reachability**. This dimension consists of the questions D3, D4 and D5.

D3: To what degree are you satisfied with the way in which YASKAWA settled your complaint?

D4: To what degree are you satisfied with the clarity on whom to contact when issues arise?

D5: To what degree are you satisfied with the reachability of the YASKAWA contact person that you need to contact when an issue arises?

The Cronbach alpha of this dimension was 0.870.

- **The second** dimension that could be found was **Information**, for this dimensions the questions C1 and C2 were used.

C1: To what degree are you satisfied with the information given concerning the product or service prior to ordering?

C2: How satisfied are you with the quotation that YASKAWA sent to you prior to ordering?

The Cronbach alpha of this dimension was 0.688.

- **The third** found dimension was **Friendliness**; this involves friendliness of personnel in real life but also via the telephone/help desk. The questions used for this dimension were C6 and D6.

C6: How satisfied are you with the friendliness of the Sales personnel?

D6: To what degree are you satisfied with the friendliness of the YASKAWA personnel over the phone?

The Cronbach alpha at this dimension was 0.598.

- **The fourth** and last dimension is **Responsiveness**. There are three questions used for this dimension namely E1, E2 and E3.

E1: To what degree are you satisfied with the time it takes YASKAWA to solve your problems?

E2: To what degree are you satisfied with the time it takes YASKAWA to respond to your request?

E3: To what degree are you satisfied with the way in which YASKAWA settled your complaint?

The Cronbach alpha at this dimension was 0.916.

When the Cronbach alpha was higher than 0,6 that indicated that there was a strong relation between the certain questions. When the Cronbach alpha was lower than 0,6 that indicated there is no or a weak correlation between the questions and that the dimension is not valid. For the dimension of friendliness there was a weak correlation between the questions. Therefore, the questions in the friendliness dimension cannot be reliably described under the mentioned title. Reachability, information and Responsiveness to the contrary do have a sufficient Cronbach Alpha and can therefore be used as a reliable dimension.

After the dimensions are checked for a relation between the questions, the independency between dimensions was calculated using the Chi-square method.

Annex 16: Most relevant internal strengths and weaknesses

16.1 Internal strengths



Figure 10: Strengths YASKAWA

16.2 Weaknesses

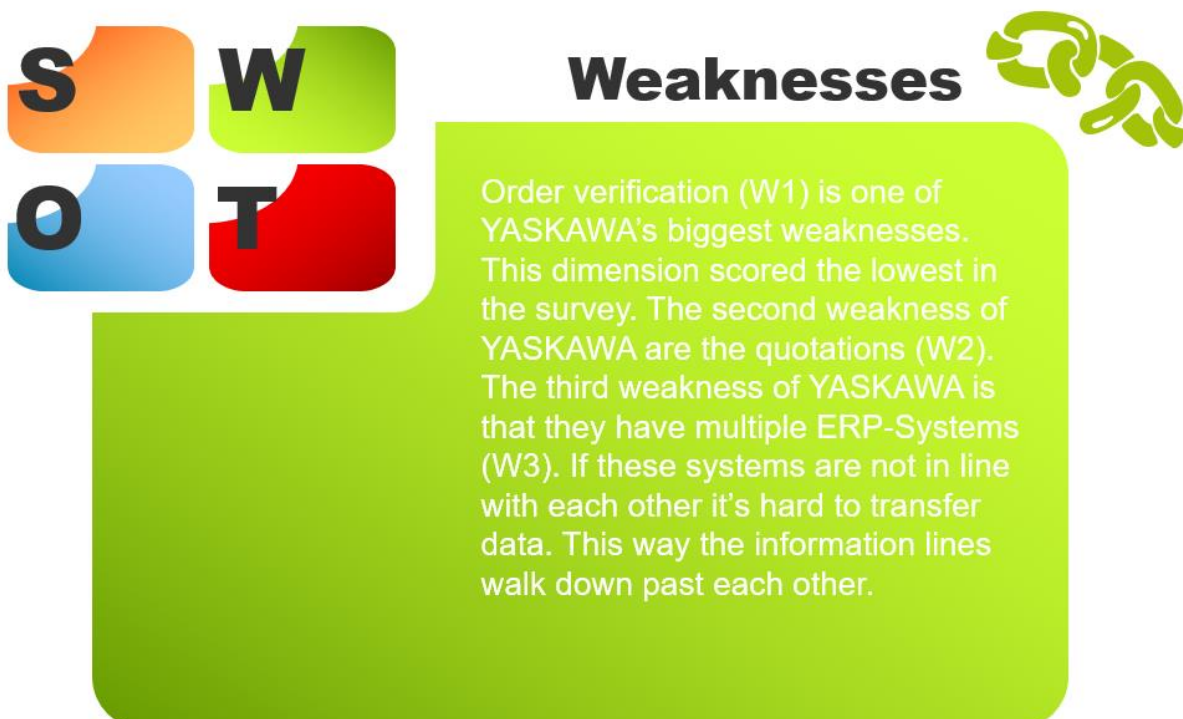


Figure 11: Weaknesses YASKAWA

Annex 17: Key opportunities and threats

17.1 Opportunities

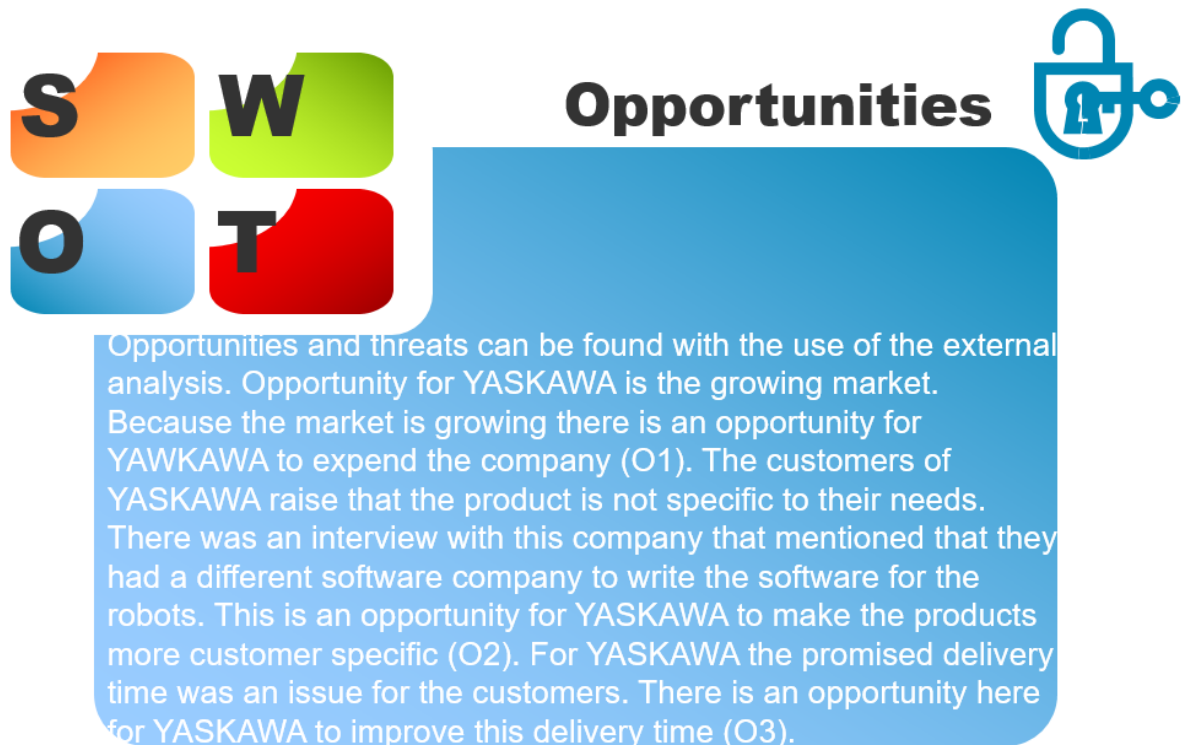


Figure 12: Opportunities YASKAWA

17.2 Threats



Figure 13: Threats YASKAWA

Annex 18: Telephone script

Good morning mister/miss. My name is X and I've been studying Industrial Engineering and Management for X years at the Fontys University for applied sciences in Eindhoven. I am part of an international project group in which I will be working for the coming 4 months. For our education we have to find a company who that want more insight into the customer satisfaction and demands. We require market research in a business to business environment. The project will have to take approximately 4 months, and will cost the company 750 euro's in total.

Would you be interested in market research for your company?

Yes (more details)

During these 4 months our project group will investigate the satisfaction of the customers. We will investigate what customers like and dislike about the products they receive. We will do this by using a quantitative and qualitative analysis via questions forms that we send to the customers. At the end of the project you will receive a report and presentation in which we will showcase our findings and specify our plan for implantation.

Would there be possibilities for us to conduct such an investigation at your company?

yes

Could we make an appointment to further specify the details of the project?

Yes

At (time and date) we will be available for a meeting

Okay

Thanks so much for your time, and have a nice day!

Annex 19: offer letter

uw mening telt bij YASKAWA



Bergh, Lars L.F.
Mon 5/9/2016 3:04 PM

⏮ REPLY ⏮ REPLY ALL ➡ FORWARD ⋮
Mark as unread

Geachte klant van YASKAWA,
Wij zijn 4 studenten van de Fontys Hogeschool Eindhoven. In opdracht van YASKAWA doen wij een onderzoek naar de klanttevredenheid. Wij willen YASKAWA de juiste input geven voor verbetering van de service.

Omdat we goed inzicht willen hebben in de services, zijn er ook aan aantal open vragen opgesteld. Het zal u maar een minuut of 7 van uw tijd kosten om de vragen van de enquête te beantwoorden. Daarnaast maakt u daarmee kans op een programmeerbare robot ter waarde van € 150.

Wij zullen vertrouwelijk met uw informatie omgegaan en de informatie verkregen uit deze enquête zal alleen worden gebruikt om aanbevelingen te doen voor het verbeteren van de service.

Klik op de link hieronder voor de vragen én om kans te maken op deze geweldige robot.

<https://survey.fontys-educatief.nl/index.php/548124?lang=nl>

Bedankt voor uw tijd, u krijgt over ongeveer een maand via mail te horen of u de robot heeft gewonnen.

Met vriendelijke groet,

Ivo Ophof, Lars Bergh
Voor informatie over dit klanttevredenheidsonderzoek kunt u terecht bij l.Ophof@student.fontys.nl

Figure 14: Offer letter

Annex 20: Calculations

1: calculation of confidence interval of the sample

To calculate the inaccuracy on the overall survey the following fomula is used:

$$n \geq \frac{1}{a^2 + \frac{1}{N}}$$

This formula is transformed into $a = \sqrt{((1/n) - (1/N))}$

With 'n' being 47 and 'N' being 145 an inaccuracy of 12% is found.

Annex 21: Survey Open questions

What would you like to see changed when it comes to the Robotics department of YASKAWA and why?

Response:

- So far I've always been helped until I was satisfied. For me things can stay the way they are.
- I would not want to see anything differently
- Everything is fine in my opinion
- I would like to have more information so I can myself figure out what kind of options I should choose for a robot.
- -
- Faster reactions to questions people state on the portal.
- I would have liked YASKAWA to take my problems more seriously earlier on so we could have gotten our system working properly more quickly.
- I really don't know what.
- No improvement, I am very happy with the engineers. Give these people freedom and respect.
- All reported issues should be resolved, also feedback should be given on how to solve issues.
- Shorter reaction time when solving issues.
- Slow to reaction on questions, quotations take too long and the service department seems heavily understaffed.
- Answer the phone earlier, at least starting at 8:00.
- Delivery time of spare parts should be shorter.
- React faster to questions send by email.
- I would like to see different manuals online so clients can fall back on manuals when they have questions.
- Better information sources about new options.
- Prices from competitors.
- Directly being able to download CAD files from robots would be useful.
- Nothing
- Not applicable

What would you like to see changed when it comes to the Drives and Motion department and why?

- Not applicable
- Repair handling should be more smooth and faster.
- It's okay

- Shorter delivery times
- Delivery times are way too long, no point of contact, bad service.
- One clear product specification, a webstore to order parts, shorter delivery time.
- Better communication with the German YASKAWA.
- Faster delivery and service.
- Repairs should go more smoothly and faster.

What would you like to see changed in the way YASKAWA provides their Services and why?

- Keep going like this.
- More speed when asking for spare parts, shorter reaction time would be nice
- Mainly faster delivery times and faster reactions on requests.
- better collaboration
- When necessary a faster availability of knowledge and parts at our customers.
- A good service department instead of letting third parties do it for you.
- Shorter reaction time on questions.
- Create better expectations for delivery of products.
- When solving a problem is going to take longer than a day please inform at the end of the day that this is the case.
- Ask customers for feedback more often
- Sometimes capacity is a problem when issues need to be solved. There is however good improvisation on the YASKAWA side.
- Keep going like this.
- Practical service is very good. Answers to technical questions related to programming are poor.
- Sometimes more support with non-standard issues.

Annex 22: Variance in worst Questions

Question	Count	Grade	X mean	(Grade - Xmean)^2* Count	Standard deviation	Left border	Right border
To what degree are you satisfied with the order verification of the Drives and Motion department?	0	10	6,4	0	2,0	4,4	8,4
	5	8		12,8			
	3	6		0,48			
	1	4		5,76			
	1	2		19,36			
How satisfied are you with the quotation received from YASKAWA prior to ordering?	3	10	7,4	20,0	1,6	5,8	9,0
	34	8		11,6			
	6	6		12,0			
	4	4		46,7			
	1	2		29,3			
To what degree are you satisfied with the information you get about the new products and services of YASKAWA?	0	10	7,5	0,0	1,6	5,9	9,1
	27	8		6,8			
	18	6		40,5			
	1	4		12,3			
	2	2		60,5			
To what degree are you satisfied with the way YASKAWA approaches you with new products and services?	3	10	7,0	27,8	1,8	5,2	8,7
	25	8		27,1			
	14	6		12,9			
	4	4		35,0			
	2	2		49,2			
To what degree are you satisfied with the time it takes YASKAWA to solve your problems?	6	10	7,0	55,5	2,1	4,9	9,0
	23	8		25,0			
	9	6		8,3			
	8	4		70,0			
	2	2		49,2			

Figure 15: Variance in worst questions

Annex 23: ISD (Interactive Service Delivery) model

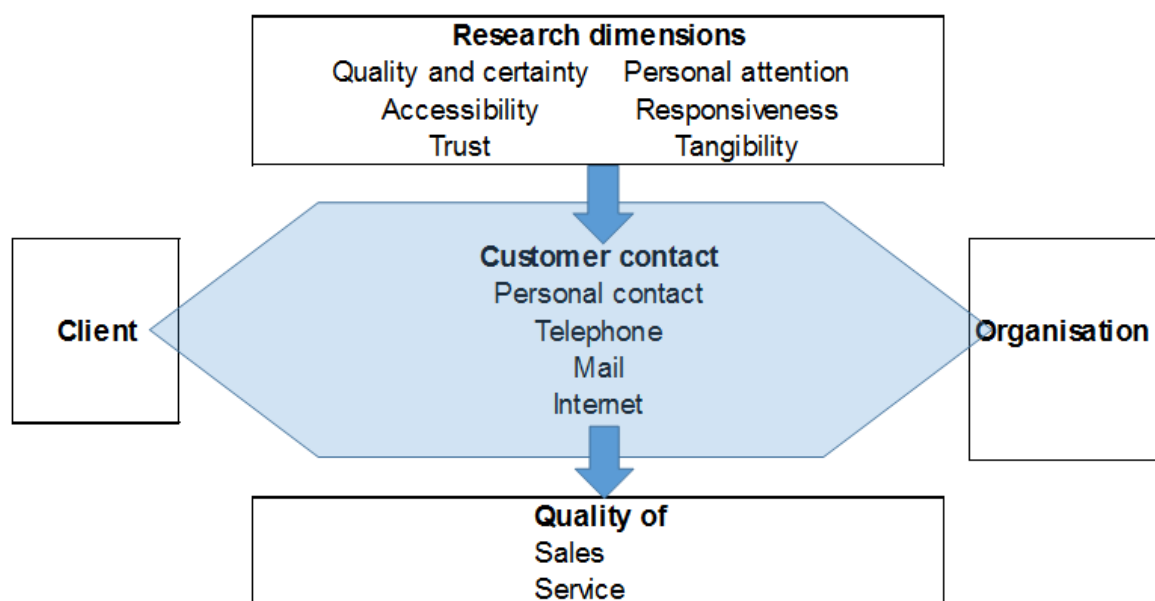


Figure 16: ISD model