



CHALMERS

Sustaining continuous improvement in a service setup

A case study of internal customer feedback at Ericsson

*Master of Science Thesis
in the Programme Quality and Operations Management*

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Abstract

One cannot deny the importance of customers for any organization. Satisfying customers and fulfilling their needs are considered as top priority when it comes to service quality. Although internal customers have not been given the same focus in literature as the external customers (Grace & Lo, 2015). However, it is important to first satisfy internal customers in order to be able to satisfy the external customers (Gummesson, 2008). Most common means to measure customer satisfaction is through the use of surveys. In Ericsson different surveys are used to measure customer satisfaction of both internal and external customers. One of these surveys is called Regional/CU service evaluation (RcSE). This survey is used to measure service quality of the delivers from Global service centers (GSC) to regions or customer units. This survey is also the main focus of this thesis.

For this thesis work, a combination of inductive and deductive approach has been used. Bryman & Bell, (2011) refer to such approach as iterative. The main findings of the research are based on interviews, secondary data analysis and literature study, thus making use of both qualitative and quantitative data. The research was conducted at Ericsson in Kista, Stockholm, Sweden. The main aim with the thesis was to identify improvement areas within the RcSE process to make it more robust. The interviews were used to understand the current situation of the RcSE survey process and to collect viewpoints of different stakeholders. While the secondary data analysis was done to identify different behavior patterns of initiators and respondents. The secondary data was also used to highlight different data quality issues related to data accuracy, data completeness and data correctness. The literature study was used to complement the finding from the interviews and the secondary data analysis. A benchmarking study was also performed as a part of the thesis with Hilton hotel and Chalmers University to understand their survey process and to identify best practices that can be adopted for RcSE survey.

The current questionnaire for RcSE was developed in 2013 with the help of a consultant and Ericsson's internal team. The main purpose of the RcSE survey is to capture voice of the customer with respect to different deliveries made by GSCs. SERVQUAL was used to measure the service quality. A comparison was done between the different dimensions of SERVQUAL and service characteristics of the RcSE questionnaire. It was found that RcSE survey does not fulfill all the service dimension highlighted in SERVQUAL and that the current questionnaire does not capture all the voice of the internal customers identified during interviews. The secondary data analysis highlighted that respondents received multiple surveys in one day from initiators due to the use of the mass upload function. The respondents as a result fill out multiple surveys by providing generic rating and duplicate comments. Thus making the data biased. The secondary data analysis also revealed that data lacked accuracy, completeness and correctness. These issues were traced back to the use of mass upload function and lack of RcSE tool robustness. One of the main task of the thesis was to develop a standardize survey process approach for the RcSE survey to make sure that data collected goes into the right hand, its analyzed and action are taken on it. The different learning from the literature, internal & external benchmarking and interviews were used to formulate a proposed process for the RcSE survey.

Nomenclature

ASQ	American Society for Quality
CSAT	Annual customer satisfaction survey
C-NRO	Network rollout
Dialog	Annual employee satisfaction survey
GSC	Global Service Center
IWP	Industrialized work packages
MS	Managed services
OAP	Online action planner
OWP	Work packages
PDCA	Plan → Do → Check → Act
RASO	South East Asia & Oceania
RcSE	Regional/CU service evaluation
RECA	Northern Europe & Central Asia
RINA	India
RLAM	Latin America
RMEA	Middle East
RMED	Mediterranean
RNAM	North America
RNEA	North East Asia
RSSA	Sub-Sahara Africa
RWCE	Western & Central Europe
SWDP	Software deployment preparation
T&M	Time & material
VoC	Voice of the customer

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It was January, 2016, when we started our search of finding a master thesis project. After a lot of discussions, we were just able to finalize that we wanted to do our thesis in the service sector. It was mid of January, when we came across a master thesis proposal at the Ericsson's webpage. The most attractive thing we still remember on the advertisement was one of the requirements, students should be from "Quality and Operations Management". After an initial interview with HR and discussions with our Chalmers supervisor, Sverker Alänge and Ericsson's supervisor Konrad Jonsson, the scope of the master thesis was finalized.

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1. Background

For a longer time, companies have been measuring claims or complaints in order to provide a relevant measurement for customer satisfaction. According to McNeale (1994) and Gustafsson & Johnson (2000), 94% of customers do not complain to retailers or suppliers. Successful companies have therefore been the ones that encourage their customers to share their experiences and level of satisfaction. It is of a big value for all companies to better understand their own customers' complaint behavior and supply according to the demand. Gustafsson & Johnson (2000) discusses "service recovery" which is about turning a potentially negative situation into a positive and profitable one. In that way, companies will increase their chances of having more loyal and satisfied customers.

According to Niagel & Cillers (1990), everyone who is supplied with products or services by others within the organization is counted as internal customers. Internal customer service quality has received little attention since most researchers have been emphasizing external customers' service quality (Stanley & Wisner, 2001 as cited in Jun & Cai, 2010). Some researchers have even argued that internal customers are equally important as external customers (Jun & Cai, 2010). Employees, as one of the main internal customers, have received very little attention as well with respect to the value that they actually give (Grace & Lo, 2015). However, most of the researchers have agreed upon that internal customer service quality directly impact internal customer satisfaction which in turn effects the external customer satisfaction (Gummesson, 2008).

Survey is one of many research methods that is primarily used to collect both quantitative and qualitative data. Surveys are also of great help to identify customer expectations, measuring customer satisfaction levels and identifying specific areas for improvements (Bryman & Bell, 2011). A common mistake that organizations and/or people do, is conducting a survey without understanding the purpose of it and what kind of data they are looking for. "*What do you want to get out of this?*" (The Pennsylvania State University, 2016, p.1). Important questions that should be answered before conducting any survey. Researchers have proven several motivation factors to why people respond to surveys. Han et al. (2009) concluded that cost, reward and trust are respondent's most common behavioral motivation factors to participate in a survey. In addition, theory explains that people are more likely to fill out a survey if the purpose of the survey is seen as relevant to them (Han et al., 2009; Poon et al., 2004).

This thesis has been performed at Ericsson, Kista and focuses on the internal customer survey named Region/CU service evaluation (RcSE). The RcSE survey together with other surveys at Ericsson such as Dialog and Customer Satisfaction (CSAT) are mainly used for collecting voice of the customer. RcSE was introduced at Ericsson in 2013 and focuses only on collecting internal customers' feedback with respect to different deliveries internally. Discussions regarding the thesis with Ericsson started in January, 2016. Initially the scope of the thesis was set to find alternate methods for measuring the customer satisfaction apart from the survey. This was one of the recommendations from the thesis done in 2015. However, during the process of finalizing the theme of the thesis, it was found that unlike other surveys like Dialog and CSAT, RcSE survey lack a process. The survey process for CSAT is shown in figure 1.



Figure 1: Survey process for CSAT

In comparison to the CSAT survey, RcSEs' survey process is somewhat limited to initial three steps i.e. preparation, survey and results. Even in these three steps some of the requirements such as periodicity of the survey, roles and responsibilities etc. are also not clear. Some of the issues with the survey questionnaire have already been identified by the Ericsson team. After discussions with the supervisor at Chalmers University, it was decided that due to lack of the survey standardized process like CSATs' survey process, any alternative method used for collecting voice of the customer will have the same problem as today i.e. the data collected will not be used for any improvement purposes. It was therefore decided to take one step back and look at the complete picture of the problem which Ericsson was facing rather than just focusing on the survey or any alternative methods for collecting voice of the customer. Thus taking a process approach rather than focusing on the tools. The initial problem definition covered issues within survey design, survey process, data quality and low response rate.

1.1 Purpose

The master thesis focuses on the internal customer survey, named Region/CU service evaluation (RcSE). The core of the thesis is to look at the overall picture of the current process, by identifying improvement areas within the current process of the RcSE survey. These improvement areas will be used to redefine the survey process so that it can be standardized within Ericsson.

1.2 Research questions

For any improvement plan the starting point is to measure voice of the customer (Aghlmand et al., 2010). To collect the voice of the internal customer and measure quality of the deliveries, RcSE survey is used. As per Denove & Power (2006) the first step in capturing voice of the customer is to capture the right information. The RcSE questionnaire was designed in 2013 and till now no changes has been made in the questionnaire. Also as stated by Bergman & Klefsjö (2010), the customer needs vary over time. It was therefore necessary to check if the current survey captures the right voice of the customer or not. This brings to the first research question.

RQ1: How can the RcSE survey questionnaire support the identification of the right voice of the internal customer?

As per Subramaniam et al., (2009) one of the challenge for the voice of the customer program is quality of the data collected. Data quality becomes even more important from Ericsson's point of view as this data will eventually be used for improvement in customer experience.

RQ2: How is the quality of the data collected through surveys?

As per Denove & Power (2006) after collecting the right information, it is important that data gets to the right hand who can analyze it and is finally distributed in the organization. Collecting the right information and infrastructure are two important critical factors for any voice of the customer program (Denove & Power, 2006). Infrastructure provides the means for the organization to convert the raw voice of customer into measurable action which leads to the third research question.

RQ3: How can the data collected through survey be used to identify and prioritize the voice of the customer?

1.3 Delimitations

The RcSE survey covers the evaluation of the services as well as the individual evaluations. The scope is currently on the evaluations done via RcSE, and only those evaluations related to the service. The Individual evaluations initiated via RcSE are not in scope. The analysis is done for the data between the time intervals from start of RcSE survey in 2013-01-01 till 2016-02-09. The rest of the data till date is not part of the analysis. Although some suggestions have been made to improve the existing invitation email and questionnaire as they can have positive impact on response rate but the designing of a new invitation email or the questionnaire is out of the scope of this thesis.

2. Method

This section describes the methods used for this research and why they were chosen. Furthermore, validation of the research and ethics are being discussed.

2.1 Research strategy

Research strategy is according to Bryman & Bell (2011, p.26) “*a general orientation to the conduct of business research*”. Both quantitative and qualitative research can be combined for a research strategy. The quantitative research emphasizes the collection and analysis of data whilst qualitative research emphasizes on words instead of numbers and data. For the quantitative research it entails a deductive approach and for the qualitative research it entails an inductive approach (Bryman & Bell, 2011). For this thesis work, a combination of inductive and deductive approach has been used. Inductive approach is referred to the generation of theory as the guiding principle for research while in deductive approach theory is the testing of the theory which will be the outcome of the research. The combination of both inductive and deductive approaches is referred to as iterative (Bryman & Bell, 2011). The criterion is selected on the base of the research questions which are developed both by using hypothesis and established theory from the literature.

2.2 Research design

Churchill & Iacobucci (2002, p.90) defines research design as “*the framework or plan for a study, used as a guide in collecting and analyzing data*”. The research design helps to ensure that the study will be relevant to the problem description and research questions. According to Bryman & Bell (2011), the research design also represents a structure that helps guiding the execution of a research method and the analysis of the data.

The thesis design is based on a case study. As per Bryman & Bell (2011) case study can be based on a single organization, a single location, a person or a single event. The case study in this thesis has been conducted in Ericsson’s headquarter in Kista, Stockholm in Sweden. Case studies are according to Bryman & Bell (2011) most commonly used to focus on developing deeper understanding of a unique case. Once a case study has been selected, a research method or multiple research methods will be utilized in order to collect data. This is further discussed later in this chapter.

2.3 Research method

2.3.1 Literature study

Bryman & Bell (2011) suggest researchers to start research projects with a literature study by identifying key authors and important studies. It is according to Churchill & Iacobucci (2002, p.95) “*one of the quickest and cheapest ways to discover hypothesis*”.

The literature study might help researchers to create new or develop existing arguments for the ongoing research as well as increasing knowledge of different tools and methodologies before performing them in the project and avoid making common mistakes. The literature study can be used as a basis for justifying research questions and helping researchers to clarify the boundary of the subject area (Bryman & Bell, 2011).

Researchers have performed literature study throughout the research project. Google Scholar and Chalmers university library website “Summon” have been utilized as the main sources for relevant books and academic articles. The keywords mostly used when searching for literature were; *Voice of the customers*, *Surveys*, *Customer satisfaction*, *SERVQUAL* and *Survey fatigue*. Additional strategy to find relevant papers was to look into references already used in relevant papers, a method called snowball sampling (Bryman & Bell 2011).

2.3.2 Interview

For this project work, both structured- and unstructured interviews have been conducted by face to face, by email, by video and by telephone. Two expert interviews were also conducted. According to Bogner et al. (2009), expert interviews are interviews conducted with a person that has a professional curiosity about the topic of the research and interested in sharing ones’ thoughts and ideas with an external expert. The aim of structured interviews is to give exactly the same context of questioning to the involved interviewee. While conducting a structured interview, it is according to Bryman & Bell (2011) highly important for the interviewers to read out the questions exactly and in the same order as they are written in the schedule. Structured interviews are similar to closed ended questions in a survey, due to its very specific and fixed range of answers for the interviewee. For the unstructured interviews, the interviewer typically has a list of topics or issues, interview guide that covers the interview. The style of questioning is most often informal and there is no fixed sequence or phrasing of the questions compared to a structured interview (Bryman & Bell 2011).

They are some common sources of errors in survey research that interviewers should be aware off beforehand. These errors are; poorly worded questions, the way of how the questions are asked by the interviewers and interviewee are not capable to understand the questions (Bryman & Bell 2011; Churchill & Iacobucci, 2002). In addition, one of interviewers’ main tasks is to keep the interviewee interested and motivated during the interview. Common errors in recordings answers might therefore be that the interviewers do not correctly “hear” what the respondent actually is saying. Interviewers may hear what they want to hear and therefore taking wrong notes (recording errors) (Bryman & Bell 2011; Churchill & Iacobucci, 2002).

A total of 35 interviews were conducted as can be seen in table 1. Majority of the interviews were conducted by telephone since the interviewee were working at different locations all around the world. The interviews were conducted throughout the project and were divided in; first round interviews (6), second round interviews (13), external benchmarking (2), internal benchmarking (6) and expert interviews (2). Researchers had beforehand prepared fixed questions for the first round interviews and developed a new questionnaire for the second round interview after the first round interview were done. After first interviews in each round the questions were re-evaluated to capture any aspect that was found missing and any question which was hard for the interviewee to understand was reformulated. The two questionnaires can be seen in Appendix A and Appendix B. Since the researchers did not know the organization and the people in it beforehand, the interviewee for the first round interview were mainly identified through discussions with the supervisor at Ericsson. Researchers were also introduced to the first round interviewee by the supervisor at Ericsson. An email was sent in this regard which contained information about researcher’s background and purpose of the

research. The idea with the first round interviews was to get an initial understanding of the current problems. The interviewee in the first round interview were people working at Ericsson's different Global Service Centers (GSCs).

Table 1: List of interviewee

Designation	Interview type	Focus areas
Quality manager	Telephone	RcSE
Quality and improvement manager	Face to face	CPE
Head of PMO BJ and Operations manager	Telephone	RcSE
Senior manager quality	Telephone	RcSE
Manager IT tool and data	Telephone	RcSE system administration
Strategic program director and Operations director	Telephone	RcSE
PO governance & planning specialist	Telephone	RcSE
Engineering manager	Telephone	RcSE
Soln design & Opt manager	Telephone	RcSE
Senior Engineer	Telephone	RcSE
IT off shoring manager	Telephone	RcSE
Customer operations manager	Telephone	RcSE
Head of NDO operations TUI	Telephone	RcSE
LCO CD BBIP manager	Telephone	RcSE
Engineering manager	Telephone	RcSE
Service delivery line manager	Email	RcSE
ITAC advance troubleshooter	Telephone	RcSE
Business manager services	Telephone	RcSE
CSI Project Manager	Telephone	RcSE
CSI project manager	Telephone	RcSE
Service engineer	Telephone	RcSE
Customer project manager	Telephone	RcSE
CSI customer project manager	Telephone	RcSE
Strategic program manger	Telephone	DTRA
Implementation manger	Telephone	RcSE
Customer project manager	Telephone	RcSE
Ran off shoring manager	Telephone	QUAD
Quality manager	Telephone	Improvement tracker
Analyst CSAT program	Telephone	CSAT
DTRA deployment manager	Telephone	DTRA
Head global CSAT & Loyalty program	Telephone	CSAT
Researcher	Face to face	Survey design and process
Assistant professor	Face to face	Survey design and process
Operations director	Face to face	Survey design and process
Director studies (process owner)	Face to face	Survey design and process

The 13 interviewee for the second round interview were chosen by the researchers. The interviewee was selected on the basics of the survey volumes. Top six regions were identified which covered around 83% of the survey volumes. Within each of the six regions, top respondent, top non respondent and top receivers were selected. The selected interviewee were

internal customers at Ericsson, who are the ones that receive different service deliveries and fill out the RcSE questionnaire. The idea with the second round interviews was to go deeper into the problem and better understanding of the function with the RcSE questionnaire and its process. The purpose with the second round interview was also to better understand the needs and demands of the internal customers at Ericsson and how they perceive the RcSE survey.

The two expert interviews, internal and external benchmarking interviews were conducted in parallel with the second round interview. The two expert interviews were conducted together with two persons that researchers have been in touch with earlier during the masters' program. Both of the experts' interviews were face to face and focused on how Ericsson can improve their RcSE survey further and developing a possible process for the RcSE survey. Researchers found it easier and more efficient to perform the expert interviews in form of unstructured interviews in order to have a more open discussion and freedom in the questions. On the other hand, both the internal- and external benchmarking were performed as structured interviews. For the internal benchmarking, one out of six interviews was conducted face to face and both of the external benchmarking interviews were also conducted face to face.

Each interview took 45-60 minutes. Before each interview, the interviewee was informed about researcher's background, the purpose of the research, supervisor at Ericsson, duration of the interview, anonymity, permission for recording, they were also asked to skip any question that they feel uncomfortable with or do not want to reply and reason for being chosen for the interview. Except one all of the interviews were audio-recorded, but only by the interviewee's approval. According to Bryman & Bell (2011), they are some good points in recording interviews. It gives the opportunities for the interviewer to go back, listen once again and add what have been missed out from the notes that were taken during the interview. The biggest disadvantage with audio-recording is on another hand the time required to go through the interviews once again. Even if it required additional time of the researchers to go through the recordings, it helped understanding interviewee's different views in a better way as it was sometimes hard to focus on what is being said and taking notes simultaneously. It was therefore a big relief to be able to listen once again to the interviews. Researchers followed up some interviewee with new questions which appeared while listening to the audio recordings and the interviewee were contacted either by sending an email or having a shorter discussion over telephone.

2.3.3 Secondary analysis

Bryman & Bell (2011, p.313) explains secondary analysis as *“analyzing of data by researchers who will probably not have been involved in the data collection of those data”*. Secondary analysis could either be analysis of quantitative data or qualitative data. Secondary data are not required to be collected by other researchers, it can as well be collected by a company or another type of organization for its own purposes (Bryman & Bell, 2011).

Researchers have in this master thesis been conducting secondary analysis of survey data collected by Ericsson. The data contained both comments and ratings, given by respondents. In other words, secondary data analysis was conducted on both qualitative (comments) and quantitative data (ratings). The secondary data was extracted from the RcSE tool and stored in

an excel sheet which contained survey data for the RcSE survey from January 2013 - 9th February 2016. The secondary data analysis offered some benefits to the researchers in understanding different behavioral aspect and data quality issues while carrying out the research project. It has saved time for researchers since the data was already collected and there was no need to collect any new survey data. The structure of the excel sheet in form of the different field were well structured and as well improved by researchers' supervisor beforehand. This saved some time for the researchers once again, since more time could be spent on analyzing the data instead of improving the structure of the sheet. On the other hand, it took some time to get familiar with the different field of the sheet and the data. For example, the field "status" was first interpreted by researchers as the status of the survey. It was later, after discussion with the supervisor, understood as the status of the project delivery and not the survey. Even though reanalysis of the data has helped project researchers to get some new interpretations, researchers have been limited with the secondary analysis due to not having control over the data quality.

The secondary data analyzed consisted of around 18,125 surveys initiated by 457 initiators involving 4598 respondents. Most of the analysis was done on top ten values for example top ten initiators, top ten respondents or top ten non respondents etc. The top ten initiators represented nearly 45% of the data but the findings from data analysis were crossed verified with different initiators through emails to increase the validity. Similarly, the top ten respondents represented only 7% - 10% of the data, the pattern of respondent who received low number of survey were also studied to increase the data coverage. These respondents represented nearly 80% of the respondents.

2.3.4 Validation of research

Validity is according to Bryman & Bell (2011, p.42) "*the most important criterion of research*". Validity is strongly connected to the integrity of the conclusions generated out by the research. The confirmation of the validity of the research findings is highly important (DeVon et al., 2007).

In order to increase the validity of the research triangulation has been considered i.e. the data was collected by interviewing multiple sources (Bryman & Bell, 2011). The data collected from the interviews were analyzed by both researchers independently in order to decrease the biasness. On the other hand, all the data collected have carefully been chosen and later analyzed. Looking into the survey data, extracted from the excel sheet, it has been analyzed based upon top six regions having the highest volumes of surveys received and response rate. Researchers believed that conducting data analysis of the top six regions would be valid enough and represent the total population. Researchers together with the supervisor at Ericsson, decided upon what should be measured and ensuring that it is actually measuring what is intended to measure and no other variables. Some researchers would name it as construct validity of a measure (Bryman & Bell 2011). The supervisor at Ericsson is the project owner of the RcSE survey and has been working at Ericsson for a longer period of time. He or she is therefore highly reliable in recommendations of what and what should not be measured. Most of the findings are also represented as response rate which is commonly used measure for surveys. The data quality dimensions used in the research are also the ones which literature refers to as the most commonly used.

Internal validity is according to Bryman & Bell (2011) the conformance between theory and the findings. In this master thesis, the internal validity is high. Majority of the problems that have been encountered along the research project have been expressed in the literature as well, especially related to respondent behavioral motivation factors, survey fatigue and data quality. Due to projects' highly practical approach, theory was sometimes hard or did not exist for some parts which lower the internal validity slightly. Researchers were limited to theory regarding "internal customer satisfaction", "internal customer service" and "service fatigue".

Another part of validity is the external validity. Bryman & Bell (2011) defines external validity as the ability to generalize. In other words, the degree to which the conclusions in a certain study can be generalized by a person or an organization in other places and at other times. Even if the research project has been performed specifically for Ericsson rather than a general context, results can be useful for other organizations as well. The findings in this master thesis might be useful for other organizations working with surveys and its work for collecting the voice of the customers. In order to improve the external validity, Bryman & Bell (2011) recommend using random selection when drawing a sample from a population. Once that has been done, researchers should try to keep respondents to participate in the study and holding a low level of dropouts. Researchers have in thesis succeeded in holding a higher level of external validity by following above mentioned criteria's. On the other hand, the external validity has decreased slightly due to researchers' decision of working with a smaller sample drawn out of a bigger population. It would not be possible to study the whole population due to time constraints.

2.3.5 Reliability of research

As per (Bryman & Bell 2011) reliability is concerning whether the results of a study are repeatable. Reliability is most commonly used in regards of whether or not the measurements that have been used for concepts in business and management are consistent. Reliability is usually well discussed among researchers in connection with qualitative research since they are concerned with stability of measurements performed. For example, if you are performing IQ tests and measuring intelligence you might have different ways of measuring it. Each way of measuring it gives different values and the variations are wide. You will therefore be concerned about the different ways of measuring the intelligence and be considered as unreliable (Bryman & Bell 2011). Bryman & Bell (2011, p.158) would state reliability as "*reliability refers to the consistency of a measure of a concept*".

LeCompte and Goetz (1982) also discuss reliability as external reliability and internal reliability. For the external reliability explain, it is explained as the degree to which a study can be replicated by looking into different factors such as; methods of data collection, analysis and social situations. Looking into this master thesis, researchers find the external reliability quite high. Since researchers have been performing the secondary data analysis based on one and the same source (excel sheet) given from the supervisor at Ericsson, it could easily be replicated by other researchers. For the first round interviews, the names were as well given by the supervisor and the names for the second round interviews were chosen by looking into the excel sheet. Therefore, the primary reason to the high level of external validity is the one and the same source (excel sheet) that majority of the research have been based on.

Internal reliability raises the question of whether multiple observers will agree within a single study. Highly important in internal reliability is the inter-observer reliability. Inter-observer reliability is the degree of which multiple observers describe the phenomena of the study in the same way and arrive at the same conclusions about them as well (LeCompte and Goetz 1982). Researchers in this thesis have according to their own perceptions been fulfilling the need in order to reach high internal reliability. They have been two researchers throughout the project and they have continuously been having discussions internally as well with their supervisor at Ericsson and Chalmers in order to make sure they all are having the same view of the phenomena. Researchers have together been participating on all of the interviews and discussed the findings after each interview in order to make sure that they have reached the same conclusions and nothing have been missed out. During the secondary data analysis, both of the researchers looked into the same data and did the analysis together. Findings were shared with the supervisor at Ericsson, together with his or her colleague and supervisor at Chalmers University. While sharing findings with the supervisors, researchers were taking their feedbacks into account in order to make sure that they can agree on conclusions given.

2.4 Ethics

In this thesis, ethical considerations are mainly significant for the ones involved in the empirical study. Prior to the interview, all the interviewee was informed regarding the context of the research and confidentiality. Interviews were also informed that they were not bound to answer all the questions, they can say no to any question which they do not feel comfortable to answer. For safe guarding, the identity of the interviewee, coding has been used by mentioning them by letters, so that when research work is submitted to the organization no harm is done to any individual resulting from any comment made during interview.

In some cases, the questions were sent in advance and in other cases the purpose and problem description of the master thesis were sent beforehand to the interviewee. All the above was done to follow the principles of not to harm participants' integrity and to provide sufficient information to the interviewee (Bryman & Bell, 2011). The data collected is also accessible to the researchers only. The respondents participating in interviews that were recorded were asked for permission beforehand and were informed about the purpose and how the materials collected will be used afterwards. Recording of the interviews and the transcribed will be destroyed after the research so that no data can be traced back.

As the data comes from only one organization it will not be shared with any other organization without prior approval. The thesis will as well, once completed, be shared with Ericsson for their review and any confidential details will be deleted. For Chalmers University and Hilton Hotel, which have been two organizations benchmarked in the project, approval for sharing the findings have already been given to researchers.

3. Theory

This section describes the theory used for this research.

3.1 SERVQUAL

In the mid to late 1980s, Parasuraman et al. (1985) developed an instrument for measuring customer service quality, by the name SERVQUAL. The SERVQUAL model has been widely used due to its accuracy to capture the customer satisfaction. The theory of SERVQUAL explains that in order to maintain satisfied customers you need to ensure that customers' perceptions of service are as close to their expectations as possible. Either you are satisfied with the service received or you are not. If you get what you want, you probably are satisfied, if don't, you are not satisfied (Szwarc 2005). According to Bergman & Klefsjö (2010), customer satisfaction is based on the needs and expectations of the customers. As can be seen in Figure 2, there are additional two factors besides personal needs that influence customer satisfaction, as past experiences and the reputation of the company (word of mouth). These three factors later build up customers' expectations of the service quality.

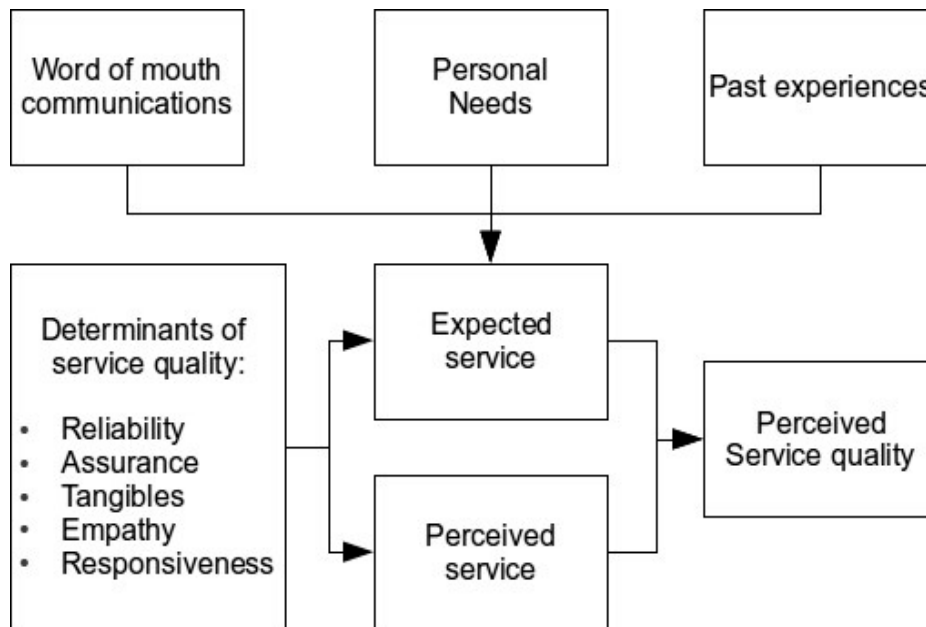


Figure 2: Determinants of Service Quality (Prevos, 2012)

The perceived service quality equals to the “gap” between expected service and perceived service. The perceived service quality is upon five different dimensions that Parasuraman et al. (1985) have chosen based on the empirical studies. The dimensions are defined below

Table 2: Definition of quality dimensions

Dimension	Author	Definition
Reliability	Zeithaml et al., 1990	Doing what you have promised
	Bergman & Klefsjö 2010	Consistency of the performance
	Buttle, 1996	The ability to perform the required service dependably and accurately
Responsiveness	Zeithaml et al., 1990	Willingness to help and provide prompt service
	Bergman & Klefsjö 2010	Willingness to help customer
	Buttle, 1996	The willingness to help customer and provide prompt service
Assurance	Zeithaml et al., 1990	Conveying trust and confidence
	Bergman & Klefsjö 2010	Conveying trust and confidence
	Buttle, 1996	The knowledge and courtesy of the employees and their ability to convey trust and confidence
Empathy	Zeithaml et al., 1990	Ability to see through customer eyes
	Bergman & Klefsjö 2010	The ability to understand the customers' situation
	Buttle, 1996	The provision of caring, individualized attention to the customer
Tangibles	Zeithaml et al., 1990	The physical environment in which the service is executed
	Bergman & Klefsjö 2010	Equipment, physical facilities, etc.
	Buttle, 1996	The appearance of physical facilities, equipment, personnel and communication material

As per Zeithaml et al. (1990 as cited in Bergman & Klefsjö 2010), access and communication are included in empathy while dimensions like competence, courtesy, credibility and security are included in assurance.

Although being introduced a decade ago, for measuring the quality of the services, SERVQUAL is still considered a “*standard*”, “*simple*” and “*reliable tool*” which is being used in a variety of different industries (Ciavolino & Calcagni, 2015; Ladhari, 2009). SERVQUAL has been used in health care, banking, telecommunication and information systems (Ladhari, 2009). Nyeck et al. (2002, p. 101 as cited in Al-Borie & Sheikh Damanhour, 2013) described SERVQUAL as “*remains the most complete attempt to conceptualize and measure service quality*”. Ladhari (2009, p. 172) also states that

“...much of this research effort regarding service quality has been devoted to the development of reliable and replicable instruments for measuring the construct. Of these, perhaps the best known and most commonly used measure has been the “SERVQUAL” scale, which was originally developed by Parasuraman et al. (1985, 1988) and subsequently refined by Parasuraman et al. (1991, 1994)”.

3.2 Customer satisfaction

For a longer time, companies have been measuring claims or complaints in order to provide a relevant measurement for customer satisfaction. Successful firms are encouraging their customers to complain according to strict corporate policies and by actions of the employees (Gustafsson & Johnson, 2000). On the other hand, average firms have a less proactive and poor approach towards complaint management. These companies usually have a defensive behavior which is triggered by customer complaints being out of their control, customers are wrong or customers have no right to complain. However, bigger share of companies is working hard towards increasing customer satisfaction by measuring claims or complaints (Gustafsson & Johnson, 2000). It has shown in investigations performed by McNeale (1994) and Gustafsson & Johnson (2000) that 95% of customers do not complain to their retailers or suppliers. In other words, 5% of dissatisfied customers actually complain to their retailer or supplier. It is therefore not recommended to measure customer satisfaction by number of claims or complaints since customers are avoiding showing their dissatisfaction by complaining. Further investigations have shown that customers avoid complaints because they get an emotional stress by going through the complaint process. It is of a big value for all companies to increase their knowledge about their customers' complaint behavior since they might be able to identify common service problems, improving service design and delivery, better understand customer perceived service quality and easier working with the strategic planning (McNeale (1994); Gustafsson & Johnson, 2000).

Gustafsson & Johnson (2000) discusses "*service recovery*" as something important in order to win customer loyalty and strengthen customer relationships. They explained good "*service recovery*" as turning a potentially negative situation into a positive and profitable one. That is according to them, what attitudes to have towards mistakes/errors/complaints. When companies are implementing service recovery as part of their work, customers will increase their commitment and build up a relationship to the company and experience a sense of trust. These customers will later most probably spread a good reputation of the company and tell other customers about their great experiences. It is therefore important ability of the supplier/company to recognize as soon as possible when a customer is dissatisfied and efficiently solve the issue causing dissatisfaction (Gustafsson & Johnson, 2000). McCarthy (1997) believes that one of the reasons behind why some companies fail to work towards increasing customer satisfaction is because they view customer satisfaction as a cost rather than an investment.

According to Szwarc (2005), there is a distinction between "satisfied" customers and "loyal" customers. They both contribute to companies' profitability but in different ways. Satisfied customers are more likely to talk good about the company since satisfaction is something people usually want to express and share to others. Loyal customers are on the other hand more profitable since they are more likely to come back to the company and buy additional products or services. It has also been proven that there is a strong link between committed loyal customers and profits (Szwarc, 2005). In addition, it has shown that quality, customer satisfaction and customer loyalty, are three important factors that should work in line with each other and be summed up as one whole part. In order to be able to measure these three factors as

a whole, organizations should follow three certain steps and in parallel have a clear understanding of the customer experiences (Gustafsson & Johnson 2000);

1. Collect information regarding customers' thoughts about the product and service and how they value features provided. One should also understand benefits and consequences with the features provided.
2. Spread the collected information throughout the organization.
3. Use the information to maintain, improve or innovate products, services or processes in order to increase satisfaction, loyalty and profitability (Gustafsson & Johnson 2000).

3.3 Internal customer satisfaction

Niagel & Cillers (1990) have concluded that anyone who is supplied with products or services by others within the organization is counted as internal customers. Employees, as one of the main internal customers in an organization, have received very little research attention with respect to the value that they actually give (Grace & Lo, 2015). Not many people view employees as one important stakeholder group nor as customers of the company. It is therefore important that the company can ensure having satisfied and loyal customers (employees). It is not enough to only satisfy external customers. In order to have a well worked organization and a productive network, all stakeholders need to feel they get value in exchange (Gummesson 2008). If employees are dissatisfied they will probably show less enthusiasm and show more anger towards company's work and take more time off through sickness leave (Parasuraman 1985). This message will most probably reach out to external customers and harm organizations' reputation of how they are treating their employees. On the other hand, if the internal customers are satisfied they will be more loyal and productive. As a result, they will have a bigger drive to deliver good results for the external customers (Parasuraman 1985).

Varey (1995) discusses that when internal customer services aim to identify and satisfy internal customers' needs both as individuals and as a service provider, majority of the employees in the organization are willing to provide high quality service to their final customers. One risk when it comes to managing internal customer relationship is the creation of gaps. If the relationship between internal suppliers and internal customers are not managed properly, gaps will be created and later harm service quality, customer care and take the organizational success into wrong direction (Hemsworth et al., 2007).

Internal customer service quality has received little attention since most researchers have been emphasizing external customers' service quality. Some researchers have even argued that internal customers are equally important as external customers (Jun & Cai, 2010). Finn et al. (1996) discusses that each employee should treat each other as valued customers. If personnel within the organization have the same view and understanding of how internal service quality is judged, they can together take appropriate actions towards increased performances and rectify internal service failures (Jun & Cai, 2010).

Internal customers share many similar characteristics with external customers. However, internal customers can be differentiated from external customers in the aspect that internal customers are committed to one or no suppliers at all compared to external customers that have multiple choices and are not tied to one or another supplier (Finn et al., 1996). Another

difference is that internal customers are expert consumer of the services they use and have major knowledge about the service provided whereas external users have limited knowledge of the services provided (Finn et al., 1996).

Treating customers as partners has been widely advocated in the literature but has not been widely accepted by the managers (Nigel & Piercy, 1995). One of the reasons observed by Nigel & Piercy (1995) was that employees have little or no knowledge about customer and they do not care about customers' needs or expectations. So as per the authors, a good starting point for any organization is to make everyone aware of who the customers are within the company.

3.4 Internal customer service quality

“Internal quality service is characterized by the attitudes that people have towards one another and the way people serve each other inside the organization. Thus internal customer service is viewed as a two-way exchange process between individuals in different functional department of the firm in which the provider is charged with responding to the needs of his/her internal customer, resulting in satisfied exchange partner” (Heskett et al. 1994 as cited in Marshall et al. 1998, p.382).

Although little attention has been placed on the internal customer service quality as compared to the external customers (Stanley & Wisner, 2001 as cited in Jun & Cai, 2010), some researchers has stressed that there is no difference when it comes to importance between the internal or external customers (Jun & Cai, 2010). The organizations who are able to deliver good service to internal customers, their external customers enjoy the same good services (Jun & Cai, 2010; Marshall et al., 1998). However, as the service quality dimensions for external customers differ from each other, similarly the service quality dimensions for internal customers also differ from each other. Thus it is important to identify which service quality dimensions are more appreciated by internal customers as compared to others (Jun & Cai, 2010). Marshall et al., (1998), therefore emphasizes that internal customer quality perceptions should be measured as well.

Macaulay & Cook (1994) suggest that one of the reason for the poor internal quality services is the way departments within an organization works. Each department focusing on its goals and as a results of this internal focus the employees fail to understand the effect of the *“internal customer/supplier relationship”*.

3.5 Voice of customer (VoC)

Organizations for long have been focusing on their capabilities and processes. This has resulted in organizations being inner focused thus neglecting the relations they have with customers (Phipps, 2001). *“Service quality is commonly defined as satisfying or exceeding the needs and requirements of the customers”* (Iacobucci et al., 1995 cited in Aghlmand et al., 2010, p.154). Thus it is becoming important for the organizations to look at the services that they provide to customer through customer's lenses (Aghlmand et al., 2010). This data collected should therefore be used for understanding the customers' needs & requirements and for process improvement purposes (Aghlmand et al., 2010; Phipps 2010).

The literature defines the voice of customer (VoC) as;

Table 3: Definition of VoC

Author	Definition
Duhovnik et al., 2010 (cited in Aghlmand et al., 2010)	VoC refers to articulated and unarticulated customer needs and requirements; as such it must be identified in order to start new process development
Aghlmand et al., 2010	Listening to the voice of the customer is the starting point for planning and/or adopting services to satisfy customer needs and requirements
Griffin & Hauser, 1993	VoC refers to a set of the needs and desires suggested by customers
Found & Harrison, 2012	VoC is often used to describe customer expectations but VoC is really in two parts, pre- and post-purchase, and the supplier needs to hear and react to both

The VoC can be used for identifying customer needs and requirements (Aghlmand et al., 2010), customers' perception about the service or the product (Phipps, 2010; Lee et al, 2014), starting point of any improvement activity (Aghlmand et al., 2010), a source for innovation (Lee et al., 2014) and provides the competitive advantage by making organization flexible to changing customer needs (Found & Harrison, 2012). The voice of customer thus provides a rich qualitative data (Aghlmand et al., 2010) which is a terrible thing to waste (Denove & Power, 2006).

Various methods can be used to capture the voice of the customer. Brainstorming, focus groups, interviews, contextual inquiry, complaints (Duhovnik et al., 2010), gembu and customer surveys (Aghlmand et al., 2010) are some of the methods for capturing VoC. As per Subramaniam et al., (2009), customer communication like emails, text messages and chat transcripts should also be considered as methods for capturing VoC. These methods should be used to capture complete and accurate customer needs both spoken and unspoken (Aghlmand et al., 2010). The customer needs and expectations are dynamic in nature and change over time (Bergman & Klefsjö, 2010), so in order to fulfill the future needs of the customers, capturing VoC should not be a single time activity but should be repeated periodically (Found & Harrison, 2012).

Capturing the voice of internal customers (employees) is as important as capturing the voice of the external customer. However, there should be a distinction between the voice of the internal customers and voice of the external customers as they don't share common language (Duhovnik et al., 2010). The voice of the internal customer can be used for the improvement of process, products and services thus satisfying the external customer needs and expectations (Duhovnik et al., 2010).

As per Subramaniam et al., (2009), there are three challenges with using voice of the customer; firstly, data quality, secondly integration of VoC with other data within organization and thirdly storing and processing of such large data. Denove & Power (2006) also state that it is easier to collect VoC than to analyze/take action or to interpret it which results in two challenges; raw data not being analyzed and failure to transfer the VoC data to respective persons which can act

upon it. Goodman et al. (1996) also suggest that the problem lies with doing something useful with the customer feedback and not with collection. As per Denove & Power (2006, p. 232) “companies should do three things in order to reach the pinnacle of VoC integration

1. *Collect the right information from customers*
2. *Properly analyze that information and make sure it gets into the hands of the people who are in a position to use it; and finally*
3. *Properly act upon that information (Denove & Power, 2006, p. 232)”*

3.5.1 Success factors for VoC process

Goodman et al. (1996) suggest that the VoC system should consist of multiple sources for capturing the customer needs. Asking questions, identifying problem and providing feedback are some of the methods by which customers contact organizations. For a successful process these VoC should be captured from where ever they are received within the organization. Statistical methods could be used to report trends or capture any changes. As these VoC are collected from different sources, they must be integrated into a common database and top management should have access to the database as well as the reports. Finally, the incentives need to be somehow linked to the VoC (Goodman et al., 1996)

3.5.2 Pitfall for VoC process

Goodman et al. (1996) have identified several pitfalls for any VoC process. Most of the companies spend millions to collect the VoC but the problem lies not in capturing the VoC but rather how that data is used or not. The companies use VoC data to prepare reports on annually or quarterly basics. As the data used for these reports are old so it cannot be used for any improvement work. Monthly reports are generated by companies like Toyota, Ford, Marriott etc. to make sure that customer issues are not lingering. The feedback collected from customers’ needs to be prioritized so that companies can work on few of the issues rather than attacking all issues at one time. VoC process generates actionable analysis. Meet top management face to face and giving them feedback is more effective in communicating VoC results. The actions taken and their visibility can be done through a tracking system. Thus making sure that VoC is not just a lip service. There should be ownership/responsibility of the VoC and its issues ought to be defined. (Goodman et al., 1996).

3.6 Survey

Survey is a research method that is primarily used to collect both quantitative and qualitative data. The data is collected from a selected group of people by using questionnaires or structured interviews (Bryman & Bell, 2011; The Pennsylvania State University, 2016; Lyberg 2012). The questionnaire is not the “survey” and does not make up the whole survey as people usually believe. Questionnaire is one part of the survey process. Each survey process contains different stages; selecting the group of people that will be asked, testing the survey, determining delivery methods, confirming the validity of the data and analyzing the results (The Pennsylvania State University, 2016). Surveys are also of great help to identify customer expectations, measuring customer satisfaction levels and tracking specific areas for improvements. In order to get some good results out of the survey, it requires detail planning, support, time and most often money. It is not always necessary to use surveys in order to collect certain data since that data might

already exist or can be collected by more simple sources (The Pennsylvania State University, 2016).

One important question that should be answered before conducting a survey is “*what do you want to get out of this*” (The Pennsylvania State University, 2016, p.1). A common issue is that organizations and/or people that conduct a survey without understanding why they are doing it and what kind of data they are looking for. In other words, it might be waste of time, resources and the survey data collected might only be unusable. A survey has to measure what is intended to measure and the owner of the survey has to plan the survey along the way. Otherwise, common errors might appear such as; respondents are misunderstanding the questions, people are not willing to participate in answering the surveys, surveys are not presenting the true population of the study or the data collected is not useful enough. In order to avoid or minimize the risk for facing these types of errors, they are some questions that needs to be considered at the start of conducting the survey (The Pennsylvania State University, 2016);

- “*How will the survey results be used?*” Plan what’s intended to be learned from the survey and how the results will be able to improve current processes (The Pennsylvania State University, 2016, p. 2).
- “*Who should be surveyed?*” Making sure beforehand that participants in the survey are involved in the survey process. These people will carry on the valuable knowledge and inputs that will have impact on the process (The Pennsylvania State University, 2016, p. 2).
- “*How many should be surveyed?*” Important to choose a certain number of individuals that will be asked in order to not exceed the costs and time reserved for the survey (The Pennsylvania State University, 2016, p. 2).
- “*Who will design and administer the questionnaire and analyze the results?*” (The Pennsylvania State University, 2016, p. 2)

It is highly important to plan beforehand on how much time, money, expertise and personnel resources are available for the survey process. Someone has to send out the surveys, follow up with the non-respondents, process and analyze the results. The whole process will require time and could either be handled by an external unit or internally in the organization. If the topic is sensitive, it is recommended to let an external unit handle the survey process since recipients may be more willing to respond to a more neutral party (The Pennsylvania State University, 2016).

3.6.1 Developing a questionnaire

Persons chosen to be part of the team that will develop the questionnaires should be persons that are mainly involved in the survey processes and the ones that will take part of the results from the survey. Why these persons should be involved, is because they have the best knowledge of the processes and how the results could be utilized. Most often, each questionnaire consists of an introduction text, the questions and a concluding page. The introduction text should include; idea of the survey, the organization/people behind the survey,

the deadline for when answers should be returned, estimated time for completing the survey and person contact information in case of questions. The concluding page after completing the survey is used to thank respondents for participating in the survey and provides the contact information to a certain person in case of further questions about the survey (Snijkers & Ebrary 2013; The Pennsylvania State University, 2016).

Lin & Jones (1997) suggest that an organization working towards the continuous improvement can develop more insight in the customer concern areas by involving customers early in the survey design.

3.6.2 Types of survey questions

Questions in the survey fall into two different categories: open questions and closed questions. For the open questions, respondents have the freedom replying to the question as they want (The Pennsylvania State University, 2016). With closed questions, the respondent has limited choice of fixed alternatives from which they have to choose one of the answers. The advantage of closed questions are its ease to process the answers and finding the relationship between the answers from different respondents. At times the fixed choice alternatives in closed questions might also clarify the meaning of the question for the respondents (Bryman & Bell 2011). On the other hand, there are some certain disadvantages with closed questions. Some respondents might be mistaken or when they are not sure what to answer, giving multiple answers even when only one answer is required. These data will therefore be treated as doubtful and scrapped since at a time of data analysis it will be impossible to conclude which among the answers represent the true answer. This issue could be avoided in web surveys, where a restriction is set on the amount of possible answers to be selected. Respondents might also get upset when they have to choose one answer among a selective amount of answers if they do not find an answer that applies to their thoughts. This issue could sometimes be avoided by giving a last category as “*other*” which also will widen the range of answers (Snijkers & Ebrary, 2013; Bryman & Bell, 2011; The Pennsylvania State University, 2016)

As per the Pennsylvania State University, (2016) open questions, similar to closed questions present both advantages and disadvantages. Open questions have certain advantages over the closed questions and vice-versa. The biggest advantages with open questions are that respondents can choose their own answers and are not forced to stick to fixed answers and the same terms. Since respondents have more freedom to give answers, it will be easier to measure respondents’ level of knowledge. One of the disadvantages with open questions is the time needed to “*code*” answers collected. The work behind “*coding*” answers, involves reading through the answers and then “*coding*” them or grouping them into different categories/topics. The open questions will provide rich information about the selected topics. On the other hand, it might be difficult to analyze the data since it could cover a wider range of topics. It is therefore needed to work on the “*coding*” and summarize collected data (Snijkers & Ebrary 2013; The Pennsylvania State University, 2016).

3.6.3 Writing questions

There are some suggestions that should be taken into account when writing questions in order to reduce the chance for survey errors. Even though external units are administering the survey

process, persons internally that are part of the improvement processes are the ones that will identify the types of questions and topics of the survey. Suggestions that will be mentioned are how to write questions to increase the clarity and improve the motivation for the participants to complete the survey (Snijkers & Ebrary 2013).

Start the survey by asking easy and interesting questions of the type, “*closed questions*”. This will help respondents to feel more comfortable and may be more interested to complete the survey (Snijkers & Ebrary 2013). Aim should be to write understandable and clear questions by keeping sentences as short as possible. If the questions are long and complicated, the risk might be that the responder may have difficulties in understand the context of the survey (The Pennsylvania State University, 2016).

According to Dillman (2000) and other experts, questions should be written at an easier and more understandable language level. For example, word as “*exhausted*” should rather be substituted to the word “*tired*”. In addition, avoid using expressions, words and acronyms that are linked to a certain area or unit (Dillman 2000).

A common mistake is asking the respondent two or more actions/items in one and the same question. Since you need to give one answer for the closed questions, it will be impossible to rate two items with one rating. The data quality will be useless and responder might get confused (The Pennsylvania State University, 2016).

The weighting of the scale should be the same in both of the end in order to keep the biasness in responses. For example, if “*very satisfied*” is there as an alternative at the positive end of the scaled range, “*very dissatisfied*” should be at the negative end and not “*extremely dissatisfied*” (Hippler et al., 1987). There should be a “*neutral*” response category as well for the questions (The Pennsylvania State University, 2016).

It is usually hard to measure the true answer of respondents who have no experience of a certain question topic. These people should not comment on something they cannot answer on. One efficient way of including their opinions is by including either “not applicable” or “does not apply” as options for answer (The Pennsylvania State University, 2016). Enough extra space should be provided for the open questions in order to encourage the respondents to give long answers (Snijkers & Ebrary 2013).

By shortening the questionnaire length, chances for increasing response rates might be raised. Respondents that receive long questionnaires are more frequent to skip the whole survey or not answering on several questions. Developers of the questionnaires should therefore think over which of the questions in the survey are the “*must-haves*” and reevaluate the “*nice-to-have*” questions (Hippler et al., 1987).

It is important to keep the demographic questions at a minimum level. Respondents have a tendency to feel more comfortable if their identity cannot be tracked by their responses. The more comfortable they feel by answering the survey, the bigger chance is it that they will complete the survey and overall result in a higher response rate. Smaller design differences in the questionnaire can have bigger impacts on the results than expected. For example, by looking

through the way questions are asked; if questions are asked in a bad way, asking questions that could be interpreted negatively and/or indirectly forcing people to answer questions. These smaller differences could dramatically reduce the response rate and as a result the validity of the collected data (Hippler et al., 1987; Snijkers & Ebrary 2013).

3.6.4 Pre-testing the questionnaire

In order to ensure that the questionnaire meet its purpose, it should go through a pre-testing session. According to Backstrom & Hursh-césar (1963), it is hard to substitute a pre-testing. Even if you perform intellectual exercises. In addition, literature does not recommend to skip the pre-testing session for any survey that will be taken (McDaniel & Gates 1995). As per The Pennsylvania State University (2016) the pre-testing confirms that respondents understand and answers the survey as planned. All errors that appear during the pre-test should be taken into account and adjusted for the final version sent out to the respondents. Feedback received can improve the quality of the questionnaire. Researchers recommend developers of the survey, creating a small group to complete the questionnaires and then providing input and feedback for possible improvements. The group should include between five to ten people. Specific items that should be controlled during the pre-testing are; unfamiliar words, clarity of the questions, flow of the questions, ability to access the form if it's online and the actual time to complete the questionnaire. The team that are developing the survey could either sit with the persons while they are testing the survey, interviewing participants one by one afterwards or having a focus groups with the participants after they have completed the pre-test (The Pennsylvania State University, 2016).

3.6.5 Increasing response rates

A recommendation by Dillman (2000), in order to increase the response rate is to make five contacts with participants (only for mailed and online surveys). Dillman (2000) has together with other researchers found out that, an increased number of contacts with the respondents can have a positive impact on the response rate. Having a higher response rate also means having higher validity on the survey.

The first contact with the participants should occur a couple of days before sending out the survey, with the information that a survey will be sent out shortly (Dillman, 2000). Participants receive the survey two to three days later. Dillman (2000) suggest tracking the responses, which can be done by placing an identification code on each questionnaire.

Between three days to one week after the survey have been sent out, a thank you letter should be sent to all participants. Even for those that have not replied. The thank you letter should kindly ask the persons who have not filled out the survey to do it (Dillman, 2000).

The fourth contact should be held two to four weeks after the first contact. In this contact, the same questionnaire should be sent to the ones that have not filled out the survey yet (Dillman 2000).

Approximately one week after the fourth contact, respondents that still have not replied should be contacted and asked to fill out the survey. They should be contacted differently from the first

contact. If the first contact was held by email, then a phone call or postal mailing should be performed (Dillman 2000).

3.6.6 Analysis of results

Once the data have been collected, it is time up for the team members to analyze the data. Finding indication for possible improvements by comparing the response rate between the different questions in the survey. For example, 10 % of respondents are satisfied with the quality of the service, while 70 % are dissatisfied with the deliveries of the service. In other words, quality of the service is a possible area for improvements due to its lower satisfaction level (The Pennsylvania State University, 2016)

Analyzing the responses by dividing respondents into different subgroups depending on the types of attributes. It might be interesting and helpful to see how different subgroups act and think differently. For example, if the males value quality higher than the female or if major respondents are full-time employees and not part-time employees (The Pennsylvania State University, 2016).

3.6.7 Non-respondents

Survey researchers hope to receive high-quality data each time they send out surveys. What's required from the respondents for filling out the surveys is some cognitive effort. It will be required to be done for little or no rewards (Krosnick 1991). According to Tourangeau (1984), each responder should go through four different stages in reach high-quality data/input. The first stage is when the responder carefully tries to understand the meaning of each question. Secondly, respondents will search through their memories and try to understand each question. Thirdly, respondents will try to match their own knowledge and memories to each question and in the last stage they will formulate an answer (Tourangeau, 1984).

Some respondents are motivated enough to fill out a survey due to different sort of motives that encourages them to get motivated. Respondents might view the survey as an opportunity to express their feelings and give feedback in order to help survey researchers to make any positive impact in their current research. Although survey researchers hope all respondents would act like that, it is unfortunately not the case. One of the biggest challengers in surveys is to keep a minimal level of non-respondents. Even well-designed surveys with x amount of reminders will have issues in having all respondents filling out the surveys (Kropf & Blair 2005, cited in Dolnicar 2013). The non-response has always been seen as an undesirable feature of a survey. The attention to non-respondents in literatures has increased during the last decades. The behavior and willingness to share data has decreased in the society during the last years. This has fostered a harder survey climate which has resulted in increased attention to non-respondents in literatures (Särndal & Lundström, 2005).

Krosnick, (1991) suggested that a typical behavior by respondents is to shift their response strategy in the middle of the survey. They start answering the first few questions accordingly and as the survey progresses they become increasingly fatigued, unmotivated and distracted. Rather than giving accurate answers, they spend less energy on thinking through the answers and select a response choice more haphazardly. This response behavior is called "*satisficing*", which is when survey respondents fail to fully go through one or more of the four stages that

were mentioned earlier. Satisficing could also be the case when respondents have executed all four steps, but not comprehensively (Krosnick, 1991). A satisficing behavior might also be to take shortcuts by using different strategies such as; choosing the same response throughout the survey, selecting “*don’t know*” or “*not applicable*” more often, randomly selecting a response, skipping questions or maybe not reading instructions carefully. In addition, no response is more likely when questions become more difficult and no response are usually appearing later in the questionnaire. Survey respondents will try to use some of the few strategies in order to save effort and energy (Krosnick, 1991).

According to Krosnick (1991), there are three factors that are affecting the likelihood that a respondent will satisfice when answering a question. First factor is the task difficulty. Task difficulty is the difficulty to understand the meaning of the question and the response choices and also the difficulty to remember the memories generating the answers. Second factor is respondents’ ability to think through the questions and make judgments of possible answers. The third and last factor is respondents’ motivation to optimize. It is basically about respondents’ beliefs about whether the questionnaire will be useful to fill out or not (Krosnick, 1991).

3.6.8 Respondent behavioral motivation factors

They are several motivation factors to why people respond to surveys. Han et al. (2009) concluded that cost, reward and trust are the most important factors in survey response. The theory explains that people avoiding responding to a survey will create an internal anxiety and internal disharmony which only can be reduced by taking part in the survey. Ford (1973) stated that a person who is highly committed to some activities will most probably take part in the activities than one who is not as much committed. Similar to surveys, theory depicts that people are more likely to fill out a survey if the topic, issues in the survey, source of sponsor and/or researcher are seen as relevant to them (Han et al., 2009; Poon et al., 2004).

Han et al., (2009) studied the internet survey response behavior among 12,000 students in a New Zealand University. Approximately 67,5% of the students replied to the survey, which equals to 861 students. Based on researchers’ survey and their findings they have been able to present some interesting findings for motivation factors. The survey questionnaire used in the research was divided into three parts. Part 1, concerned respondents’ behavioral motivation factors. Part 2, included questions regarding respondents’ demographic characteristics such as age, gender and level of education and their experiences to surveys. Part 3, providing open-ended questions in order to give the opportunity for the respondents to give additional comments on the aspects of the survey. Following findings were presented by Han et al. (2009) from his research on students

3.6.8.1 Rewards

Receiving either tangible rewards or intangible rewards. Tangible rewards are mostly referred to as incentives in the form of money and survey feedback is referred to intangible rewards. Receiving rewards was among the students viewed as a great motivational factor to fill out a survey and as a thanks for taking the time and effort to fill out the survey (Han et al., 2009). Students had different views of receiving incentives such as; “*people feel that there is nothing*

in it for them at all, so will not participate and most people will only take part in an internet survey if they receive something in return for participating” (Han et al., 2009, p.433). Trust was brought up as an important consideration in regards to incentives offered over the internet. Respondents usually have hard times in trusting survey researchers and believe that researchers might not do as promised when it comes to rewards and prizes (Han et al., 2009).

3.6.8.2 Fun

Respondents see internet-based surveys as more interesting and fun to do. What respondents asked for in order to make the surveys more interesting and more fun are; design of the survey, technical features, the survey topic and wordings. It is also important to make the survey colorful, adding pictures, giving instant feedback in charts/graphs, a clock showing the percentage of completion during filling out the survey, background music and having an interesting topic (Han et al., 2009).

3.6.8.3 Relevance

As per Han et al., (2009) people care about a survey that is relevant to them and are ready to cooperate with survey researchers if they would have a connection to the survey. In the meaning of relevance, it focuses on sending out surveys to people that have the knowledge enough to participate. One thing is to have an attractive topic and another thing is to ask relevant people to fill out surveys. As per the authors respondents at New Zealand university explains that it is not always good for the research to attract responses by giving rewards. The side effect of giving rewards might be to attract respondents with no or less knowledge to participate, even though you receive a higher response rate. The word, affinity, was brought up among the responses from the students. Affinity emphasizes respondents' willingness to participate. The research might have been conducted by a well-known organization, which respondents are well aware off and therefore willing to fill out the survey and provide as much help as possible (Han et al., 2009).

3.6.8.4 Benefit

The purpose statement of the research is highly important to peoples' decision whether they will participate or not. The purpose statement should include the social benefit of the survey as well. Usually purpose statements are not clear enough and insufficient. The feedback collected from the students; clearly show that respondents require clearly stated survey purpose in order to better understand the value of the survey (Han et al., 2009).

3.6.8.5 Costs

Feedback from respondents showed that costs have a strong impact on the survey response. There are four different types of costs in regards of internet survey; time, effort, financial cost and difficulty getting access to the internet. Among these four different types of costs, time and effort were the two most frequently cited by the respondents (Han et al., 2009).

Almost 10% of the respondents said that they usually avoid responding to surveys due to time constraints from their other tasks. They perceive the survey as *“a waste of time”* and *“too long”* and terminate surveys at the first sight (Han et al., 2009, p. 434).

People are not ready putting a bigger effort to participate in an internet survey if the questionnaire has a higher number of questions. Compared to other forms of surveys, it might as well require extra effort to participate in internet surveys, especially if one lack internet and computer skills. It is therefore important to have a user-friendly design and clear instructions of how to fill out the survey. This certain type of cost is hard for researchers to avoid, but they have to try avoiding different types of errors such as server crashes, slow downloading speed and failure to load web pages (Han et al., 2009).

Access to internet is surprisingly another type of cost. One of respondents' comments was *"having access to internet, it is often assumed that everyone has easy access, or that if they don't they will know how to access throughout the channels that are available to them"* (Han et al., 2009, p. 435). In other words, not all have as good access and condition to a stable internet as others.

3.6.8.6 Self-perception

Responders feel a motivation of being responsible and cooperative. It usually helps to increase responders' self-perception by having a kindly worded request in the survey such as *"We would like to get the opinion of helpful people like yourself"* (Han et al., 2009, p. 436). Respondents' comments on what motivates them to respond to surveys was as a part of being *"a nice person"* or *"just helping others"* (Han et al., 2009, p. 436). One respondent expressed his/her thoughts as *"warm heart, coz' helping people can make himself/herself felt happy too"* (Han et al., 2009, p. 436).

3.6.8.7 Trust

One part of trust is keeping promises, for example promising monetary incentives to responders. Another part of trust is privacy. Responders are usually worried about confidentiality and anonymity of the information collected from them. Respondents want to make sure that survey researchers are following the stated purpose, only. People are feeling less anonymous when they are filling out internet-based surveys compared to paper questionnaire and some are worried about receiving virus in email attachments and by survey links (Han et al., 2009).

3.6.8.8 Spam

People most often associate internet surveys with spam. *"E-surveys are generally marketing", "its' like junk mail in the letterbox" or "My biggest problem with this one is the spam approach"* (Han et al., 2009, s. 436). Some had a strong opinion and reaction of receiving a bulk of emails and expressed their thought as *"I don't appreciate to be bulk emailed without my consent!!!"* Others were calmer to spam emails since they usually receive junk emails daily and *"too much junk mail, this could be seen as just more of the same"* (Han et al., 2009, p. 434).

3.7 Survey fatigue

Over the past decade an increasing trend is seen in the customer satisfactions surveys. This increasing trend has resulted in increased number of customers who are exhausted and don't want to be surveyed anymore (Lin & Jones, 1997). Same observation was collected by Weiner & Dalessio (2006) regarding employees. Due to the *"over-surveying"* the employees are fatigued which has resulted in higher refusals to non-essential questionnaires (Baruch & Holtom

2008). Interestingly a limited work has been on the impact of multiple survey request and the response rate (Porter et al., 2004)

Porter et al. (2004) in their research on students have shed some light on survey fatigue. The authors have observed that in panel interviews which involve several interview iterations, the nonresponse rate increases overtime as the burden on the respondents' increases. Previous studies have shown a negative relationship between number of previous number of surveys and future participation (Goyder, 1986). As per Porter et al. (2004) as well multiple surveys have negative impact on the survey response and can have a bigger impact if surveys are conducted back to back. During their study, the students suggested that they should only be surveyed three to four times a year (Porter et al., 2004).

3.8 Survey feedback and visible actions

According to quality gurus Ishikawa and Juran, feedback loop is considered as the most important among the quality management activities. Plan → Do → Check → Act (PDCA) cycle itself is an evidence of it as this approach is used in one form or other in all the learning organizations for continuous improvements (Bavagnoli & Perona 2000).

“Survey feedback is a process in which data is systematically collected from members of an organization, analyzed in summary fashion and fed back selectively to organization members” (Friedlander & Brown, 1974 as cited in Conlon & Short, 1984, p. 326). The research shows that employees show interest in participating in surveys (Katz & Kahn 1966) and their job satisfaction and work attitude is directly impacted if they are provided with a direct feedback or not (Conlon & Short, 1984; Kroustalis et al., 2007). Thus impacting employees to participate in the next surveys or not. On the, little focus in research has been given to the impact of visible actions (Kroustalis et al., 2007). As per research conducted by Church & Oliver (2006 cited in Kroustalis et al., 2007), showed that providing feedback and taking visible actions resulted in higher overall satisfaction among employees as compared to other who were neither provided with feedback nor actions.

As per Nedler (1977, cited in Kroustalis et al., 2007), different stages of survey are planning, data collection and analysis, feedback, and implementation based on survey results. The later stages are generally neglected which could result in negative sentiments amongst the employees owing to the reason that they might think that their opinion is not valuable (Kroustalis et al., 2007). One of the reason for lacking the later stages is that managers do not perceive feedback and actions implementation as two separate and distinct process rather they believe that providing feedback will automatically generate actions (Kroustalis et al., 2007)

3.9 Data Quality

“The level of quality of data represents the degree to which data meets the expectations of data consumer, based on their intended use of the data” (Sebastian-Coleman, 2013, p. 40). This definition of the data quality is also consistent with other definitions given by different authors like Wang & Strong (1996) and Redan (2006) as cited in Weber et al., (2009). Defining clearly the expectations about condition of the data and as a result lack of data measurement are two complications for any organization dealing with data quality (Sebastian-Coleman, 2013).

The poor quality data can impact organizations in many ways (Silvola et al., 2016). It can result in data traceability issues and redundant data (Smith & MCKeen, 2008; Miska et al. 2014 as cited in Silvola et al., 2016) and as result data quality is everyone job. Due to the impact of data quality, data quality management is gradually becoming essential for both academic and professional perspectives (Silvola et al., 2016). Master data quality is impacted by both lack of routines and lack of responsibilities (Silvola et al., 2016).

In academia, different authors have discussed different dimensions of data quality, but the most commonly used are accuracy, completeness, consistency and timeliness (Silvola et al., 2016; Blake & Mangiameli, 2011). These dimensions are defined in the table below.

Table 4: Definition of data quality dimensions

Dimension	Author	Definition
Accuracy	Ballou & Pazer, 1985	The recorded value is in conformity with the actual value
	Klein et al., 1997	Agreement with either an attribute of a real-world entity, a value stored in another database, or the results of an arithmetic computation
Completeness	Gomes et al., 2007	Complete data has been defined as data having all values recorded
Consistency	Ballou & Pazer, 1985	The representation of the data value is the same in all cases and format and definitional uniformity within and across all comparable datasets.
Timeliness	Blake & Mangiameli, 2011	Researchers have defined timeliness using three events as points of reference. The first occurs with a change in the real world, the second when that change is recorded as data in an information system, and the third on the use of that data.

3.10 Different rolls in process management

As per Bergman & Klefsjö (2010), there are three distinct roll in the process management. These rolls are process owner, process manager and competence supplier.

3.10.1 Process Owner

“The process owner is responsible for the strategic decisions concerning the process. These decisions refer to infrastructure, scope and dimensioning” (Bergman & Klefsjö, 2010, p. 465). The process owner adjusts the process as per the need of the market and is responsible for any improvement work in this regard. The absence of process ownership may result in power struggle among the different stakeholders of the process. The process owner is not owner of support functions like IT, purchasing etc. but can order internal services from the support functions when required (Bergman & Klefsjö, 2010). Senior managers are usually selected for the position of process owner. The continuous monitoring of the process is required to make sure that process performs as planned and the gains achieved are sustained (Garvin, 1998)

3.10.2 Process manager

“The process manager is responsible for how the process is controlled operatively, i.e. that the process fulfils the goal that have been set for it” (Bergman & Klefsjö, 2010, p. 465). The process manager acts as the right hand of the process owner by acting as the improvement team leader. The number of process managers can depend on the number of sub process or if the activities are being carried out at many different locations which are geographically apart (Bergman & Klefsjö, 2010).

3.10.3 Competency supplier

The competency supplier as name suggest is responsible for providing the process with the needed competencies. The functional department in the organization usually have this role (Bergman & Klefsjö, 2010).

4. Empirical findings

This section provides the information collected from the interviews held with the different representatives from within Ericsson.

4.1 Voice of the customer

Understand the customer needs, determine and agree on the critical requirements and translate them into innovation, business models, products, services and solutions is one of the commitment that Ericsson has towards its customers. This also emphasizes that customers' needs are critical inputs for the company. For fulfilling this commitment different touch points are established with both internal and external customers. One of such touch point for capturing the voice of the internal customer is Region/CU service evaluation (RcSE) survey. This survey is used to gauge the quality of the deliveries provided by Global Service Organization Centers (GSC) to different Regions/Customer units (CU) for different projects.

Global Service Centers (GSC) are established as service excellence organizations using leading processes, methods and tools designed for remote delivery. The Global Service Centers are responsible for delivery of remote / centralized services and resources. These are located in Mexico, China, India and Romania.

Regions are accountable for sales, delivery and customer satisfaction. They are also accountable for customer relations and Government and Industry relations in the local market environment where Ericsson serves.

The main reason for Ericson to establish these touch points with external or internal customer is to address the needs of the customers by understanding their position and to provide them with services that address their needs. The other aspect of these touch points are to be proactive i.e. to provide solutions to problems before the customers articulate them. The feedback collected is also used for continuously improvement of the customer experience.

4.1.1 Region/CU service evaluation (RcSE) survey

RcSE survey questionnaire was designed by the help of an external consultant with support from an Ericsson's internal team. For facilitating the RcSE survey, GSC China in 2013 developed a tool. This tool is used for initiation of the survey and storing the survey responses. The data or the responses can be extracted from the tool to excel for any analysis.

The figure 3 represents the current process for the RcSE survey. The initiator can initiate the survey by two different ways; either by using the RcSE tool or by using the mass upload function. For initiating the survey using the tool, initiator needs to fill the information in the tool. Inputs like project name, project number, customer name, domain and service area are mandatory for the initiation of the survey. The tool doesn't generate the survey if these inputs are missing. The second method for generating the survey is called mass upload function. This function gives the initiator flexibility of uploading multiple surveys at the same time by using an excel template which is upload to the tool. There is no limit for sending out surveys when using the mass upload function so initiators can send as many surveys as they want. The tool accepts each row of the excel template as an individual survey. The tool also has the functionality to manually add reminders if needed by the initiator. However, no reminder can be added if the mass upload function is used.

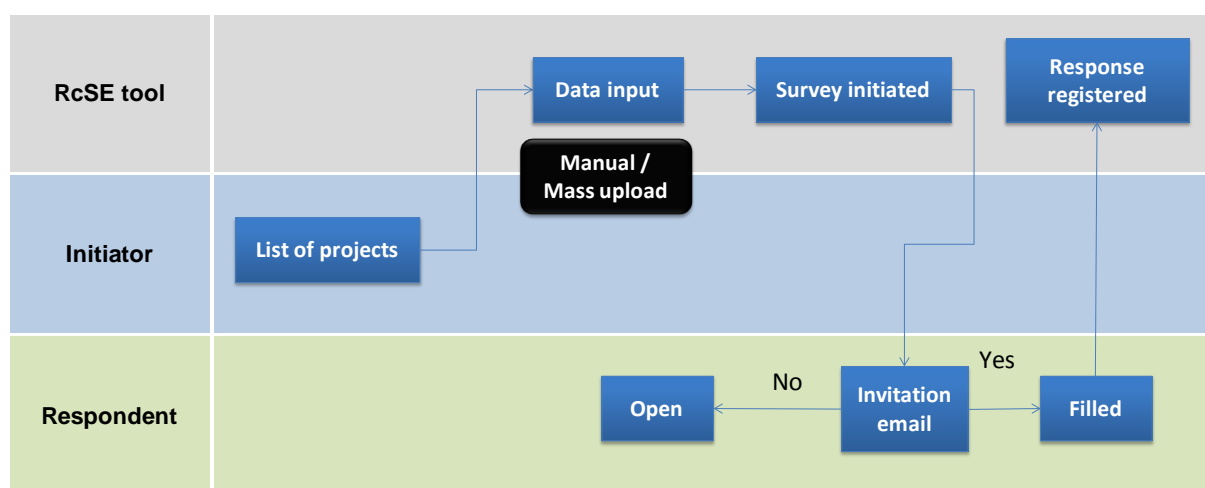


Figure 3: RcSE process map

Once all the inputs are provided, the tool generates a survey for the respective respondent. The tool saves the time of the initiation of the survey in its database. The respondent in this case receives an email stating the purpose of the survey. The invitation email is shown in figure 4. By clicking the “Reply”, opens the survey questionnaire. The response for the completed surveys is stored in the tool database. Not completed surveys are kept as open as there is no automatic closing function for the surveys. The survey is not anonymous meaning that the identity of the respondent is visible during the survey process. From GSC point of view its important as they can always go back to the respective respondent if the response is not clear and needs some more information. No complaint in this regards were registered during the interviews from the respondents as they also were aware of the reason for survey not being anonymous.

From: Noreply.service.survey@ericsson.com [<mailto:Noreply.service.survey@ericsson.com>]
Sent: den 9 mars 2016 23:55
To: Anders Månsson
Subject: Survey Request for Thesis test survey 1

Hello,

Please provide your feedback on the service supplied by GSC.

Following is the project information:

Project Name: Thesis test survey 1

Project No: 00000.

This information will help us to serve you better and will be used to improve our current delivery processes.

You can provide your feedback via the following link:

[Reply](#)

You will be requested to confirm with your email address, before you can enter any data.

The tool will automatically inform me when your response is registered, so there is no need to respond to this mail, unless you have any questions.

Best Regards

Figure 4: RcSE invitation email

The survey questionnaire is shown in figure 5. The questionnaire consists of six questions covering; delivery precision, quality, accountability, project governance, cost awareness and general (overall perception of the deliveries). All the six questions are closed but the comments can be written in the comment box after each question or comment box at the end of the survey. The survey uses Likert scale of 0 – 5 rating, where rating 1 represents “very dissatisfied”, rating 5 represent “very satisfied” and rating 0 represents “not applicable”. As per the instructions, the respondent is required to give comments if the rating is below 3 and specify what went good in case of rating 5. The overall rating is calculated by taking average of all the ratings of individual questions. Questions with 0 rating are excluded while calculating the overall rating. There have been no changes in the questions since 2013 but there have been some minor changes done to scales and definition of scales.

Questions	Very dissatisfied	Somewhat dissatisfied	Neither dissatisfied, nor Satisfied	Somewhat satisfied	Very satisfied	Not Applicable
	1	2	3	4	5	0
Delivery Precision: How would you rate the timeliness of the delivery as per agreed schedule?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quality: How would you rate the quality of service deliverables according to the agreed upon Scope of Work?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Accountability: How would you rate the level of ownership taken by the delivery center, to drive this delivery as per the agreed scope?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Project Governance: How would you rate definition and execution of project governance (meeting structure, project reviews, scope management and reporting)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cost Awareness: The Delivery Center acted with cost awareness. (To supply services in a way that aims to minimize/decrease delivery costs for the Ericsson Group.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall satisfaction: Overall, how satisfied are you with the deliverables?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall satisfaction: Comments: Note: 1 = Very dissatisfied, 2 = Somewhat dissatisfied, 3 = Neither dissatisfied, nor Satisfied, 4 = Somewhat satisfied, 5 = Very satisfied, 0 = Not Applicable If your scoring is below 3, you MUST specify why! If your scoring 5, please specify why	<div style="border: 1px solid black; height: 50px; width: 100%;"></div>					
<div style="text-align: center;"> <input type="button" value="Submit"/> <input type="button" value="Reset"/> </div>						

Figure 5: RcSE questionnaire

The output of the survey comes in two forms; ratings and comments. The ratings are used for the reporting of key performance indicators (KPIs') related to internal customers' satisfaction. Last year the KPI was reported by the taking average of the overall average ratings of all the individual surveys. This year the KPI corresponds to average of the overall impression questions rating. The comments on the other hand provide the reason for the satisfaction or the dissatisfaction of the internal customers.

4.2 Challenges

Following challenges were identified during the interview with representatives from GSC and regions

4.2.1 Process

From the customer touch point perspective, RcSE survey is very important. The main reason being that it is the only contact GSCs' have with Regions. Therefore, both GSC and Regions were found against the opinion of closing the survey. However, both raised the voice that the process needs to be improved. At this point of time, there is no global standardized process for the RcSE survey. As a result of this not many believe in the activity for example some of the GSC/Regions have started to working on their own improvement process, development of QUAD tool is one of the example in this regard which is now replacing the RcSE survey in RMED region. Similarly, it was also highlighted that India have their own evaluation.

The overall impact is that not all the GSCs are using the RcSE survey to the same extend, one of the interviews highlighted that *"he/she had earlier checked with some of the customers regarding whether they receive surveys from other GSC or not. The response was that it was only interviewee' GSC that was sending out the surveys to them"*. This issue was also

highlighted by different respondents as well where they were getting surveys from some GSC and no from others who were also providing deliveries.

The periodicity of the survey is another issue related to the lack of the survey process. Different GSCs' have defined it differently. Some are sending surveys as per important milestones of the project while others follow a monthly or quarterly routine.

4.2.2 Questionnaire

As mentioned earlier there has been no change in questions since 2013. The current questions in the questionnaire are designed to address the characteristics of deliveries that are being provided by GSC. The regression analysis done by Ericsson show that at least two questions, cost awareness and project governance are not important from customers' point of view. Interviewee also had the same opinion regarding these questions. They mentioned them as *"either being too broad or irrelevant. It was also mentioned that questions are not very representative of what engineers do for example no question related to communication is part of the questionnaire"*.

As the survey is sent at the completion of the delivery so it is not representative of all the delivery process. As per one of the interviewee *"the respondents may not remember what would have happened at the start of process resulting in a reactive approach. The approach to capture VoC should be more futuristic and be proactive rather than being reactive. Also there is a need to involve the internal customers in designing the survey"*.

The clarity of the survey rating was also highlighted by some of the interviewee. They were not clear about the definitions of the ratings.

4.2.3 Decision process

Some of the regions have been working on the improvement of the RcSE process and some internal best practices were shown during the interviews. As per the interviewee *"they had little say on improvement. A proposal was made on the content of the questions and technical aspects of how the surveys should be performed. These improvement suggestions were forwarded to a committee in 2014 whose role was to evaluate these kinds of improvements but no actions have been taken till now. This should not be just a bottom up approach. The push should come from the above as well"*.

4.2.4 Feedback and actions

Little evidence was found during the interviews regarding providing the feedback back to the respondents on survey results and the actions taken. The GSC and region who are following up the issues in governance meeting also have different frequencies, some have governance meeting on monthly basis while others are meeting on quarterly basis. Apart from few GSCs, no evidence was found of what actions are taken and who is following them up, all of this is unknown right now and little or no transparency and traceability is available on actions taken. One of the interviewee referred to this situation as *"abusing customer, asking customer to provide feedback and then we don't do anything. We need to earn the trust, need to show them that we are taking care of the feedback"*.

4.2.5 Initiators

At this point of time there is no common database for initiators to track the projects so most of them have their own excel sheets to track the projects.

4.2.6 Respondents

The respondents were interviewed to find the motivational and de-motivational factors. Three motivational factors and two de-motivational factor were identified. Receiving feedback on the survey, visibility of actions and internal urge to provide feedback so that it can be used for improvement were classified as motivational factors while receiving multiple surveys in one day and not receiving feedback on survey were highlighted as de-motivational factor.

Another issue highlighted by respondents were that of reminder. Some of them receive reminder from the RcSE tool while others get reminders to fill in the surveys by telephone or through Lync (internal communicator). Some of the respondents highlighted that frequency of such reminders were high near quarter closing, as per them the probable reason could be the reporting of KPI. Respondents were also contacted to ask for certain details if they had provided low rating on certain surveys.

Apart from receiving surveys from only few GSCs, respondents also complaint that at times they do not receive surveys on the deliveries where some issues were found. Although from GSC point of view RcSE survey was the only touch point with regions, the respondents highlighted that they normally do not wait for a survey to provide feedback. If something went wrong, they would highlight the issue through other means as well like email, telephone calls, Lync and meetings.

Another issue highlighted by the respondents was of keeping track of the surveys. At times respondents get more than one survey in a given day against a single project. RcSE invitation email and the questionnaire only provide information about project number. No information is available which can tell the respondents that which survey corresponds to which deliver or which time duration. In such cases the respondents tend to give generic rating to all the surveys.

4.2.7 Roles and responsibilities

The roles and responsibilities is another challenge when it comes to the RcSE survey. The role and responsibility matrix for the RcSE survey is shown in figure 6. One thing to notice here is that Auditor, Resource manager and LT manager, all have the responsibility to view the feedback. However, no responsibility is defined in terms of who will act upon the feedback and make sure that the analysis is done and respective actions are registered and completed.

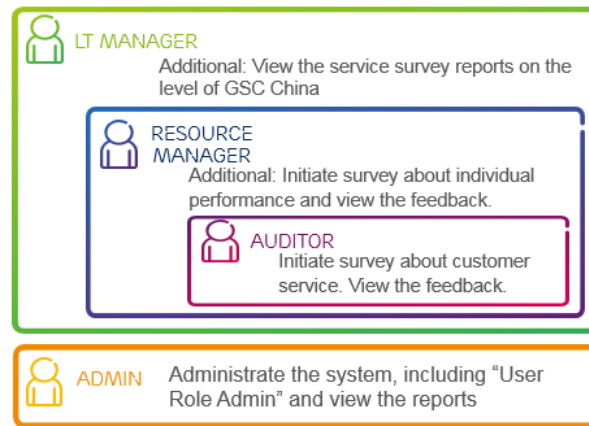


Figure 6: Roles and responsibility

4.3 Internal benchmarking

The interviewee revealed some of the internal best practices that have been either adopted or proposed by different GSCs or regions to improve different aspects of RcSE survey. These best practices are discussed in this chapter.

4.3.1 Invitation email

During the interview, work already done by GSC Mexico was shared. The figure 7 shows an improved version of the survey email. The suggested improved email uses Ericsson’s branding and looks more eye catching and professional. “Reply” is replaced by “Click here to access the survey” and “Please do not reply to this message” are included in the email.

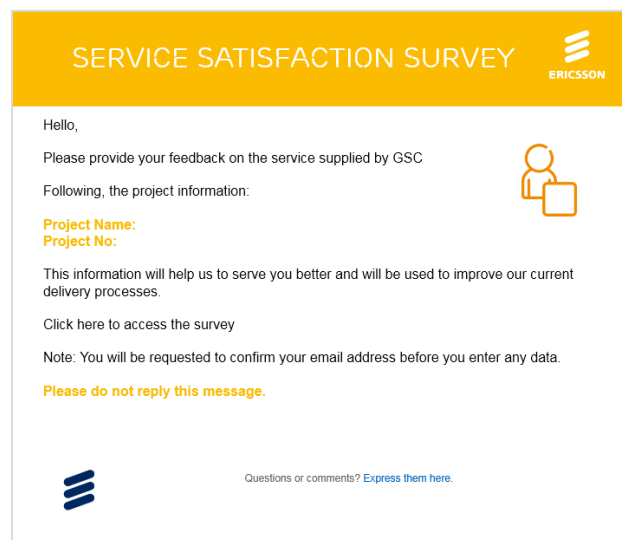



Figure 7: Improvement suggestion survey email

4.3.2 Survey questionnaire

Similar to email, GSC Mexico has worked on improving the layout of the questionnaire as well as shown in figure 8. Emphasis on the branding can be seen. Suggestions about the improvement in the questions related to communication and cost are also incorporated in the questionnaire. The question related to project governance is taken out.

Service Satisfaction Survey



Project General Information

Name: New Design

Status: On Going

Region: RLAM

Service / Deliver Information

Service area: Consulting

Domain: Operational Consulting

Delivery Type: OWP

Project No. 1542/

Customer: Internal

Country: Mexico

Order Type: Fixed Price

According with your customer experience, please rate the definition and execution of this project.

Very dissatisfied	dissatisfied	Acceptable	satisfied	very satisfied	Not Applicable
1	2	3	4	5	6
<div><div>Communication</div><div>How would you rate the level of communication of the team?" (written, spoken, proactive and effective communication)</div><div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>test1</div></div></div> <div><div>Cost</div><div>How would you rate the delivery center as a cost-effective option for your project?</div><div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>test1</div></div></div> <div><div>Delivery Precision</div><div>How would you rate the timeliness of the delivery as per agreed schedule?</div><div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>test1</div></div></div> <div><div>Quality</div><div>How would you rate the quality of service deliverables according to the agreed upon Scope of Work?</div><div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>test1</div></div></div> <div><div>Accountability</div><div>How would you rate the level of ownership taken by the delivery center, to drive this delivery as per the agreed scope?</div><div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>test1</div></div></div> <div><div>General:</div><div>What is your overall perception on the deliverables?</div><div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>test1</div></div></div>					

Figure 8: Improvement suggestion - questionnaire

Other suggestion they put forwarded was about a thank you email sent to the respondent after his/her response as a token of appreciation for taking out time to respond to the survey. The email is shown in figure 9. However, it is suggested that instead of an email, this screen should be made part of survey and should come up as soon as survey is completed.

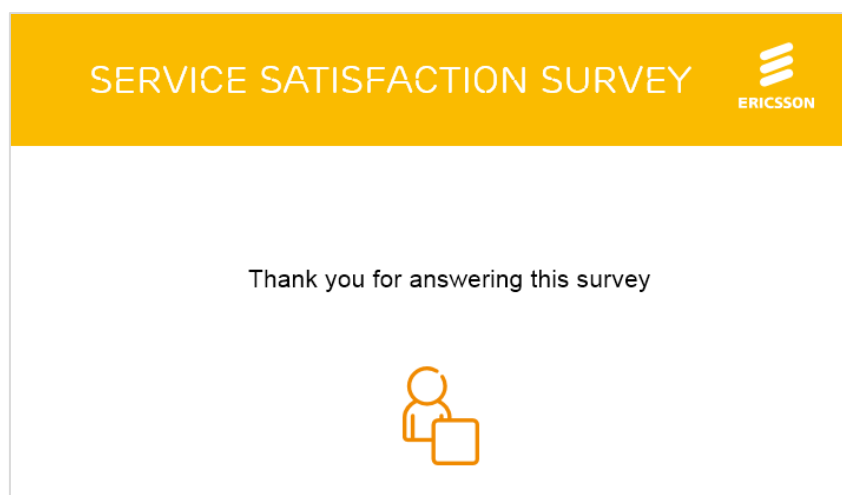


Figure 9: Improvement suggestion - Thank you

4.3.3 Governance system

Due to the lack of global survey process for RcSE, some of the regions have developed their own internal processes. Some of the examples shared were from GSC Mexico, GSC Romania and Region RMED. Example of monthly cycle and periodicity from GSC Mexico is shown in figure 10.

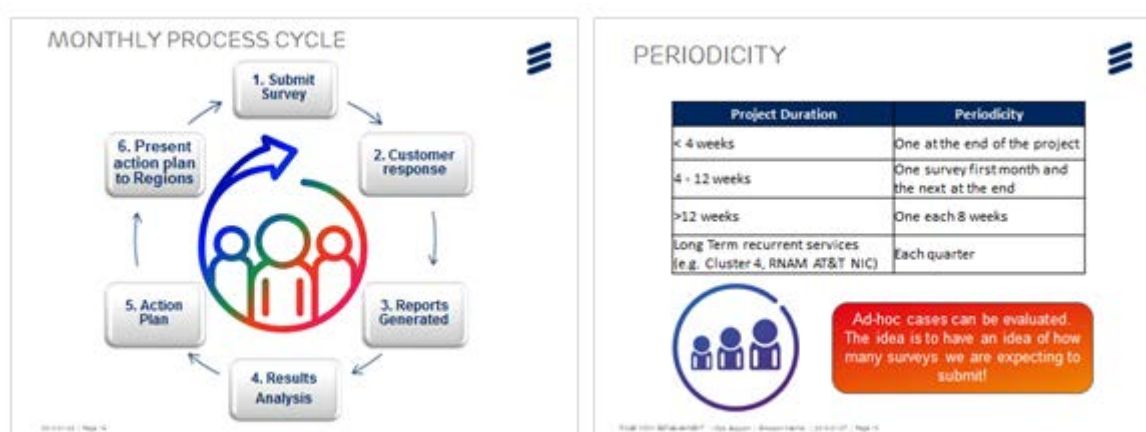


Figure 10: Monthly cycle and periodicity - GSC Mexico

4.3.4 Improvement tracker

For agreeing the actions plan and to follow up the actions, GSC Romania has developed an internal system called Improvement Tracker for logging all the actions. The first page of the system shows the summary of the actions status as shown in figure 11. The next page provides details about the individual issue logged in. The home page of Improvement Tracker is available on the Ericsson intranet. It is being used for the visualization of the actions taken and for making sure that actions are completed on time or not. Currently the improvement tracker lacks the functionality of sending emails to the respective persons either on action creation or action closure.

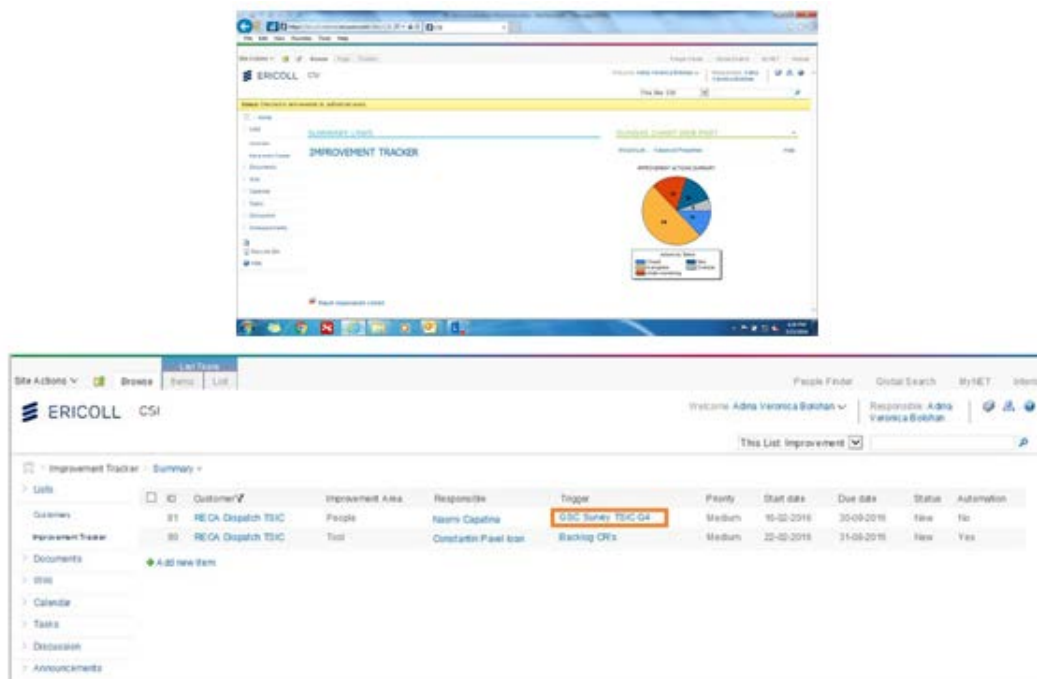


Figure 11: Improvement tracker

4.3.5 QUAD

To ensure quality of the deliveries RMED region has also developed an internal system which is called QUAD. QUAD as a system is a direct competitor to the RcSE tool and currently replacing it in the RMED region. The quality of the deliveries is evaluated as; on scope (Expected deliverable according to scope of work), on time (In time planned) and on effort (On agreed number of hours/costs).

Unlike RcSE, QUAD is not survey based. Every month the respondents go into the system and provide basic information regarding the project and time duration for which the rating is being provided. A reminder email is also sent to the respective respondents at the start of every month. The rating for QUAD is same as RcSE i.e. from 1 – 5 but are defined in more detail. The definition of rating for QUAD is shown in figure 12. There is a governance system in place for QUAD meaning that data collected every month is analyzed and shared with respective GSC.

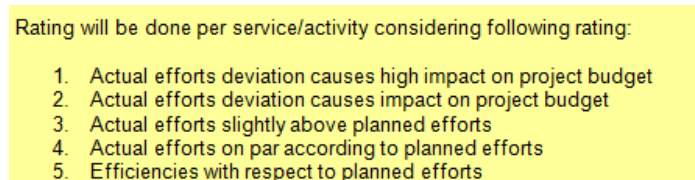


Figure 12: QUAD rating explanation

The massive data import functionality is facilitated with the help of a specific template. Reporting Module is developed with BI/Dashboard. The tool also automatically generates different reports. Figure 13 shows, the different reports generated by the QUAD tool. Like RcSE data can be extracted to excel but as per one of the interviewee who has used both the systems, the format of data extracted by QUAD is more user friendly when it comes to analysis

in excel as compared to RcSE tool. Similarly, the user interface of the QUAD tool is also very user friendly and the person who has the access to the system can easily see the rating that are given. The reports generated by QUAD can be benchmarked for RcSE tool.

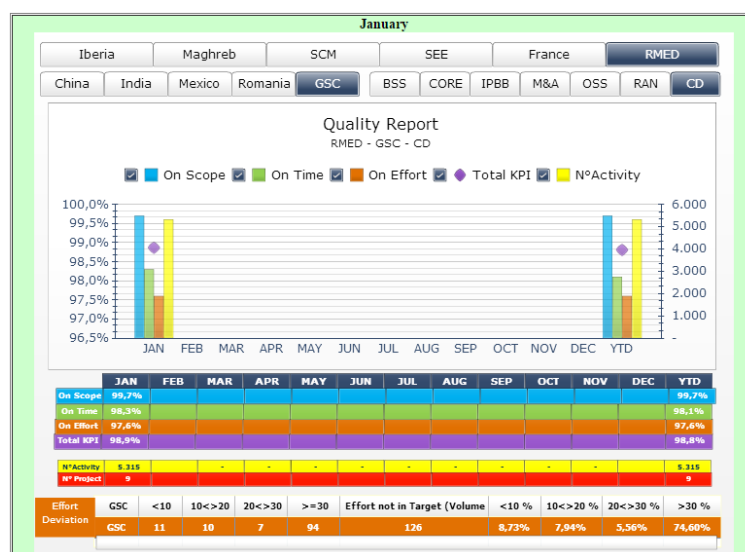


Figure 13: Report generated by QUAD

4.3.6 RcSE, CSAT & Dialog

At Ericsson different types of surveys are being used for collecting VoC. These surveys are used for collecting feedback from both internal and external customers. Some of the examples of surveys in use are Customer Satisfaction (CSAT) and Dialog. CSAT focuses on the external customers' feedback and is conducted once per year while Dialog is used to gauge employee engagement. The comparison of response rate (%) for RcSE, CSAT and Dialog is shown in figure 14. It can be seen that RcSE has the lowest response rate.

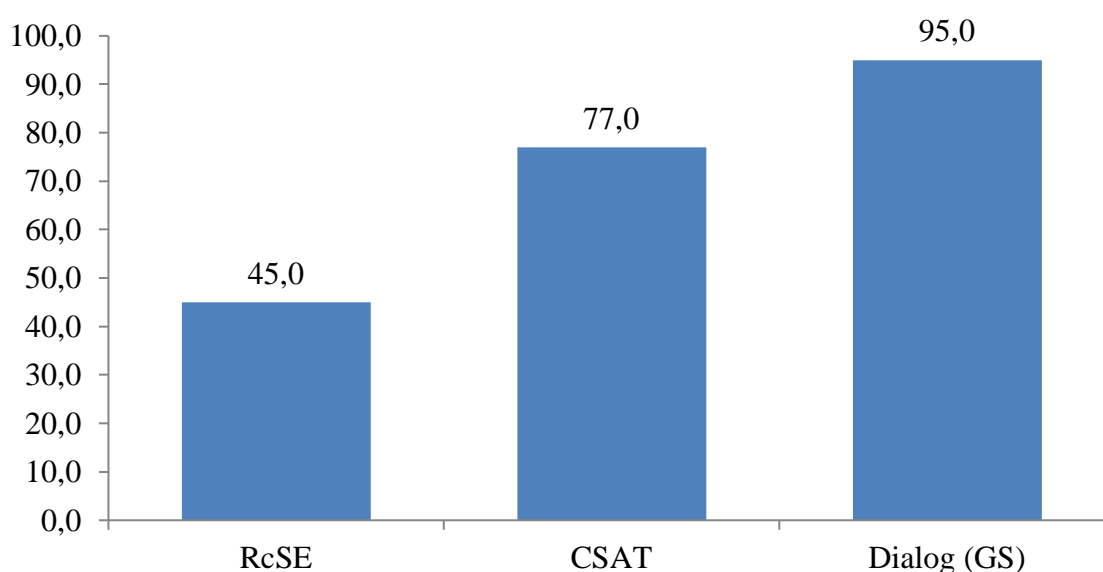


Figure 14: Response rate (%) - RcSE, CSAT & Dialog

From the different interview conducted, the main differences between RcSE, CSAT and Dialog are summarized in the table 5. From a comparison point of view, RcSE lacks on all the grounds. There is a defined process for both CSAT and Dialog. For CSAT selected customers are invited by email to participate in an online survey. In few cases responses are also collected via paper questionnaires and face-to-face interviews. KAM usually follow up with customers for responses and since it is done once per year, which makes it much easier to micromanage the process for example following up with customers. In case of Dialog department heads or managers will be following up with respective employees to make sure that all of them have filled up the surveys. Same as CSAT, Dialog is also sent out once per year. Due to higher frequency of RcSE survey it is not possible currently to micromanage the survey. CSAT uses Online Action Planner (OAP) to log all the issues highlighted during the surveys. Action plan are agreed with customers and the progress is also shared with the customers.

Table 5: Comparison between RcSE, CSAT & Dialog

	Process	Micromanagement	Frequency	Follow up
RcSE	No	No	Variable	No
CSAT	Yes	Yes	Once per year	Yes
Dialog	Yes	Yes	Once per year	Yes

4.4 External benchmarking

The external benchmarking was done for finding improvements in the following areas

1. Survey invitation email
2. Survey questionnaire
3. Survey process

4.4.1 Survey invitation email

As discussed earlier soon as a survey is initiated to a particular respondent, the RcSE tool generates an email to the respondent. Few other examples of emails sent by other organization like SGS studentbostäder, Chalmers University and American Society for Quality (ASQ) can be seen in appendix C. The main reason for selecting these organizations was that researchers have easy access to these email invitations.

4.4.1.1 SGS studentbostäder

- The main body of the email starts with a very catch phrase “Satisfied tenants are of great importance to SGS”.
- A proper link is provided for the survey unlike RcSE email which has link embedded in “Reply” which does not seem to be very polite
- For increasing response rate, a small gift is offered.
- Information about anonymity of the respondent is provided
- The respondent is thanked in advance for participating in the study
- Email address of the person responsible for providing answer to any additional information is provided.

4.4.1.2 Chalmers University

The survey is used for the evaluation of the courses and is sent out after each study period for the courses offered.

- Starts with a welcoming gesture “Dear Students” as compared to “Hello”
- Provides the basic information about the course and further process after the survey is completed. This provides assurance to the respondent that someone will actually read the feedback provided. It will not go into a black hole.
- Delivers information regarding what sort of comments are requiring for example “constructive feedback, what has worked”
- Similar to SGS, a link is provided for the survey.
- Closing date of the survey is mentioned along with where results can be found.
- Information about whom to contact in case of any question is provided.
- Additional information; “Please note that you cannot reply to this email”

4.4.1.3 American Society for Quality (ASQ)

- The invitation email is made more attractive by using branding
- The invitation email is personalized by start with respondents’ name
- Respondent is motivated by stating that his/her thoughts are valuable and then by thanking in advance
- Information about how and where the data will be used is provided
- Instead of link, a button “Take the survey” is provided
- ASQ weekly – time for taking the survey is mentioned, “Few minutes”, which means that it is not a long survey.
- The email ends with “Your communications Team” which make the respondent feel that he/she is part of the team, another motivational gesture.
- The email provides a more professional look.

4.4.1.4 Learnings

So in short the benchmarked emails are more descriptive as compared to the one that is being used for the RcSE tool. The content of these emails are more rich content wise by providing the information like background of survey, motives about data usage and motivate responders to fill in the surveys. The respondents are either addressed as dear students or by name which makes the email more personalized. A link to the survey or a button stating “*Take the survey*” is provided instead of “*Reply*”. The other emails also provide more motivational gestures and look more professional as compared to RcSE invitation email.

4.4.2 Survey questionnaire

Chalmers University and ASQ questionnaire were used for benchmarking.

4.4.2.1 Chalmers University questionnaire

The questionnaire used for the evaluation of courses after every study period is shown in appendix D

- Use of branding – Chalmers University name at the start of the survey

- Detail instructions before the questions about which questions are mandatory, guidelines about comments and anonymity of the questionnaire.
- Reminder about the quality of comments
- Rating of 1 – 5 used but only meaning of rating 1 and 5 are specified.
- Guidelines about comments with each individual question even though comments are not mandatory. Driving respondent behavior on quality of comments.
- The questions are designed as statements “I had enough knowledge to be able to follow the course”. Notice the use of “I” instead of “You” as used in RcSE survey.

4.4.2.2 ASQ questionnaire

- Branding used similar to email invitation.

Figure 15: ASQ questionnaire – Branding (ASQ communications, 2016a)

- Dynamic questionnaire, the later questions depend on your question to first question
- Thank you screen at the completion of survey

Figure 16: Thank you note (ASQ communications, 2016a)

4.4.3 Learnings

Both ASQ and Chalmers University use branding when it comes to the survey questionnaire. The good thing about the Chalmers University questionnaire was its emphasis on the comments. The introductory paragraph and instructions all involve something about comments making easier for the students to understand the requirements for the comments and its importance. The

comments in both of the cases are not mandatory. The thank you screen at the completion of the survey is used to appreciate the respondent for taking out his time.

4.5 Survey process

As mentioned earlier, there is currently no survey process for the RcSE survey. For understanding how the survey process works at different organizations, interviews were conducted with responsible person at Hilton hotel and Chalmers University. The Hilton Hotel was selected due to its high customer rating in ACSI (American Customer Satisfaction Index) and Chalmers University was selected due to easy access to the process owners.

4.5.1 Hilton hotel

The interview was conducted with Operations director at one and the only Hilton hotel in Scandinavia. The voice of the customer at Hilton hotel is collected by using different methods such as surveys, complaints, observations, direct customer contact and an internal system to collect information from other websites such as TripAdvisor, hotels.com etc.

4.5.1.1 Survey

The main purpose of the survey is to collect customer feedback for “How we are doing”. The survey is managed by an external company called Medallia (www.medallia.com). Every evening information (name and email address) of the customers staying in the hotel is collected and sent to Medallia where the information is used to randomly select customers for the survey. The respective customers are sent a survey using emails. The invitation email and survey questionnaire are shown in figure 17 & 18.

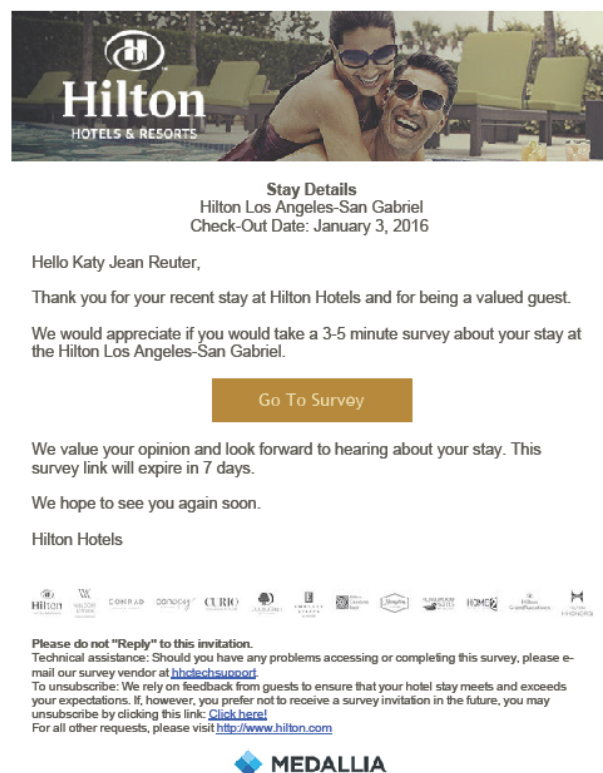


Figure 17: Invitation email - Hilton hotel (source: Operations director)

At the start of survey customer is asked about which services customer has experience during his/her stay. The survey is dynamically designed and as a result questions only related to those services are asked. On an average a survey can have up to twenty questions. It is made sure that there are no spelling mistakes in the survey questionnaire and especially in customer's name. The questions are designed in a way that they can easily be understood by the customers. The questionnaire has a rating from 1 – 10. The instructions about the rating are provided at the start of the survey.

For the following areas, please rate your satisfaction with THIS Hilton hotel, using a 10 point scale, where "10" represents "Extremely Satisfied" and "1" represents "Extremely Dissatisfied".

On this hotel stay, how satisfied were you with:

	Extremely Satisfied	Satisfied	Neither	Dissatisfied	Extremely Dissatisfied					
	10	9	8	7	6	5	4	3	2	1
Your OVERALL EXPERIENCE as a guest?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quality of SERVICE overall?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quality of ACCOMMODATIONS overall?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quality of Pre-arrival/arrival experience?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quality of Departure experience?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Definitely Would	Probably Would	Might or Might Not	Probably Would Not	Definitely Would Not					
	10	9	8	7	6	5	4	3	2	1
How likely would you be to stay at THIS hotel again if you were to return to this area (for the same purpose)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How likely would you be to stay at ANY Hilton again in the future?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How likely would you be to RECOMMEND this hotel to someone else, if they were to require a hotel in this area in the future?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Excellent	Very Good	Good	Fair	Poor					
	10	9	8	7	6	5	4	3	2	1
Please rate the VALUE that you received for the price paid. Was it...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Back Next

Figure 18: Survey questionnaire - Hilton hotel (source: Operations director)

4.5.1.2 Governance

One of the staff members at the hotel is responsible for administrating the surveys from hotels' end. During the first half of the day, the responsible member stands at the reception. He/she intermingles with customers and observes if the customer has any issues. In the second half of the day, he/she looks into the feedback received from customer through surveys and replies to issues raised by the customers. He/she is also responsible for presenting the feedbacks in a daily

management meeting. Operational director and managers attend the daily meeting. In this meeting, the actions on comments that need further investigation are decided. These actions normally result in a best practice to prevent same thing from happening again. As per the operational director *“most of the times the guest is not very interested to hear the reason for why something happened, but when appropriate we can agree on a short summary to why something happened”*.

All the management team also has access to a smart phone app. The smart phone app is provided by Medallia and can be used on both IOS and android platform and provides real time monitoring. The screen shot of the app is shown in figure 19. The first screen shot shows the main interface, the respondent name and overall rating is shown. Clicking on any name results in the second screen where one can see the comment in detail. At the bottom of the screen rating for the individual questions can be seen. The third screen shows different trends. The smart phone app also has the functionality of tagging negative comments. Beside the smart phone app, the management team also has access to a dashboard on their respective computers/laptops.

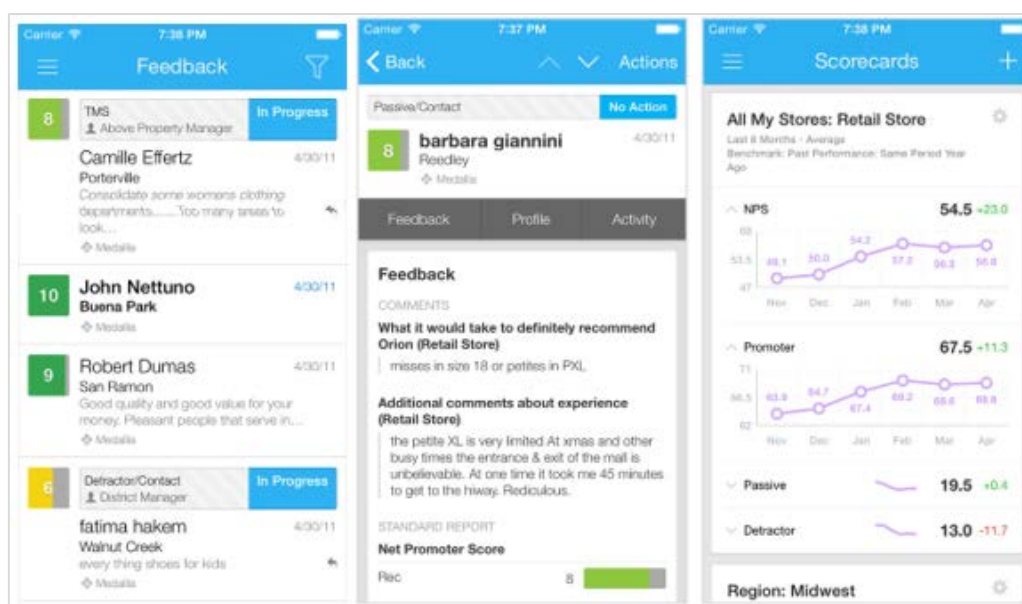


Figure 19: Smart phone app (App Annie, 2016)

The response rate for the survey is around 60% for that particular hotel which is around 10% more than hotels of same standard as Hilton Hotel in that area. As per the Operations director, *“replying to customers on the feedback provided by them is the main wow factor for achieving this response rate. We have received emails from customers stating that they (customer) though that no one would have bothered to look into their feedback”*. No gift a ways are given to the customers for out surveys. The hotel uses other methods to motivate customers to provide feedback for instance communication. All the elevators are equipped with TV screens with message *“If you are happy, why not tell others”*. The results and comments from other websites like TripAdvisor, hotels.com etc. are also displaced on the TV screens. The hotel has also put a bracket on maximum number of surveys that a frequent customer can get to five surveys per year. The main reason is to make sure that customers are not over burdened with surveys.

Apart from the main survey, the hotel also uses a more customized survey developed with support from SurveyMonkey. This particular survey is not sent to customers. A staff member would ask questions to customer for example after the breakfast regarding the quality of the service. The customer feedback is registered by using SurveyMonkey survey app by the staff member himself.

4.5.2 Chalmers University

Chalmers University has one of the most standardized survey process for collection of student feedback through course evaluation survey as compared to other universities in Sweden. The feedback is collected from students at the end of each study period. The purpose of the survey is to collect feedback about how course worked, which things didn't work out and how to improve them? Along with carefully looking at things which have worked particularly well and to be able to identify things that can be recommended to other courses. These feedbacks are utilized to improve the study process. The survey process started three years ago before that each department used to carry out their own process.

99% of the courses use the same survey, the advantage with this is that department heads and program heads can compare different courses. The response rate varies between different courses but the overall response rate over the years is steady around 45%. It is normally high in the first study period and then declines.

4.5.2.1 Survey process

The survey was designed by quality board within Chalmers University. This board does not exist anymore but the survey has been improved over the years. Main efforts have been put to clarify the questions. Some of the improvements are currently in progress and will be implemented by 2017.

The process starts with the first lecture of the course. The relevant professor is required to provide students with information regarding the last survey. This practice is not being carried out during all the courses but the courses where this practice is done have a high response rate of nearly 60%, higher than the overall response rate (45%). The second step is to identify the student representatives for the course board committee. The representatives can be selected randomly by system or by volunteering. In some cases, class representatives are given this responsibility. This committee meets three times during the course; startup meeting, mid-course meeting and closing meeting. The surveys are created automatically in the system and the examiner receives an email, incase if he/she want to add more questions. The survey has at least 11 questions. The survey is sent to students on first Monday after exam week. The professor can also ask the survey to be sent earlier (last Monday of study period). The invitation email can be seen in appendix C. The important highlights of the invitation email are already discussed on section 4.1.1. The survey remains open for two weeks. The students are sent three emails in total; invitation email and two reminders. As per the interviewee, there is an impact due to reminders but not so significant. After the deadline, the surveys are automatically closed. The deadline and closure is important as all the corresponding meetings are planned in advance. The directors of studies go through the surveys and any harsh or inappropriate comments are omitted. After that the professor receives an email that results of the survey are available. The

closing meeting of the course board committee is held and minutes of the meeting are uploaded to the system. The course committee meetings are also used as a mean to calibrate the survey.

4.5.2.2 Governance

The process is administrated at different levels. The overall responsibility that the process is running, meetings are being called etc. lies with the process leaders. In case of any major changes, the cases are referred to Executive Committee for Education consisting of Deans of Education and Vice Rectors. The governance meetings at this point of time are called at ad hoc basis but at least once per semester. The participants are Directors of Studies, head of programs and student union representatives. A summary of the survey results can be seen in the form of a dashboard which can be assessable through Qlikview as shown in figure 20. The average rating of each of the question can be seen in the dashboard. Although the dashboard looks crude and can be made more visualize but still gives an overview of the results.

Läsår	Kursägare	Kurs	Läs-period	Svar (Antal)	Svar (%)	Fr. 1	Fr. 2	Fr. 3A	Fr. 3B	Fr. 3C	Fr. 4	Fr. 5	Fr. 6	Fr. 7	FFG+OH	Slutbetyg #1	Slutbetyg Helt	Medel betyg	Andel U	Andel 3/G	Andel 4	Andel 5
2015/2016	MPALM - Materialteknik, mas	MMK162 Fästransformationer	LP1	8 309	51,4%	4,29	4,10	4,00	3,95	3,78	3,98	4,17	3,33	3,90	17 152	73%	79%	3,6	21%	32%	29%	18%
2015/2016	MPAEM - Materialteknik, mas	MMK232 Metalliska material, fortsättningskurs	LP1	8	66,7%	4,13	4,63	4,14	4,63	4,86	3,88	4,75	3,50	4,38	12	75%	92%	4,1	8%	17%	42%	32%
2015/2016	MPAEM - Materialteknik, mas	MMK091 Miljöanpassad produktutveckling	LP1	5	62,5%	4,00	4,00	4,00	4,60	3,60	4,40	4,20	3,60	4,40	8	100%	100%	-	0%	100%	-	-
2015/2016	MPAEM - Materialteknik, mas	MIT090 Polymera materials bearbetning och egensk.	LP1	23	62,2%	4,04	4,30	4,17	4,30	3,87	4,09	4,26	3,13	4,13	36	92%	92%	4,4	8%	11%	36%	44%
2015/2016	MPALG - Datavetenskap - AI	DAT060 Matematisk logik för datavetenskap	LP1	51	41,5%	4,82	4,18	4,43	4,00	4,63	4,31	4,52	3,02	4,27	104	79%	83%	3,9	17%	25%	31%	27%
2015/2016	MPALG - Datavetenskap - AI	DAT140 Typier för brens och program	LP1	14	43,3%	3,57	4,21	4,00	3,86	3,71	4,43	4,14	3,43	4,07	27	41%	41%	4,6	59%	4%	7%	30%
2015/2016	MPALG - Datavetenskap - AI	IDA293 Software engineering med formella metoder	LP1	30	51,7%	4,62	4,14	4,30	4,00	3,72	4,30	4,50	2,90	3,72	40	88%	90%	3,8	10%	32%	48%	10%
2015/2016	MPALG - Datavetenskap - AI	TDN093 Algoritmer	LP1	92	40,0%	4,49	4,30	4,05	4,23	4,06	3,52	4,48	3,16	4,14	430	60%	65%	3,6	35%	27%	22%	15%
2015/2016	MPAME - Tillämpad mekanik	TME210 Turbomaskiner	LP1	31	56,4%	4,16	4,32	4,35	4,18	4,42	4,10	4,63	3,27	4,06	34	83%	87%	3,9	13%	35%	28%	24%
2015/2016	MPAME - Tillämpad mekanik	TME225 Strömningmekanik, fortsättningskurs	LP1	27	44,0%	4,38	4,41	4,03	4,14	4,44	4,28	4,22	3,24	3,95	83	87%	96%	3,9	14%	11%	41%	34%
2015/2016	MPAME - Tillämpad mekanik	TME230 Strukturdynamik, modellvalidering	LP1	13	61,5%	4,15	3,92	4,00	3,92	3,77	4,08	3,77	3,92	3,92	21	90%	90%	4,4	10%	5%	40%	30%
2015/2016	MPAME - Tillämpad mekanik	TME235 Solidmekanik	LP1	38	53,5%	4,32	4,51	4,42	4,50	4,27	4,30	4,58	3,27	4,32	71	77%	83%	3,5	17%	28%	25%	30%
2015/2016	MPAME - Tillämpad mekanik	TME260 Utmattning och brott	LP1	38	53,5%	4,37	4,32	4,11	4,34	4,21	3,99	4,22	3,68	4,08	71	87%	89%	3,7	11%	55%	28%	6%
2015/2016	MPAME - Tillämpad mekanik	TME265 Förbärande kurs i Högstap	LP1	30	40,0%	3,90	3,83	3,90	4,04	3,56	4,17	4,21	2,90	3,88	73	56%	56%	-	44%	56%	-	-
2015/2016	MPAPP - Tillämpad fysik, ma	TTF015 Mjukva materialers fysik	LP1	15	46,9%	4,53	4,29	4,20	4,21	3,40	4,21	4,60	3,13	4,20	25	72%	76%	3,4	24%	32%	32%	12%
2015/2016	MPAPP - Tillämpad fysik, ma	TTF030 Moderna avbildnings-, spektroskop- och dif.	LP1	24	72,7%	4,50	4,57	4,46	4,30	3,43	4,13	4,13	2,92	4,13	34	94%	94%	4,6	6%	6%	29%	59%

Figure 20: Dashboard - Chalmers University (Source: Director of studies, responsible for Chalmers course evaluation process)

The professors are required to submit an improvement plan in case if the overall rating is less than 3.5. The 3,5 threshold for making an action plan does however not imply that no action could/should be taken if an average is above that, it merely means that the process is formalized so that specific documents needs to be made and filed to the vice head of department and the program leadership team. In a case such as the above, this might well be decided during the course evaluation meeting that there will be some change to the literature, but it will only be reflected in the minutes of the course board meeting and not in an official action plan. From next year on ward, the head of the departments will be required to go through the minutes of meeting and verify that actions have been taken.

The survey is completely anonymous, the only information that can be extracted is regarding who has filled the survey but what one has filled, cannot be traced back. The reason for anonymity is to make sure that students fill in the survey honestly which in case of non-anonymous survey might not be possible.

Unlike other surveys done by student union, no gift ways are given to the students for filling out course evaluation survey. Previously some of the department had tried this exercise but no improvement was seen in response rate.

4.5.2.3 Future improvement

The course evaluation survey has been gradually improved over the span of last few years. Some of the future improvements shared by interviewee are below.

- Much has been done in the past to guide the students to provide relevant and quality comments for example adding text in front of comments box informing students what is expected from them. The next plan is to prepare a short movie of around three minute; the purpose is to inform students about the process and expectations. This video will be shown to students during the welcome address or the week before the first survey. Embedding the video in the start of the survey or providing a link is also included in the plan. All of this effort is being carried out to increase the quality of the comments, keeping in mind that unlike RcSE survey comments are not mandatory.
- In another survey conducted with 1000 random students to collect feedback regarding the course evaluation process highlighted that most of the students were not aware of what happens at the meetings and after the meetings. What this meant was that since they don't know what comes out of the survey, they do not feel motivated to fill out surveys in future. As a result of this feedback it was decided that in order to increase the spread of the results as soon as the process stops and minutes of meeting are upload in the system, they will be sent out to all students.

4.5.3 Learnings

Both of the organizations do not depend on only one touch point with their customers for collecting the voice of the customer. Both have established multiple point of contacts which give them more insight into customer needs and expectations. Apart from the touch points, different stakeholders like teachers, students, department heads etc. are part of the process. Also the main customers (teachers and students) are involved throughout the survey process. From a process point of view both the organizations have a process in place for monitoring different activities. The process owners are defined and a governance system in terms of meeting and different committees is in place. Both are using different techniques to visualize the results for different stakeholders either in the form of an application or by using a dashboard and finally they close the loop by communicating back to the customers. Another thing especially noticed from the Chalmers University process is that the process is automated. Data collection prior to survey, survey generation, reminders and closure are all automated. This helps in reducing the data quality issues due to human errors.

5. Data analysis

This section provides the analysis of the data extracted from the RcSE tool for all the surveys sent between January, 2013 till 9th February, 2016.

5.1 Response rate - Overall

As discussed earlier the RcSE tool was initiated in 2013. The figure 21 presents the evolution of RcSE survey from 2013 till February, 2016. The numbers of surveys sent have increased from 1674 in 2013 to 8992 in 2015, meaning that there has been around 430% increase in terms of numbers of surveys sent out from 2013 till 2015.

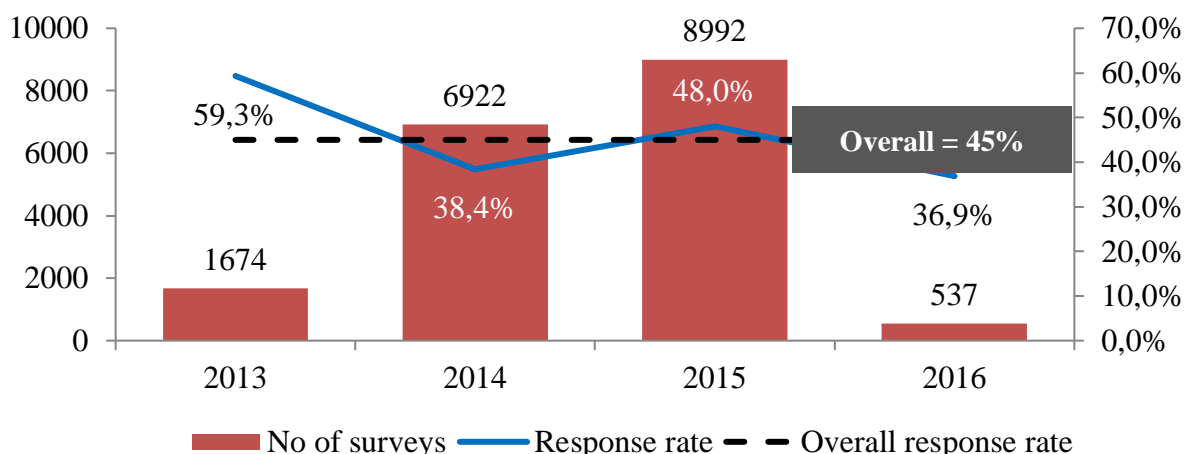


Figure 21: RcSE survey response rate

The response rate corresponds to the numbers of persons responding to survey as compared to the total numbers of surveys sent. It is represented in percentage. The overall response rate from 2013 till February 2016 is 45%. The highest response rate of 59,3% was achieved in 2013. As evident from the figure 21, there seems to be no relationship between the numbers of surveys sent and response rate.

5.1.1 Response rate - Region

The respondents responsible for responding to the RcSE belong to different regions within Ericsson. The response rate for different regions is shown in figure 22. RNEA and RWEA have the highest response rate of 68,5% and 65,2% correspondingly while RNAM (36,6%) and GLOBAL (24,4%) have the lowest response rate. Regions namely RASO, RECA, RNEA, RSSA and RWCE have higher response rate as compared to the overall response rate of 45% while RINA, RLAM and RMED have response rates near to the overall response rate average.

In order to get a true picture, it was decided to look at the volume of the surveys as well as shown in figure 22. It can be seen that the high response rate for some of the regions; RECA, RNEA and RWCE are due to lower volumes. RNAM which has the lowest response rate of 36,6% corresponds to the second biggest volume (18,1%) meaning that most of the respondents are not filling out the surveys while RLAM and RMED with volumes 22,2% and 15,9% have response rate near to the overall average. There are three probable reasons for variation in volumes among the regions depicted from the empirical findings. Firstly, not all GSCs' are

using the RcSE survey to same extend, secondly introduction of QUAD in the RMED region and thirdly variation in the periodicity of sending out the surveys.

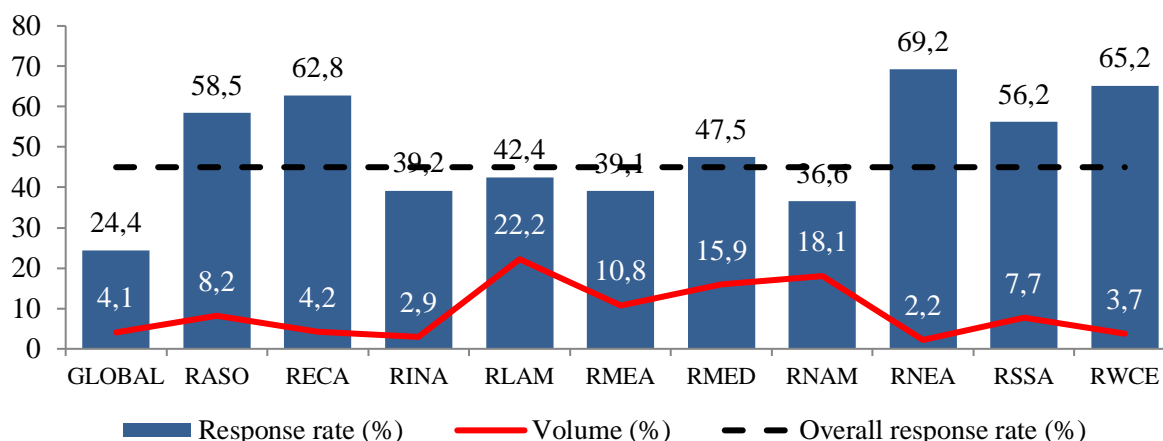


Figure 22: Response rate and volume per regions

Figure 23 represents the yearly trend of the response rate for the regions. It is also evident that nearly all the regions have highest response rates in 2013 when the RcSE tool was started, RNAM and RNEA are two exceptions in this regard. For GLOBAL the response rate in 2016 shows improvement as compared to previous years while for RECA the response rate shows a downward trend over the years. The drop in response rate for RMED could be due to use of QUAD instead of RcSE survey. One of the respondent highlighted that they had discontinued the use of RcSE in RMED and were providing feedback on deliveries in QUAD.

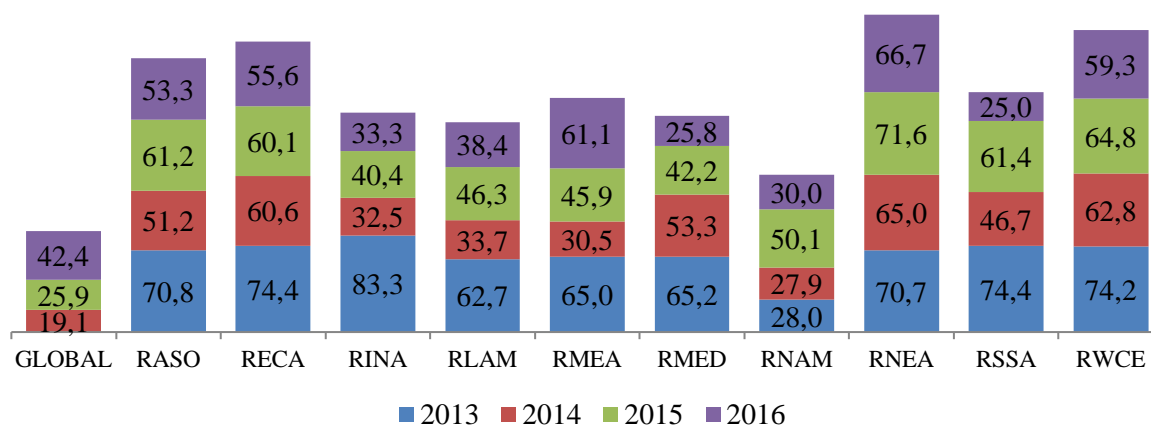


Figure 23: Yearly response rate (%) per regions

5.1.2 Response rate - Delivery

RcSE survey is used to gauge the deliveries within a project. The figure 24 represents the response rate for the different deliveries. C-NRO, OWP+SWDP and T&M+SWDP have the highest response rate but similar what was observed in the case of regions they have low contribution towards the volume. OWP, SWDP and T&M correspond to higher volumes and have response rate slightly higher than the overall response rate.



Figure 24: Response rate per delivery

Figure 25 represents the yearly response rate trend of the different deliveries. The response rate for T&M has dropped significantly from 2013 till February, 2016.

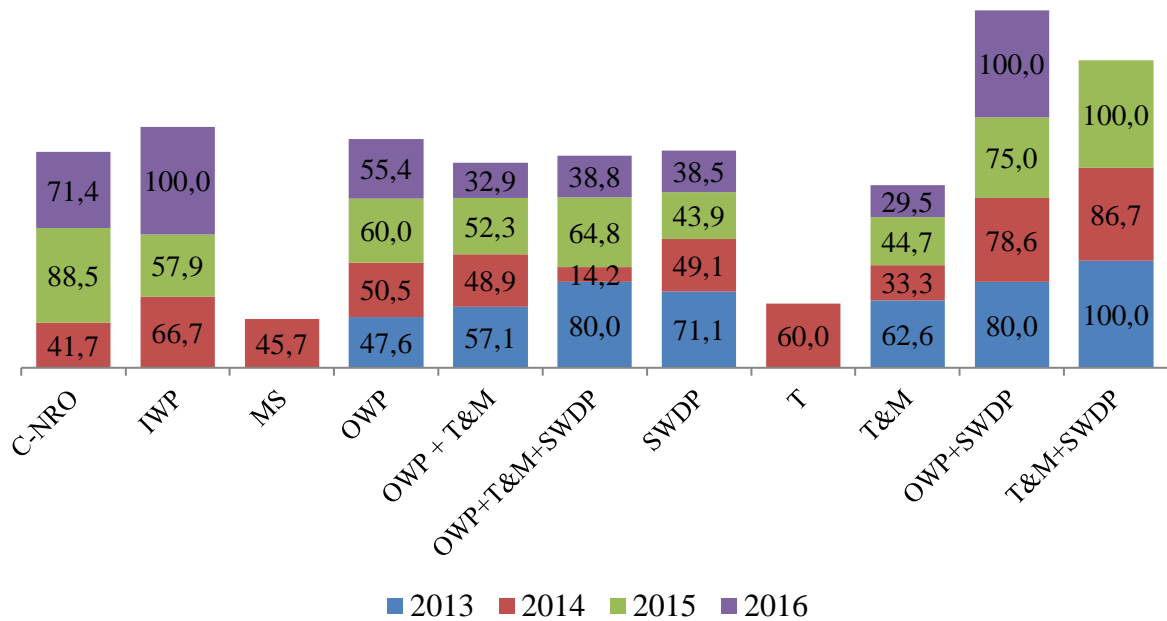


Figure 25: Yearly response rate (%) per deliveries

5.2 Initiator behavior

For investigating the behavior of the initiators, the data for the top ten initiators were deployed as shown in figure 26 from 2013 till February, 2016. The top ten initiators correspond to nearly 46% of surveys sent. The top initiator in this case has initiated nearly 20% of all the surveys sent out. No relationship can be seen with the number of surveys initiated and response rate for the corresponding initiators. A common though process was noted in some of the interviews

where interviewee thought that one way to increase the response rate was to send out more surveys. But looking at the data, it seems that this might not be the right approach as there are six initiators (TM, RL, HG, CA, JN and TR) who have initiated less number of surveys with higher response rate as compared to top initiator (LA). Also for improving the customer experience and continuous improvement quality of feedback should be more important as compared to quantity of the feedback. Some drawbacks of focusing on quantity rather than quality will be seen in coming sections.

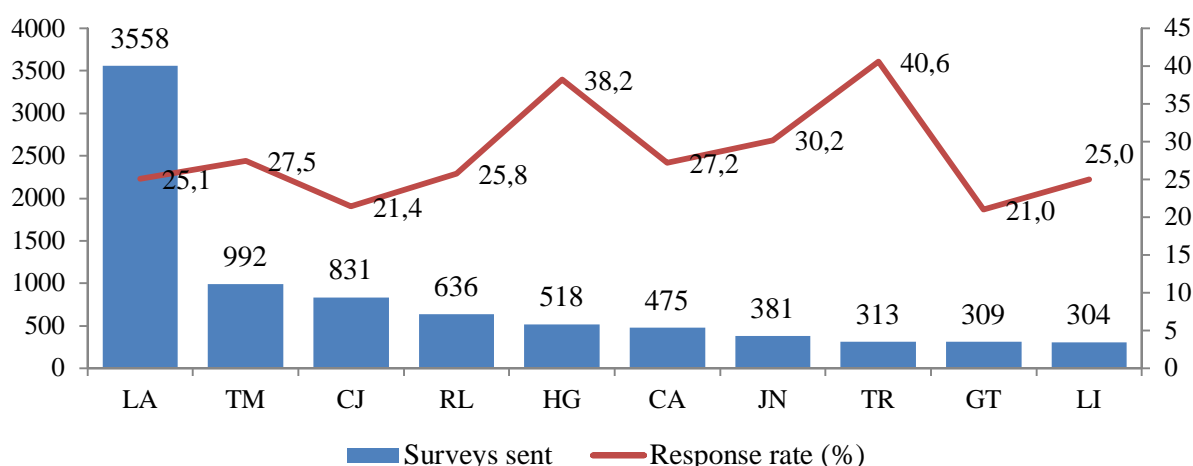


Figure 26: Top ten survey initiators

The yearly trend as shown in figure 27 also shows that the initiator LA has been initiating a high number of surveys as compared to other initiators. Also note that in just 40 days of 2016 (from 1st January till 9th February) initiator LA has initiated around 168 surveys, which means that he/she is initiating nearly four surveys per day.

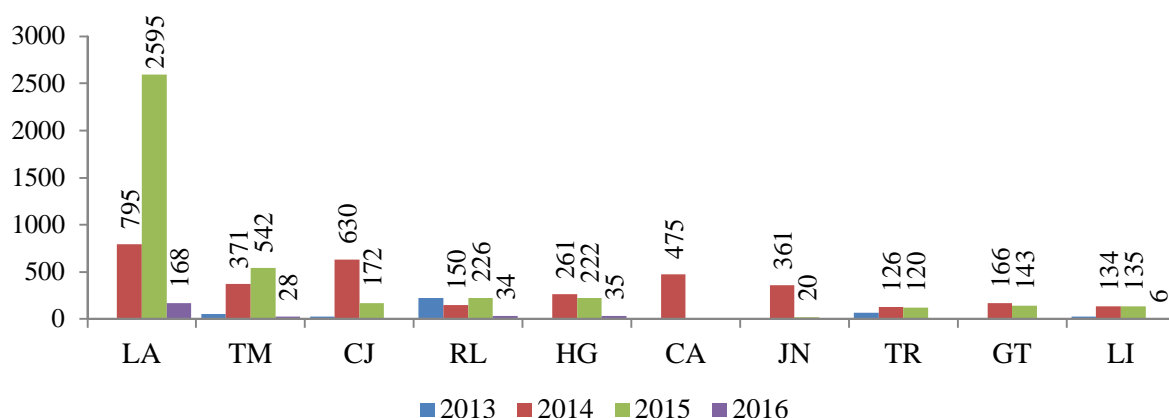


Figure 27: Top ten surveys initiators yearly trend

For analyzing further, the time plot for the top initiator LA was plotted as shown in figure 28. It is evident that the respective initiator is initiating multiple surveys in one day. The highest numbers of surveys initiated in any given day were 136, 128 and 102. Mass upload function was used to upload such high number of surveys in a single day. The initiator acknowledged that “the requests that are uploaded in bulk are sent to different survey respondents. Normally

we do not send more than one request to one person in a particular bulk upload period unless that person is associated with multiple projects for which we are seeking the feedback. We get the feedback response from the sender who responds irrespective of our mode of uploading feedback as it is not evident to them whether the request was sent in bulk or individually raised in the tool”.

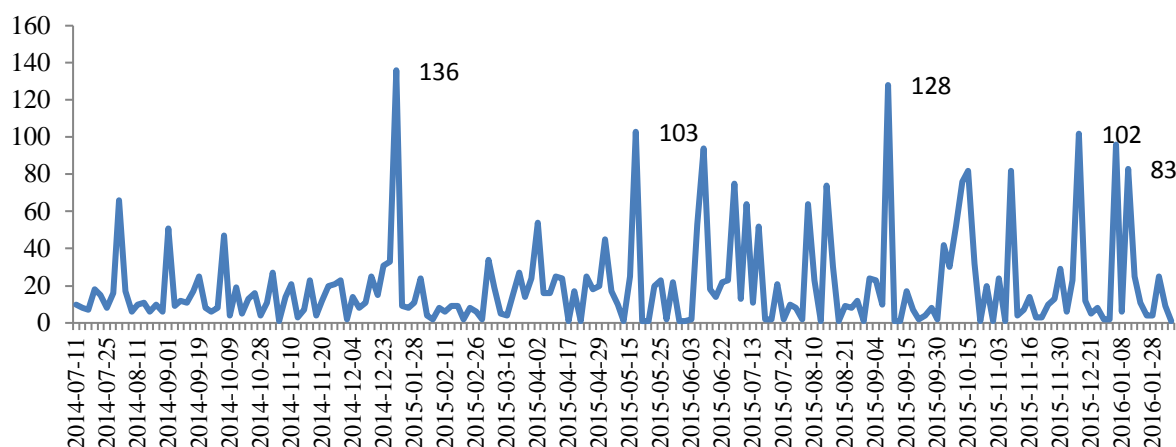


Figure 28: Survey initiation pattern of LA

The figure 29 shows the trend for rest of the nine top initiators. A similar behavior to initiator LA can be seen. Most of the surveys are initiated in bulk by using mass upload function

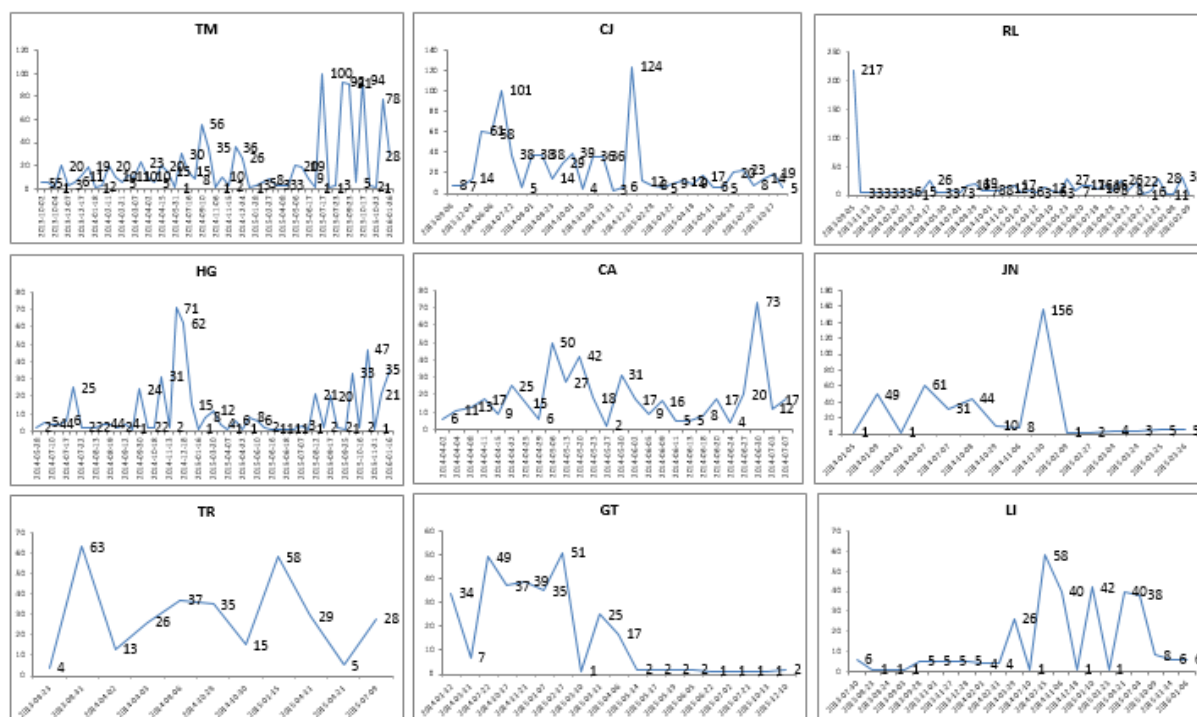


Figure 29: Survey initiation pattern of nine top respondents

5.3 Respondent behavior

Similar to the initiators, to understand the behavior of respondents, data for the top ten respondents were deployed. However, in this case respondents are divided into three categories

- Top receiver – ones who had received most surveys
- Top respondents – ones who had responded to most surveys
- Non respondents – ones who had either responded to some of the surveys or no survey at all

5.3.1 Top receiver behavior

Figure 30 shows the trend for the top receivers from 2013 till February, 2016. The number of surveys received by respondent varies between 186 to 56 while the response rate varies between 0% to 97, 7%. This means that within top receivers no one is filling all of the surveys. In fact, 5/10 receivers have 50% or less response rate. The figure 30 also represents the number of days between receiving two surveys, this ranges from 4 days to 14 days. The receiver GJ receives a survey after every 4 days while receiver YB receives a survey after every 14 days.

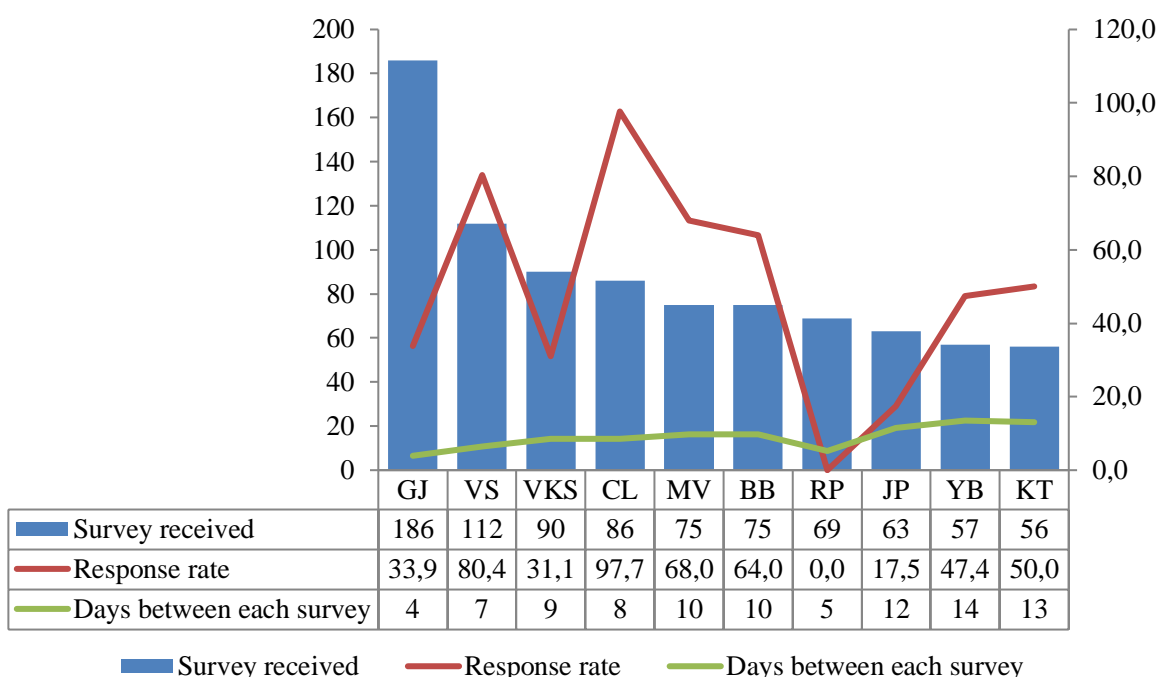


Figure 30: Top ten survey receivers

Figure 31 represents the deployment of days between each survey on yearly basis. It can be seen that in 2014 and 2015, apart from receiver JP and YB rest of all the receivers are getting a survey between duration of seven days to fourteen days. Filling out a survey once per week or after two weeks may not feel to be a very big task compared to one of the benchmark (Hilton hotel) where a frequent traveler is sent a max of five surveys per year with a response rate of 60%. Thus it seems that frequency of RcSE survey is quite high. The zero value in the table of figure 31 represents that the receiver has not received any survey in that particular year.

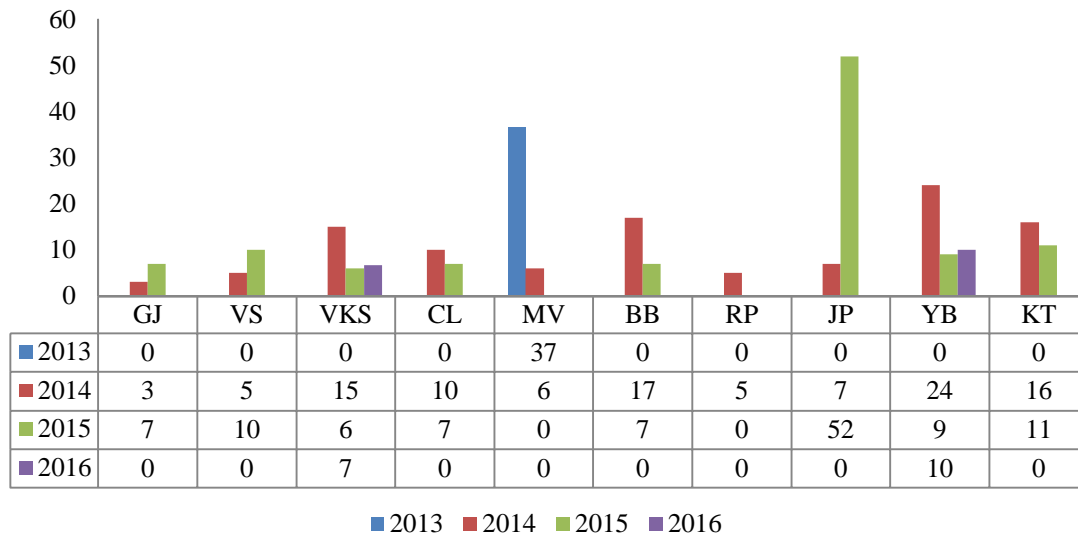


Figure 31: Number of days between surveys

The pattern of how a receiver receives a survey was deployed. The figure 32 represents the pattern for the top receiver GJ. As a result of mass uploading of surveys by initiators, the receivers are receiving high number of surveys per day. The receiver GJ had received 100 surveys on 12th November, 2014. Also observe the drop of response rate from 92, 3% to 0%. Keep in mind that receiving high number of surveys per day was mentioned as one of the demotivation factor by respondents. On top of it as soon as an initiator initiates a survey, the receiver receives an email. All of the 100 surveys have been initiated by one initiator. This also contradicts what was stated earlier as “normally we do not send more than one request to one person in a particular bulk upload period unless that person is associated with multiple projects for which we are seeking the feedback”.

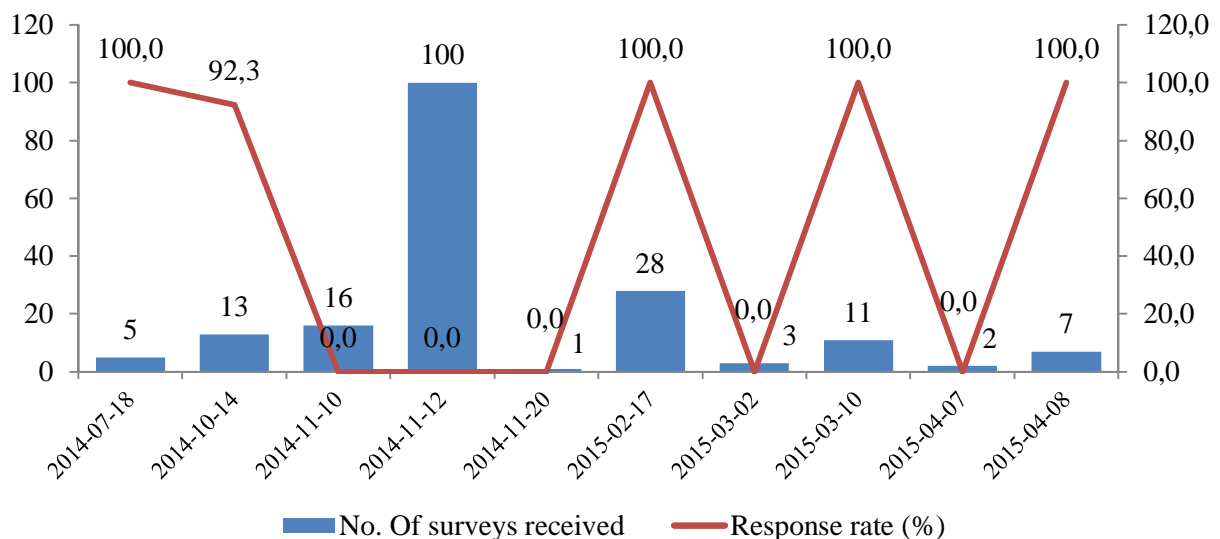


Figure 32: Number of surveys received per day and response rate - GJ

Figure 1 displays nine line graphs showing the number of cases for different diseases over time (from 2013 to 2017). The diseases are VS, VKS, CL, MV, BB, RP, JP, YB, and KT. The y-axis represents the number of cases, and the x-axis represents time in quarters.

VS (Viral Sepsis): The number of cases starts at 7 in 2013-04-23, peaks at 21 in 2014-04-01, and ends at 18 in 2015-02-09.

VKS (Viral Kala-azar): The number of cases starts at 8 in 2014-07-31, peaks at 5 in 2015-04-13, and ends at 5 in 2016-01-15.

CL (Cholera): The number of cases starts at 16 in 2014-10-01, peaks at 48 in 2015-05-15, and ends at 2 in 2016-02-11.

MV (Malaria): The number of cases starts at 6 in 2013-12-03, peaks at 11 in 2014-08-10, and ends at 24 in 2014-04-16.

BB (Bacterial Blood Poisoning): The number of cases starts at 9 in 2013-06-12, peaks at 13 in 2015-06-14, and ends at 7 in 2016-10-17.

RP (Rabies): The number of cases starts at 1 in 2014-10-01, peaks at 28 in 2014-10-02, and ends at 40 in 2014-11-07.

JP (Japanese Encephalitis): The number of cases starts at 23 in 2014-04-08, peaks at 16 in 2014-04-11, and ends at 1 in 2015-04-11.

YB (Yellow Fever): The number of cases starts at 1 in 2014-04-03, peaks at 7 in 2014-10-10, and ends at 4 in 2016-01-16.

KT (Kala-azar): The number of cases starts at 9 in 2014-04-11, peaks at 10 in 2015-05-10, and ends at 2 in 2016-01-17.

Figure 33: Number of surveys received per day - top nine receivers

Figure 34 shows the response rate of surveys sent by using the mass upload function and those that were not sent by using mass upload function. It can be seen that the response rate for surveys sent using mass upload function is less as compared to the ones not using the mass upload function. This further strengthens the hypothesis that receiving multiple surveys may be classified as a demotivating factor from a respondents' point of view.

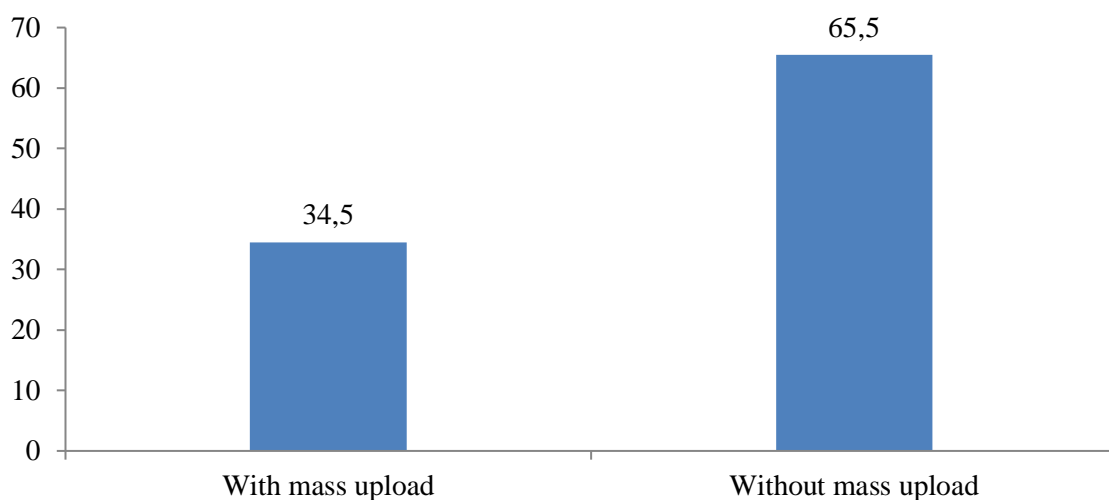


Figure 34: Response rate (%) - mass upload & without mass upload

5.3.2 Top respondent

The second category in respondent behavior represents top respondents i.e. the ones who have filled most of the surveys. Figure 35 represents top respondents from 2013 till February 2016. Six out of ten top respondents remain the same as the top ten receivers. So it can be assuming that if not all most of the top respondents will have the same behavior as observed in the top receivers' i.e. time between receiving two surveys is quite low. It can also be seen that apart from one respondent GJ, all other have response rate higher than the overall response rate. 6/10 respondents have response rate higher than 80%.

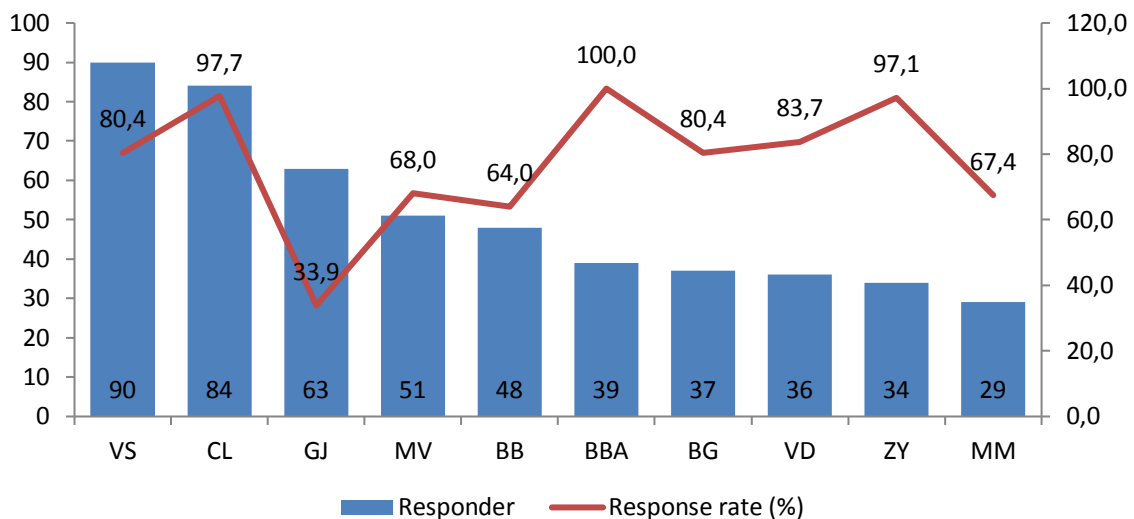


Figure 35: Top ten respondents and response rate (%)

The data for the top respondents was used to evaluate the survey filling patterns of the respondents. The figure 36 represents the number of surveys filled by the top respondent VS with respect to number of days. It is evident that the respondent VS is occasionally responding to multiples surveys in one day.

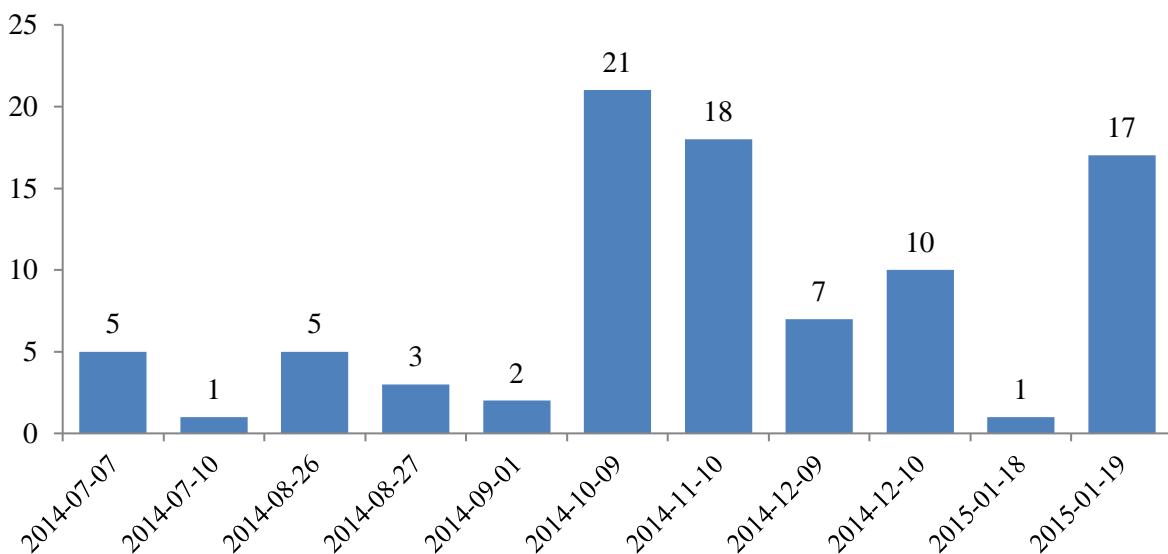


Figure 36: Number of surveys responded per day - VS

Figure 37 represents the data for the rest of the nine responders, it can be seen that all of these respondents are filling up multiple surveys per day; the number of surveys range from 2 – 46 in a single day. The trend of responding to multiple surveys seems to be quite high in top five respondents (CL, GJ, MV, BB and BBA), where frequency of responding to one or two surveys is quite low as compared to BG, VD, ZY and MM. In other words, frequency goes down as the number of surveys received reduces.

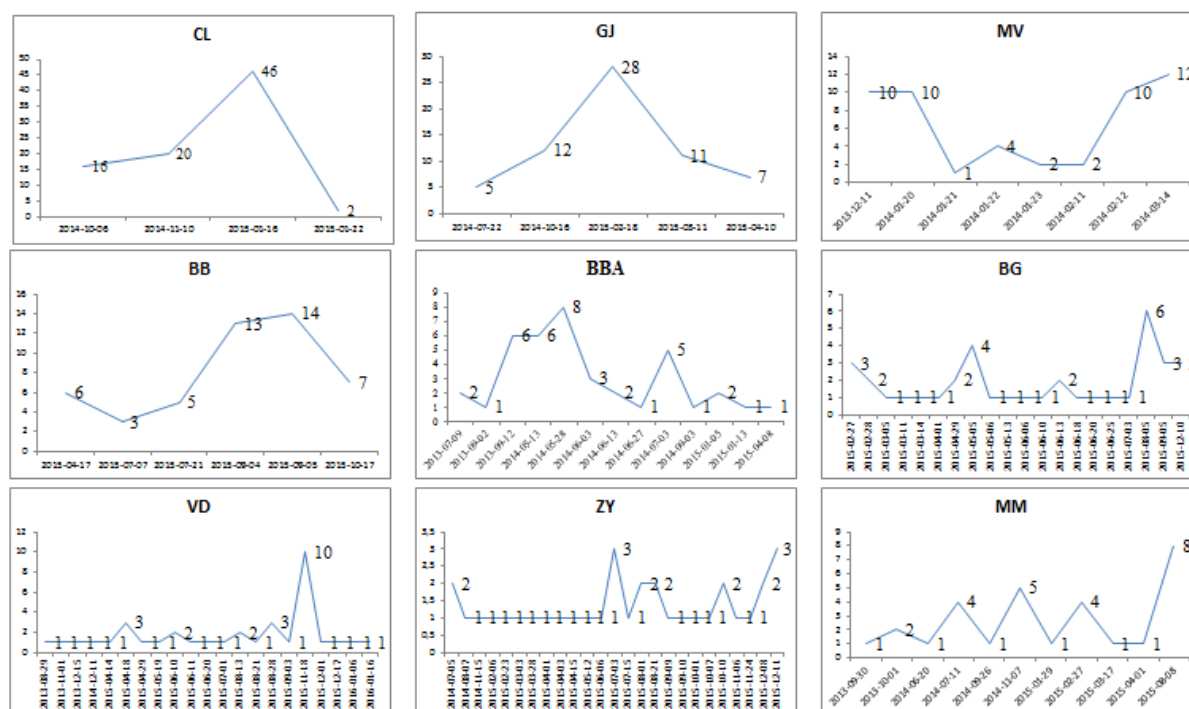


Figure 37: Number of surveys filled per day - top nine respondents

In order to study the impact of filling multiple surveys in one day, the rating of the top respondents was plotted. Figure 38 shows the trend for the responder VS. The data was sorted by using the feedback date. The overall graph shows that the ratings overlap each other. This is evident from the individual graphs of delivery, quality, accountability etc. The individual graph reveals two interesting facts, firstly the rating in the graphs quality to general follow nearly the same pattern as delivery. Secondly the straight horizontal lines in the graph show that respondent VS is using same rating for different surveys. Filling multiple surveys in one day could be assumed to be one reason for this behavior. Nearly the same behavior was observed for the data deployed for other respondents, see Appendix E. This behavior initiates a question that should there be multiple questions in the survey or would one question be sufficient? Also due to lack of comments at times it was not possible to see the reason for drop in ratings.

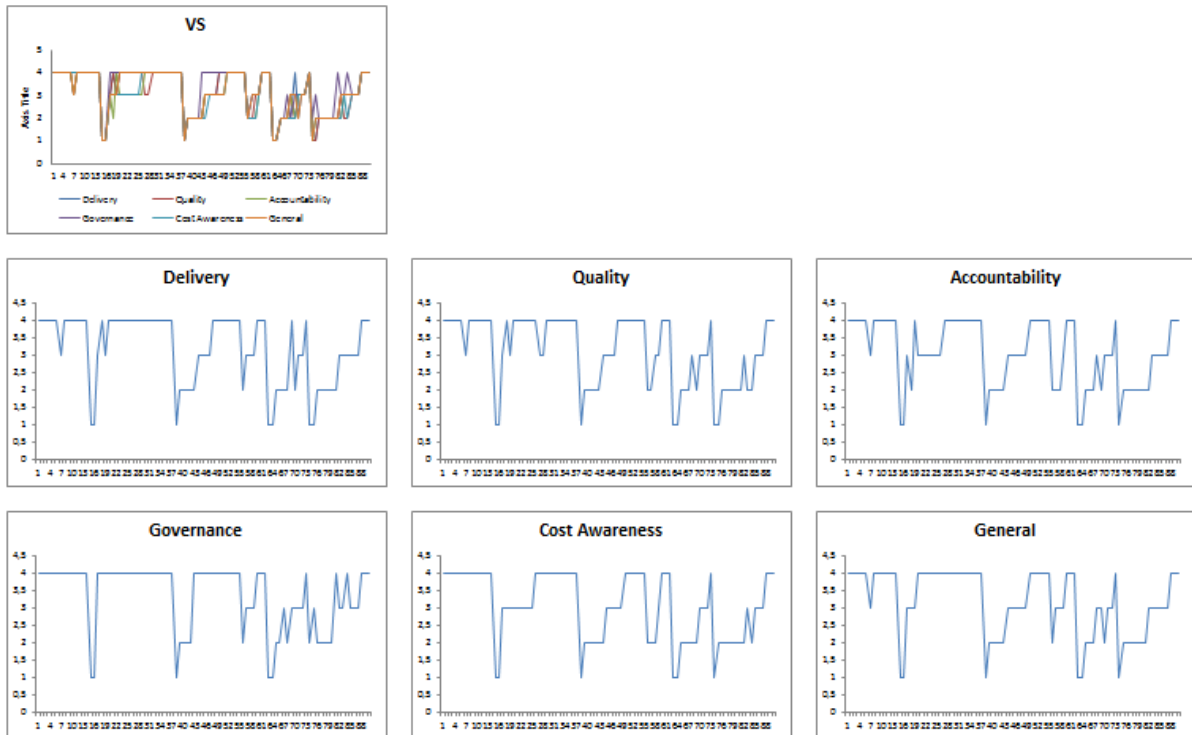


Figure 38: Rating plot - VS

The ratings and the comments were further studied to identify if the respondents were actually using the same rating for surveys that are being filled in a single day or if they are using same comment while filling out the surveys. For better understanding the impact three scenarios were defined

- Scenario 1: All responses included (AR+)

Figure 39 shows the rating of a particular responder corresponding to feedback date of 11th December, 2013. It can be noticed that the last three rows have the same ratings. Same is the case with second and third ratings. First two ratings are considered as original response while other are treated as duplicate response of the original response. In case of scenario 1 (AR+) all the responses were considered for the calculations.

Feedback Date2	Delivery	Quality	Accountabil	Governanc	Cost Awaren	General
2013-12-11	5	5	5	5	5	5
2013-12-11	4	5	5	5	5	5
2013-12-11	4	5	5	5	5	5
2013-12-11	5	5	5	5	5	5
2013-12-11	5	5	5	5	5	5

Figure 39: Rating

- Scenario 2: Duplicate response (DR)

In this scenario the duplicate responses are deleted from the data base and only original responses/ratings were kept for calculation purposes.

- Scenario 3: All responses deleted (AR-)

All the responses either original or duplicate were deleted from the database before calculations.

Before the analysis of the data few rules were defined regarding when the rating can be considered as duplicate or not, similarly the rules were defined for duplicate comments as well. For duplicate rating, the rating should be done by the same respondent on same day while for comments it would be considered duplicate if they were given by same respondent in consecutive surveys. Each rating and comment was studied to identify the duplicate values.

Figure 40 represents the impact of duplicate rating when considering the scenario 1. On an overall level, 8,3% of the ratings with respect to the survey are duplicate and correspondingly 18,5% of the ratings received as feedback are duplicate. In other words, 18.5% of the ratings are biased and may not present true ratings or view of respondent on these specific deliveries.

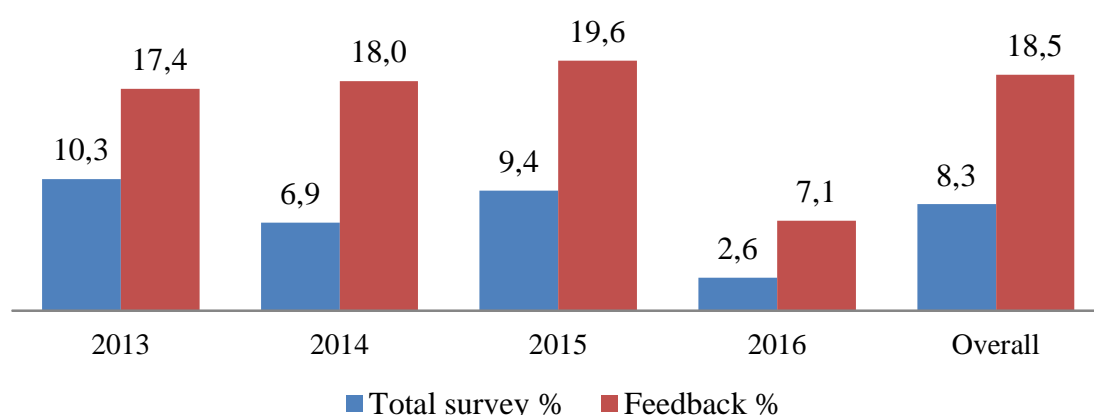


Figure 40: Duplicate rating

The impact of duplicate comments can be seen in figure 41. Overall 8.1% of comments with respect to overall surveys sent are duplicate and 16,3% of comments received on completed surveys are duplicate- Thus like rating, these comments are biased and might not present the actual condition of the delivery or what customer actually experienced.

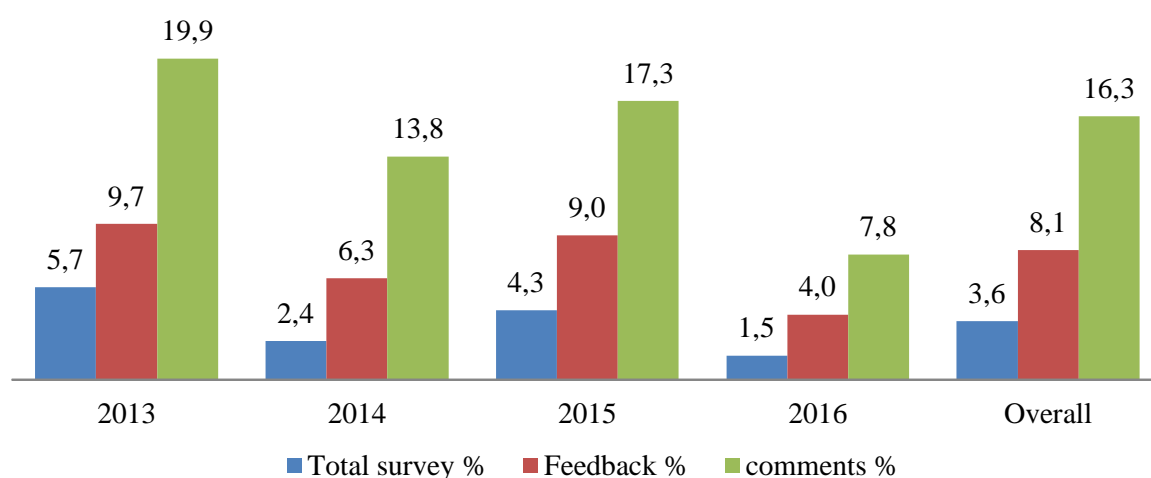


Figure 41: Duplicate comments

The combined impact of duplicate rating and comments can be seen in figure 42. The overall impact is 10,1% with respect to the total number of surveys and 22,4% with respect to completed surveys. This means that 22,4% of the data collected can potentially be biased. On the other hand, same rating and comments means that this feedback will not be of much help in defining action plan and eventually for continuous improvement. This also represents the bad quality data in the database. It was also observed during the investigation that at times respondents change only a single value while filling consecutive surveys. Looking at the combined impact one can ask a question that why combined impact of both factors is 4% - 6%. This is due to the fact that there are surveys which have both duplicate surveys as well as duplicate ratings.

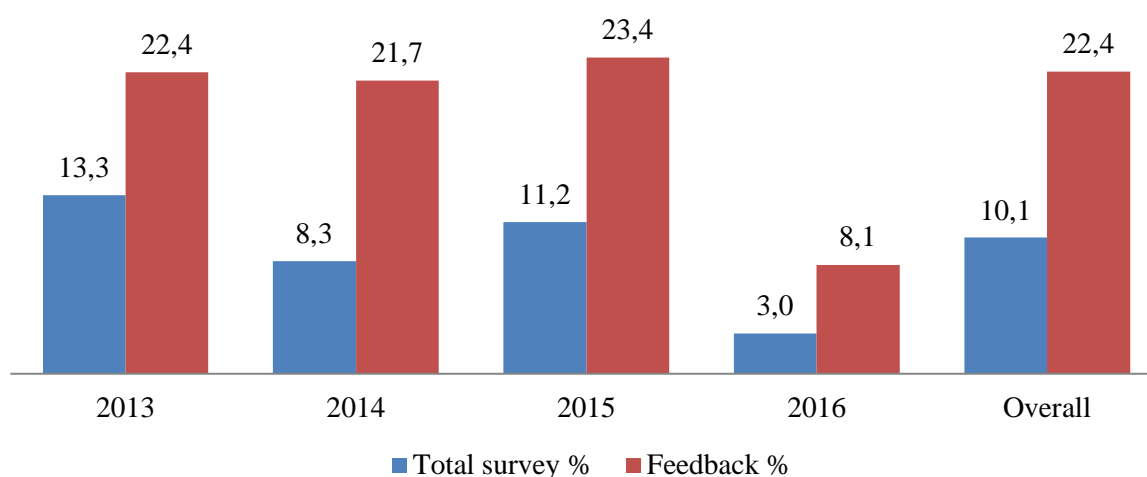


Figure 42: Combined impact - Duplicate rating & duplicate comments

As stated earlier those duplicates data maybe a source of biasness and contribute to bad quality. Thus the overall response rate calculated initially may not be representing the true response rate. So all of biased data was taken out of the system and response rate was recalculated as shown in figure 43. As per the new calculations there is a drop of nearly 8% in the overall response rate in the worst case scenario if all the duplicate values are taken away.

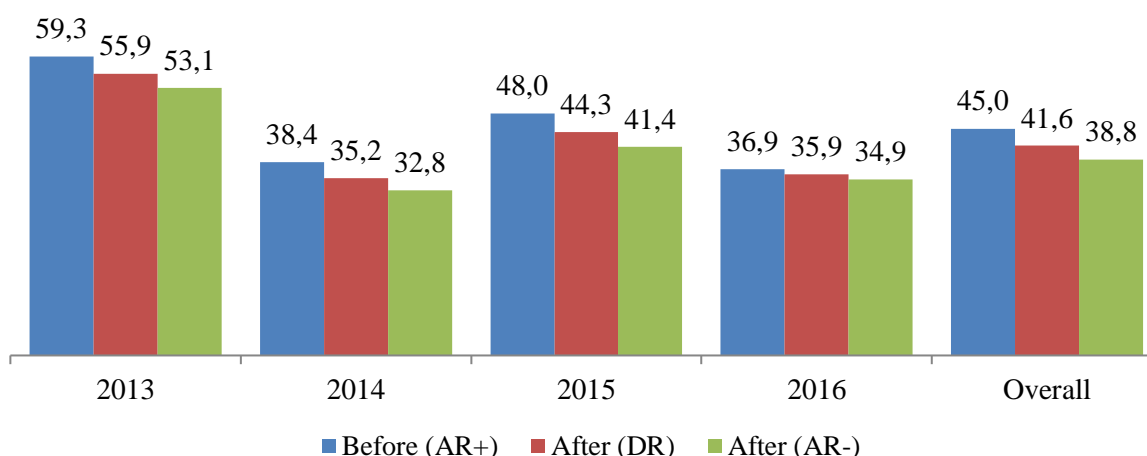


Figure 43: Response rate comparison

Scraping the data means that all the ratings were also needed to be taken out. This impact is shown in figure 44. The worse impact comes on the rating of 4 and 5, this identifies that the respondents who are giving duplicate rating are in actual providing higher rating of 4 – 5.

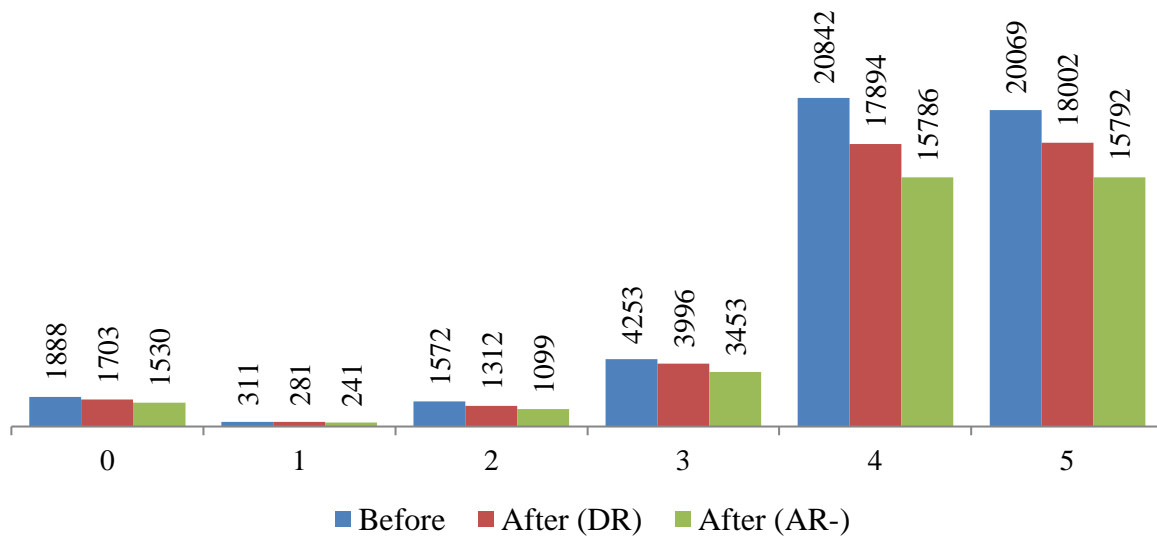


Figure 44: Rating comparison

Figure 44 shows that the results of the rating are skewed towards rating 4 and 5 and in terms of count, rating 4 have the highest frequency. Two hypotheses in this regard can be made, firstly the survey data is not anonymous and anyone who has the access to the tool can easily track back the responses. So the respondents might be giving high score to avoid any conflict. It was observed during the interviews that when respondents were asked for feedback on surveys where they have given low rating, the respondents didn't felt comfortable during such conversations. Secondly as per the instructions, comments are mandatory for the rating 1 – 3 so respondents might be giving higher rating of 4 to avoid giving any comments. However, during data analysis or interviews no such evidence was found to confirm this hypothesis. Non anonymity of the survey helps as well since in case of any negative comment or to avoid any misunderstanding corresponding respondent can be contacted for further information.

5.3.3 Non respondent behavior:

Looking back at the response rate for top receivers and top respondents reveals that there are only few respondents who have high response rate (CL - 97, 7% and BBA - 100%). This means that respondents are ignoring few or most of the surveys. Figure 45 shows the trend for the top non respondents. 50% of the non-respondents have not responded to even a single survey while the other have response rate less than the overall response rate (45%). An interesting observation was captured during interviews with non-respondents with zero response rates. Firstly, they were a bit conscious and on first contact asked who gave their names and secondly most of them were not able to recognize the RcSE survey even though they have received multiple surveys in 2014 and 2015 and despite of sharing screen shot of the survey.

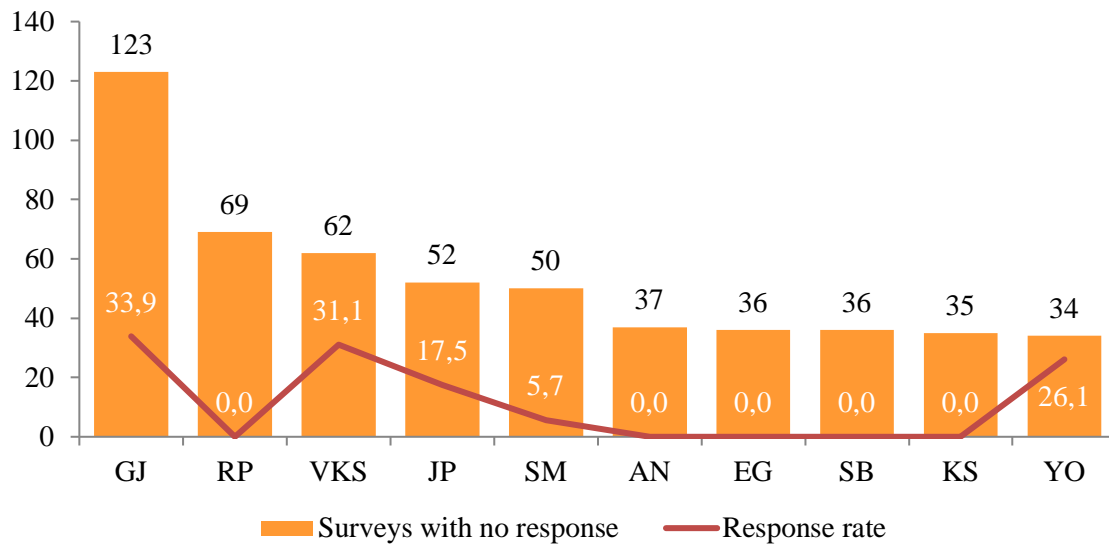


Figure 45: Top ten non respondents and response rate

To capture the full spectrum data was also analyzed for the respondents who receive low number of surveys per year. These surveys may vary between 1 – 4 surveys per year. The figure 46 represents the percentage of respondents receiving one survey per year. It can be noticed that each year more than 40% of the respondents receive only one survey per year.

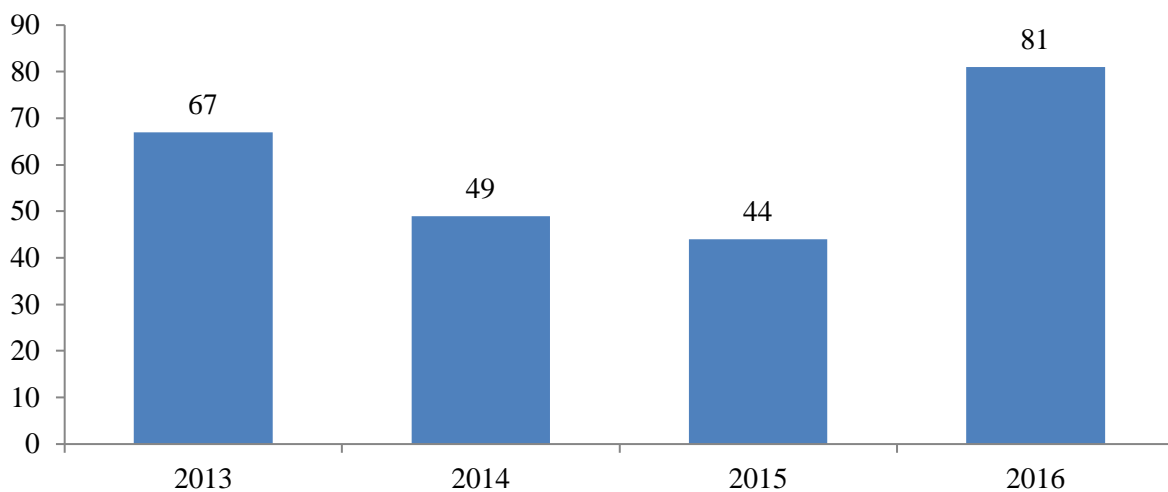


Figure 46: Respondents receiving one survey per year

One can assume that response rate for the respondents who receive only one survey per year should be high. But on the contrary, figure 47 shows that it is not the case. The average response rate for such respondents is 43%, slightly less than the overall response rate (45%).

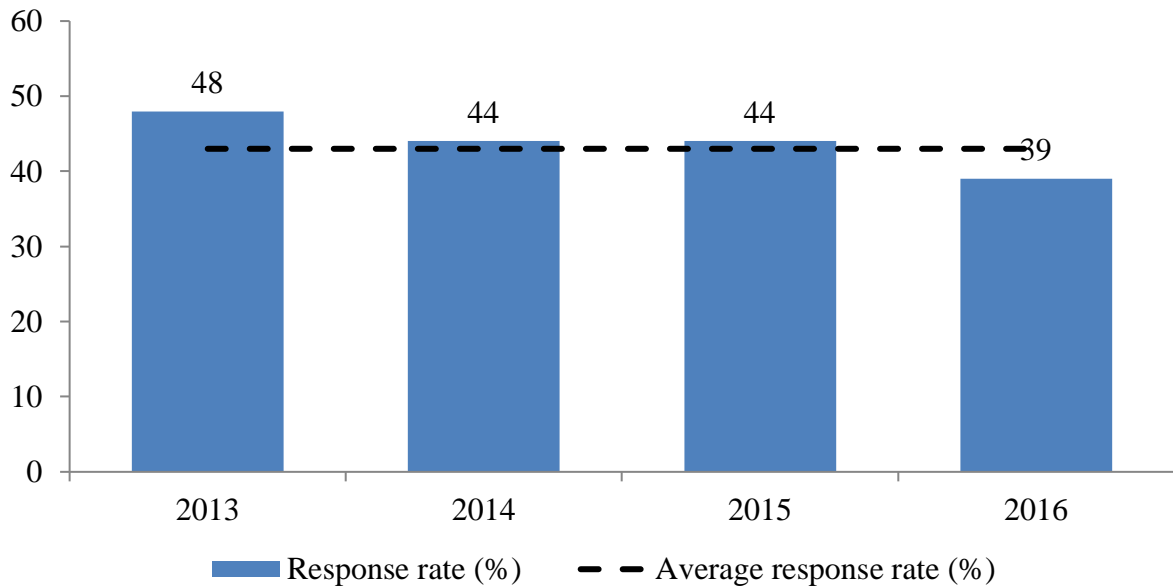


Figure 47: Response rate of respondents receiving one survey per year

From the table 6, it can be safely assuming that 80% of the respondents receive between 1 – 4 surveys per year. In this case however the average response rate (48%) is slightly more than the overall response rate (45%). It seems that respondents are not motivated to fill out surveys even if they receive low number of surveys per year. So the issue of non-response is evident in both the cases i.e. where respondents receive high number of surveys and also where respondents receive low number of surveys.

Table 6: Respondents summery

Year	Respondents (%)	No. of surveys	Response rate (%)
2013	84	1 – 2	53
2014	80	1 – 3	49
2015	81	1 – 4	54
2016	80	1	39

Another reason for the no response is the designing of RcSE tool itself. The tool only allows one-way communication; initiator will never know if the respondent is on leave (the tool does not send any communication to initiator generated as a result of auto responses). This was confirmed by the system administrator as well.

5.3.4 Respondents' comments

Studying the pattern of how respondents are providing comments is also another way to observe the behavior of the respondents. As per the instructions provided in the survey, the respondent must provide comments if he/she are giving rating from 1 – 3 and for rating 5 as well. Respondent can provide comments in the text box after each question and/or in the overall comment box. The figure 48 provides the deployment of comments against individual category.

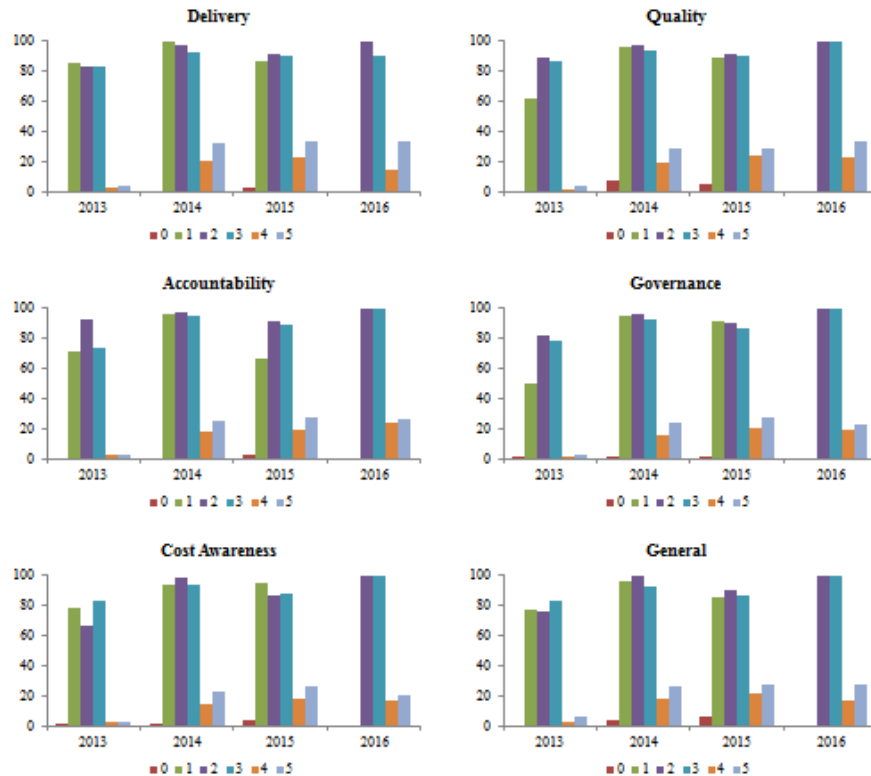


Figure 48: Pattern of comments per question

It can be noted that for rating of 1 – 3 most of the respondents have provided comments while small percentage of respondents have commented against rating of 4 or 5 while occasionally respondents comment for 0 rating since the instructions say nothing about providing comments for not applicable (0 rating). This trend is seen in all the years. The other thing to be noticed is that in most of the cases, comment is not given at all. This is true for all the ratings of 0 - 5. The only exception in this case is of 2016 where no rating of 1 has been recorded yet. Thus all respondents are not following the instructions when it comes to individual comments.

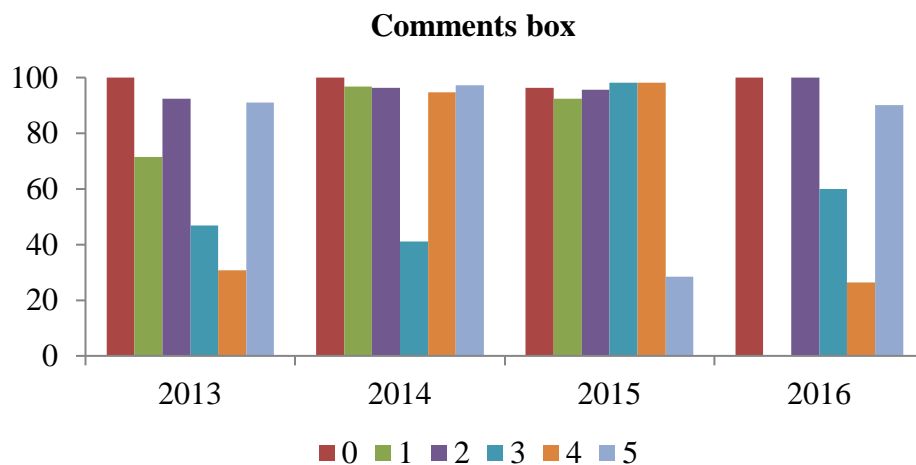


Figure 49: Pattern of comment box assuage

Figure 49 represents the situation for the comments for the overall comment box. Trends in this case are mixed. The percentage of comments is better as compared to individual comments, rating 3 between 2013 & 2014 and rating 5 in 2015 are few exceptions. The 0 rating in this case are mostly the cases where surveys are sent to wrong respondents.

There are two main reasons for less than 100% comment rate, firstly during the calculations comments like “:-)”, “dddd”, “.”, space (system accepts space as a comment) were not included in the calculation. These observations were few in number. The second reason is that respondents are not providing comments at all which present a much higher numbers. This reason also raises question about how much respondents are motivated to give their comments and also on quality of the comments. Table 7 shows difference between good comments and not good comments. Not good comments here mean that one cannot extract any information from them.

Table 7: Good and not good comments

Good comments	Not good comments
Team generally performed quite good. There was a couple of instances where SI engineers could have acted more autonomously to create defects, without asking local team. However once this expectation was set it appears to be working better now.	Acceptable, acceptable only
On 2 occasions now, we have had to rework since the resource assigned did not complete the work correctly. This involves a lot of rework and leads in cost accrual to the project.	Ok/Not ok, all ok
Overall project completion was delayed due to several reasons. Some are attributable to customer dependency but there is a scope of improvement from our side as well. If the scoping study was done in a proper manner and FRS signed off with customer than at the execution phase we wouldn't have so many open issues that lingered the project. So more attention is required for scope capturing and closing the scope with all customer departments and lock & meet the timeline.	Excellent, excellent work, good, yes
The Engineers didn't have Technical level for GGSNs' and SGSNs' integration.	I am very dissatisfied, Late
	1, 4, -, 0.99,..., x
	It was done with quality.
	babysitting can be improved

5.4 Response lead time

The response lead time as shown in figure 50 presents a gradual decreasing trend from 2013 till 2015. The response lead time has improved from 29 days to 12 days representing an improvement of around 58%. One of the reasons for this improvement as discussed in the

respondent behavior can be responding to multiple responses in a single day.

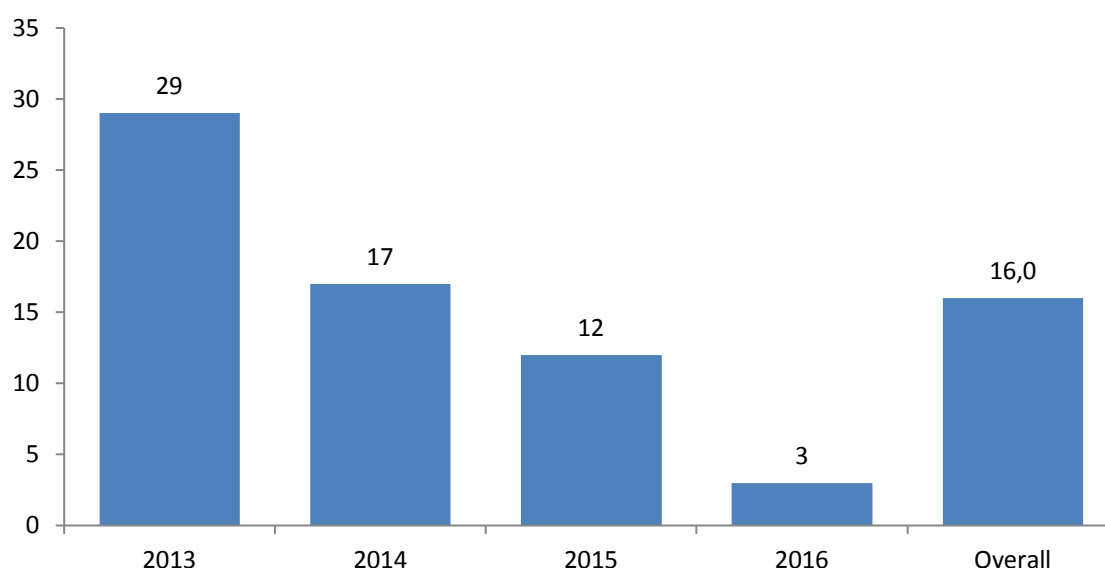


Figure 50: Response lead time

However, it was also interesting to look at the number of the max days which corresponding respondents have taken in order to respond to the surveys. Table 8 represents top five numbers of days that respondents have taken to respond to the surveys. Remarkably respondents are responding to the surveys even after nearly one and a half year. This could possibly be a system error, as during the calculation some negative lead times were also noticed. This should mean that the surveys were responded before they were initiated. Some of the examples can be seen in table 3. Another reason could be since the RcSE survey does not have a closing date after which survey is automatically closed, there is always a possibility that respondent can take as much time as he/she wants to fill in the survey.

Table 8: Max no. of days & negative lead time

Max no. of days				Negative lead time	
2013	2014	2015	2016	Initiate date	Response date
519	416	326	28	2013-03-18	2013-03-14
477	414	279	20	2014-06-24	2014-03-13
435	333	254	19	2015-12-18	2015-03-03
414	306	231	16	2016-01-25	2016-01-13
400	298	230	15		

The negative lead time errors represented a small portion of the data (~1%) but were seen in all the years and as shown in figure 51, the trend is increasing, observes a sudden spike between 2014 and 2015. They need to be investigated to identify root causes and finally eradicated. These negative values were not included in the calculation of response lead time.

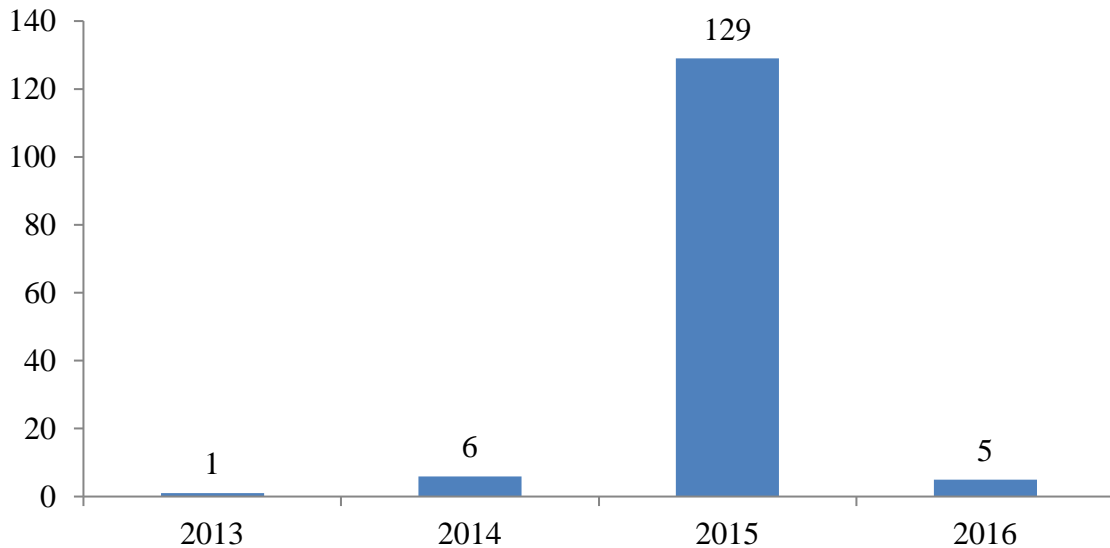


Figure 51: Negative lead time errors per year

5.5 Data quality

Some of the issues related to data quality have already been discussed above. Data quality related issues can be broadly divided into four dimensions; three of these dimensions are consistent with the data quality literature as discussed in section 3.9.

1. Data consistency
2. Data completeness
3. Data accuracy
4. Redundant data

5.5.1 Data consistency

During the analysis of the data it was found that data contains more variable than what can be specified while initiating the survey using either the tool or the excel template. Table 9 represents the data inconsistencies found in the data base. The table 9 shows that for example in case of delivery type the input options are three namely IWP, T&M and SWDP. These inputs can be combined and as a result seven combinations can be formed. In actual the data contains fourteen values either as single values or combination of IWP, T&M and SWDP. Similarly, for other inputs the data variation was also observed.

Table 9: Input options and output registered

	Input options available	Output registered values
Delivery Type	3 (7)	14
Domain	48	341
Service Area	16	125
Delivery Organization	85	135
Region	10	12

Table 10 shows further details of the inconsistencies discussed above. It can be noticed that in case of delivery type the values highlighted in red are either not available in the inputs or even

if they are available, they are written in a different format for example the input available is T&M+SWDP while the output registered is T&M, SWDP. Similarly, in case of regions the two additional output registered are GLOB and GLOBAL.

Table 10: Data inconsistency - Delivery type & Region

Delivery type		Regions	
Inputs available in template	Output registered	Inputs available in template	Output registered
IWP	C-NRO	RASO	RASO
T&M	IWP	RECA	RECA
SWDP	MS	RINA	RINA
IWP+T&M	OWP	RLAM	RLAM
IWP+SWDP	OWP + T&M	RMEA	RMEA
T&M+SWDP	OWP , SWDP	RMED	RMED
IWP+T&M+SWDP	OWP , T&M	RNAM	RNAM
	OWP, T&M, SWDP	RNEA	RNEA
	OWP+T&M	RSSA	RSSA
	IWP+T&M+SWDP	RWCE	RWCE
	SWDP		GLOB
	T		GLOBAL
	T&M		
	T&M , SWDP		

As discussed earlier, data can be input in the system by two ways; either by using the tool itself or by using the mass upload function (excel template). The figure 52 shows the screenshot for the data input screen while initiating the survey. The area highlighted in red represents the input selections options for the delivery type. It can be seen that additional values cannot be entered as there is not text box available for additional inputs. So the only possible way available is by using excel template. In case of excel template the delivery type can be selected from the drop down menu. However, the excel sheet gives an error if wrong input is selected. So the question is where these values are coming from especially when wrongly registered outputs were observed in the data in the year 2016 as well. Since the template is not protected anyone who has little information about how drop down menu works can add desired values in the template. The template is also not a controlled document so no one would be registering any update which he/she has come up. Interestingly it seems that the tool also lacks the functionality of blocking any un-desired inputs especially if the mass upload function is used. One of the confusion over here is that for some of these wrong outputs, it seems that mass upload function was never used.

Project General Information

Name:

Project NO. : ☒ PO# ☐ ICRRB#

PO#: SO#:

Status: Customer:

Region: Country: GSC Contact:

Responsible Manager: (EID:) (Name:)

CPM Contact: (EID:) (E-Mail Address:)

Service / Delivery Information

Service Area:

Domain:

Delivery Organization:

Delivery Type: ☒ IWP ☐ T&M ☐ SWDP

Order Type: ☒ Fixed Price ☐ Actual Cost ☐ Fixed + Actual

Figure 52: Survey data input screen

5.5.2 Data completeness

Table 11 represents the current situation for data completeness. Only two inputs; name and project number have no missing entry while all other have data missing. However, this does not provide the true picture. For initiating a survey some of the inputs are mandatory. The system must not register surveys if these values are missing. These inputs are indicated by “*” in the table 11. These surveys are registered in the system. The missing data for mandatory inputs was observed in 2016 as well. This problem is also linked with mass upload of the data but the system should have rejected these surveys which it seems that it did not.

Table 11: Missing data

Category	Blank (%)
Name*	0,0
Project number*	0,0
Status	6,3
Region	3,0
Customer*	3,1
Delivery Type	2,8
Domain*	1,2
Service Area*	0,8
Country	4,9
Delivery organization	37,8
E mail address of service responders	0,2
Milestone	34,7
Responsible manager	26,3
Manager name	26,9

5.5.3 Data accuracy

Some of the data accuracy issues have already been discussed for example the duplicate comments and duplicate ratings. In the previous section data completeness, it was highlighted with respect to the table 11 that name and project numbers are two inputs with no missing data. The statement is not true when it comes to data correctness. It is not possible for the researchers at this point of time to comment anything on the project names if they are correct or not. But for project numbers it was observed that the input was not always correct. Table 12 shows some of the input values found in the data base which are either duplicate or fake. These values can have impact on traceability of surveys.

Table 12: Duplicate and fake project numbers

Duplicate values	Fake values
99999/99999	#/
99999999/99999999	./
	#/null
	0/null
	XXXX/
	To be provided
	TG/TG

Whenever a survey is initiated the tool records the time, two trends were seen in this regard as shown in table 13, namely duplicate timing and mass upload. Mass upload does not have any impact on the data accuracy but it can be observed that the new survey is generated after nearly every three seconds. This value can go up to five seconds. The second trend, duplicate timing can be regarded as data accuracy issue, in this case the system is not recording the correct timing of when the survey was generated. Instead it records one time for multiple surveys.

Table 13: Duplicate timings and mass upload

Duplicate timing	Mass upload
2013-01-01 00:00:00.0	2014-07-11 13:09:29.0
2013-01-01 00:00:00.0	2014-07-11 13:09:32.0
2013-01-01 00:00:00.0	2014-07-11 13:09:35.0
2013-01-01 00:00:00.0	2014-07-11 13:09:38.0
2013-07-22 17:35:28.0	2014-07-11 13:09:40.0
2013-07-22 17:35:28.0	2014-07-11 13:09:43.0

In one of the interviews it was highlighted that initiators at times can accidentally generated duplicated surveys. So instead of sending one survey to the respondent, two surveys were sent. The first hypothesis for duplicate timings was therefore that it might be representing those duplicate surveys but on further investigation it was found that two or more surveys were also generated to different respondents while the duplicate timing issue was observed. The issue of duplicate timings was observed to appear over all the years from 2013 till 9th February, 2016. It has reduced since 2013 but still overall 24.8% of the total surveys generated have this issue

as shown in figure 53. The reason why this happens is still unknown, could possibly be a bug in the system.

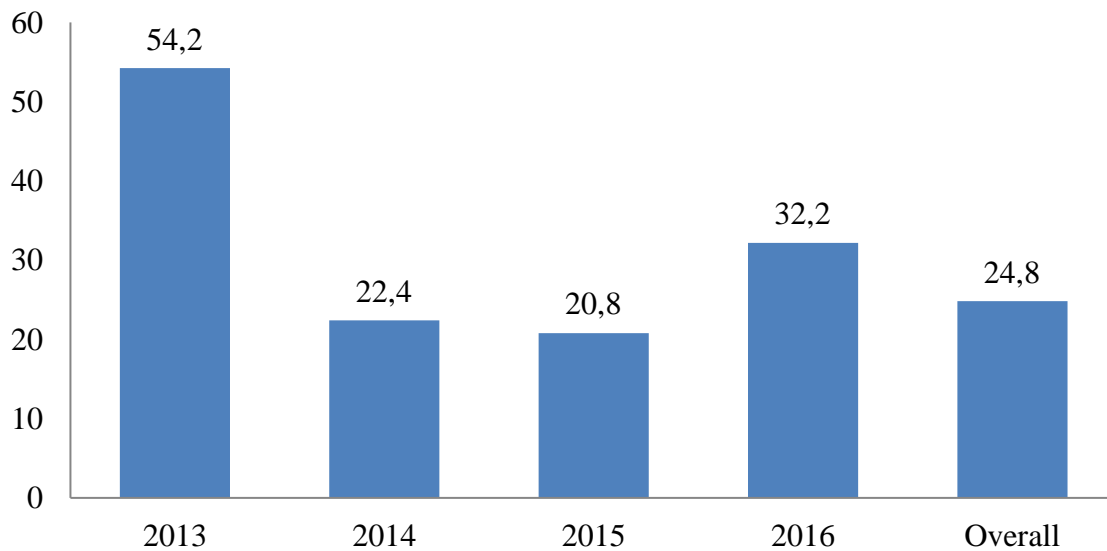


Figure 53: Duplicate values (%)

5.5.4 Redundant data

To a much lesser extent but there is some evidence of redundant data in the system. It was found that initiators were sending surveys to themselves. Upon contact it was confirmed that the first time users, in order to get familiarize with the tools were sending these surveys as a test survey to themselves. It was also observed that data base contains test surveys from administrators as well where they are checking or verifying different issues. Lastly around 0.5% of the surveys are sent to wrong respondents, this was verified by viewing the comments given by the respondents for example *“I do not know why this survey has been sent to me”*.

5.6 Reminder & mass upload

For the RcSE survey, reminder function can be activated when initiating the survey. But there is a catch. The reminder function cannot be initiated when using the mass upload. So one can ask, “How many surveys are sent using the mass upload function”? Figure 54 shows the yearly trend of using mass upload function. It can be realized that around 73% of the surveys being initiated are by using mass upload function. This would imply that responders to whom these surveys were initiated too will not get any reminder for filling up the surveys. So what about the other 27% of the surveys? No information can be gathered as this information cannot be collected from the raw data extracted from the RcSE tool. The initiators acknowledge that they use reminder function. This was also confirmed by respondents that at times they get system generated reminders. But the extent to which RcSE surveys generated by tool were not verified so there is a chance that actual number of surveys sent without reminder function could be much higher than 73% which itself is quite high.

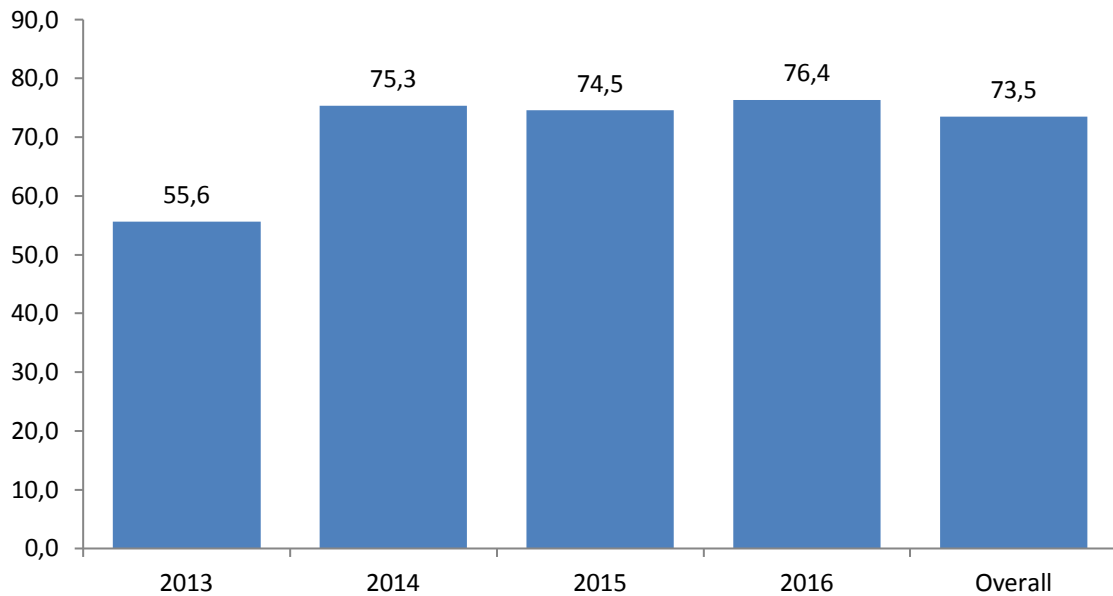


Figure 54: Surveys mass uploaded (%)

5.7 Survey questionnaire

During filling out the survey questionnaire if respondent feels that the question is not applicable, he/she can give a rating of 0. The not applicable (0 rating) was deployed with respect to the surveys/feedback received as shown in figure 55. It can be seen that questions related to project governance and cost awareness have high percentage of not applicable (0 rating), thus confirming the issues rose during the interviews regarding the questions either being broad or irrelevant. This is also in line with what Ericsson has established using the regression analysis.

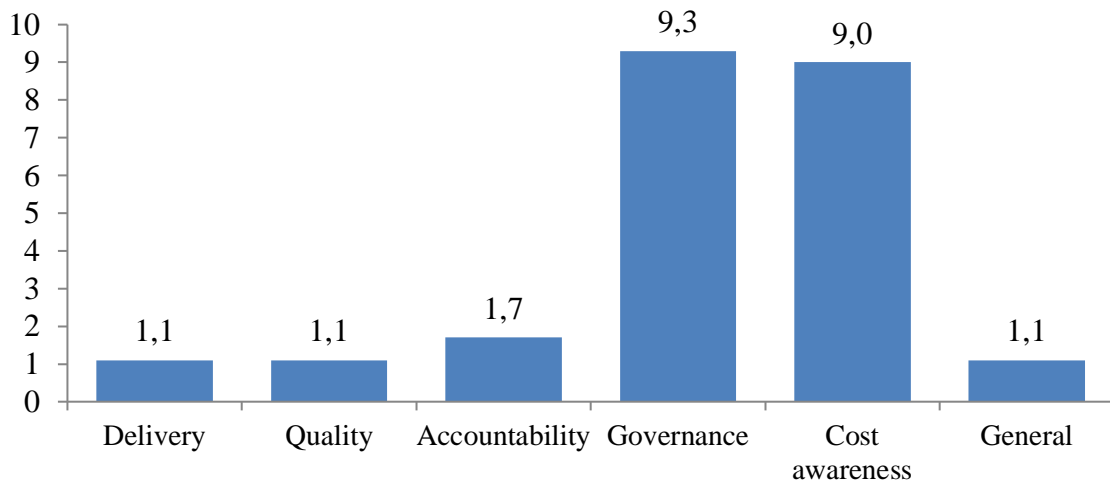


Figure 55: Rating 0 (%) with respect to surveys received

6. Discussion

Nedler (1977, as cited in Kroustalis et al., 2007) describe the survey process as consisting of planning, data collection and analysis, feedback and implementation phase. For understanding the process of the RcSE survey the above mentioned phases will be used.

6.1 Planning

6.1.1 Voice of the customer collection

The RcSE survey as discussed earlier is the only touch point that GSC have with region or business units. The main purpose of the survey is to capture voice of the customer by gauging the quality of deliveries from GSCs to regions. The common theme between the definition of VoC as discussed in section 3.5 is that all the authors refer it to customer needs and requirements, either articulated or unarticulated. Denove & Power (2006) add to this definition the collection of “right” information from the customers. As a result of the RcSE survey, GSC are able to collect some voice of the customer. Therefore, the question now is that whether the information collected is the right information or not?

Lawton (2008) in his lecture on YouTube “*Voice of the Customer - What Do Customers Value?*” explain the difference between the right VoC and the wrong VoC. The concept is defined by using an example of a hotel. While travelling either for luxury or business most of the people do stay in the hotels. After a long day what does customer wants from his/her room in the hotel; a comfortable bed to sleep on. This is the right voice of the customer. On the other hand, when looking at the survey questionnaire found in hotel, how many have seen a question being asked about this VoC. One of the reason for this is that organizations develop survey from their point of view, thus totally missing the customer point of view which most of the author define as looking from the eye of the customer.

Although when asked from respondents if they were happy with the current questionnaire, most of the respondents said yes. So does that mean that by using RcSE survey, GSC are collecting the right information? As per Bergman & Klefsjö (2010), customers are not aware of some of their needs, the unarticulated needs, so they will buy anything which seem to satisfy their needs. This is also true for RcSE survey as well since it is the only touch point between any GSC and region. During the interview, the biggest voice raised by the respondents was to have feedback on the survey comments. Communication was highlighted as one of the additional requirement from the internal customer and most important as shown in figure 55, two out of the six questions (project governance and cost awareness) received much higher percentage of not applicable rating as compared to the other questions. The regression analysis done by Ericsson also confirms that hypothesis that from customer point of view these questions are not very important. Against the same two deliveries dimensions, respondent confirmed that these questions were either too broad or were irrelevant. The other thing found was the introduction of QUAD. Keeping in mind that QUAD is developed by a region meaning that they were not happy with the RcSE survey. Moreover, as stated earlier that RcSE survey was constructed in 2013 with a help from a consultant and some of the representatives from Ericsson, although it was not established during the research whether any internal customer was involved or not but as stated by one of the interviewee “*the current questions in the questionnaire are designed to*

address the characteristics of deliveries that are being provided by GSC” confirms to some extent that survey questions are designed from a GSC point of view rather than internal customer or region point of view.

The second purpose of the RcSE survey apart from capturing VoC is to gauge the quality of the deliveries. The questionnaire for the RcSE survey was designed to capture different dimensions of the deliveries. These dimensions consist of delivery precision, quality, accountability, project governance and cost awareness. Figure 56 shows the questions against each dimension.



SERVICE EVALUATION QUESTIONNAIRE

- **Delivery Precision**
How would you rate the timeliness of the delivery as per agreed schedule?
- **Quality**
How would you rate the quality of service deliverables according to the agreed upon Scope of Work?
- **Accountability**
How would you rate the level of ownership taken by the delivery center, to drive this delivery as per the agreed scope?
- **Project Governance**
How would you rate definition and execution of project governance (meeting structure, project reviews, scope management and reporting)
- **Cost Awareness**
The Delivery Center acted with cost awareness. (To supply services in a way that aims to minimize/decrease delivery costs for the Ericsson Group.)
- **General**
What is your overall perception on the deliverables?

Figure 56: Questions for RcSE survey

SERVQUAL model by Parasuraman et al., (1985) is used to measure the quality of the services. As per the SERVQUAL model, the service quality consists of five dimensions’ namely reliability, assurance, tangibles, empathy and responsiveness. Questions formulated for the delivery precision, quality and accountability are comparing the actual performance with either agreed schedule, scope of work or agreed scope. Meaning if the performance promise were kept or not. In table 2, reliability was defined as *“Doing what you have promised”*. Therefore, delivery precision, quality and accountability can be classified as per SERVQUAL model as reliability. The project governance question seems to be following under the dimension of responsiveness *“Willingness to help and provide prompt service”*. Cost awareness does not seem to be related to any dimension as it covers more of internal cost savings. Similarly, general question cannot be associated to any dimension. The overall questionnaire does not fulfil all the five dimensions of service quality as defined by SERVQUAL. This is summarized in figure 57.



Figure 57: RcSE Questionnaire and SERVQUAL

As per Maylor, 2010, the simplest indicators for any project can be made in terms of cost, quality and time. Looking from this point of view it seems that the questionnaire seems to adhere more towards project management than service quality where delivery precision relates to time, quality relates to quality, accountability can be both quality and cost, project governance relates to overall project management activities and cost awareness is related to cost again. This is summarized in figure 58.

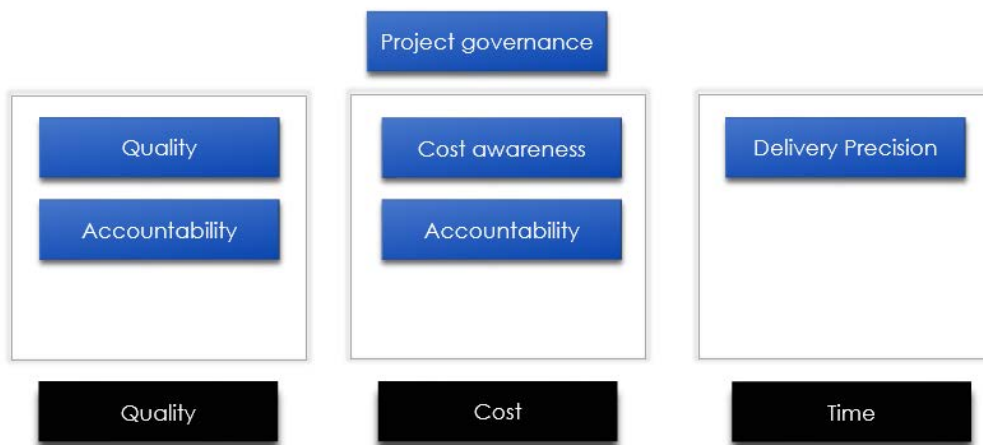


Figure 58: RcSE Questionnaire and Project management

However, in short the current version of the RcSE survey is neither capturing the right VoC nor its capturing all the dimensions for the quality of the service. One of the reason for this is that questionnaire has not been reviewed for a while and improvement suggestions in this regard are not considered nor implemented. Recommendation therefore is to review the questionnaire as this has not been done for a long time now. This activity should be carried out with support from internal customers. Once the questionnaire is updated, it should be tested on a small population before final release. Interviews with internal customer can also be helpful in order to understand if the questions are relevant, easy to understand and fulfill the requirements. These activities will also help to increase the number of touch points with internal customers. Lin & Jones (1997) also suggested that for an organization can develop more insight in the customer concern areas by involving them in the early phase of survey instrument design. As

seen from the benchmarking study both Hilton hotel and Chalmers University use multiple touch points to gather voice of the customer. Capturing voice of the customer through different customer communication like emails, text messages and chat transcripts should be considered as methods for capturing VoC (Subramaniam et al., 2009). One another way to capture more voice of the customer with surveys is to increase the response rate. Different suggestions in this regard will be discussed in the coming sections.

6.2 Survey preparation

6.2.1 Who is the customer?

As stated by Nigel & Piercy (1995) a good starting point for any organization should be to make everyone aware in the company who the customers really are. Similar a good starting point of any survey is to identify respondents or internal customers who would be responding to surveys. During the interviews it was found that at current point, initiators do not have a common database where they can extract the information regarding projects and respondents. As a result, during the data analysis two issues were highlighted firstly around 0.5% of the surveys were sent to wrong respondents and secondly it was observed that surveys were sent out to different positions like directors, managers & engineers. When it comes to firsthand information and project information managers and engineers would be the persons who have the holistic picture as compared to directors. So customers profiling is suggested to be done to understand who should receive the surveys and who should not.

6.2.2 Sampling

Different surveys have been discussed throughout the report. When it comes to response rate, internal surveys like CSAT (83%) and Dialog (95%) have much higher response rate as compared to RcSE survey (45%). Similarly, for external surveys, Hilton hotel (60%) has higher response rate while Chalmers University (45%) has around the same. From a sampling point of view, Dialog and Chalmers University surveys are sent to all the population while surveys like CSAT and Hilton hotel follow some sort of sampling plans. During the investigation no sampling plan was observed for the RcSE survey. Looking at the facts like increase in number of RcSE surveys sent out every year, multiple surveys received by respondents in one day and respondents providing duplicate comments and rating one should ask a question that how much it is important to collect voice of the customer from the entire customer base? May be strategy similar to CSAT where survey is sent to selected customers could be more effect. The only thing to keep in mind is that sample represents a good balance between happy, not so happy and unhappy customers. Meaning that the sample should represent the VoC of the entire population which the survey is constructed to measure. Sampling will also help in micromanaging the process as well.

6.2.3 RcSE tool

During data analysis it was noticed that the data extracted from RcSE tool has more outputs than inputs specified. Secondly it was also noticed that some of the surveys were generated even when the mandatory fields were not specified. In order to cope with such issues related to data quality, the RcSE tool must be made more robust. There is need to investigate further issues like negative lead time, initiation of surveys with missing mandatory field, duplicate timings

etc. Also the frequency of cleaning the redundant data like test surveys in the system needs to be defined. There can either be a separate log to register where these test should be logged or they should be initiated by using change requests. The cleaning activity have to be part of the roles and responsibilities of the system administrator.

6.2.4 Reminder

As discussed in section 4.1.1, for RcSE survey the reminder function needs to be manually activated. It was also noticed during the data analysis that reminder function cannot be used when using the mass upload function. The initiators also acknowledged that they have used reminder function. One can argue that since the response lead time is just 16 days so why sent a reminder. Valid comment, but on the other hand the overall response rate is 45%, which indicates that more than half of the surveys are not responded. Also around 80% of the respondents receive 1 – 4 surveys with response rate of around 48%, sending reminder can possible help in increasing the response rate especially for respondents receiving 1 – 4 surveys and especially to counter act the tendency that respondent due to high or some other urgent workload decides to take the survey at some other time and eventually forgets it. As per literature, reminders are another way to increase the response rate for the survey. Literature review conducted by Muñoz-Leiva et al., (2009) shows that reminders are an effective way to increase the response rate and the response rate increases significantly if the reminders send range between two to three. This seem to be consistent with number of reminders sent out by Chalmers University. However, in this case they are sent out automatically rather than manually as in the case with RcSE survey. The suggestion therefore is to replace the manual reminders with tool generated automatic reminders both for the tool initiated surveys and mass upload surveys.

6.2.5 Mass upload

As discussed in section 5.2, initiators are initiating multiple surveys in a day. Main reason was found out to be use of mass upload function. Most of the data quality related issues discussed during the data analysis phase were also traced back to mass upload function in addition to absence of reminder. The mass upload function seems to facilitate initiator in their work but on the other hand it creates more issues as well. Figure 59 shows the relationship between response rate for surveys generated by mass upload function and the ones generated by not using the mass upload function. Looking at all the mess that mass upload function is generating, recommendation is to stop the usage of the mass upload function.

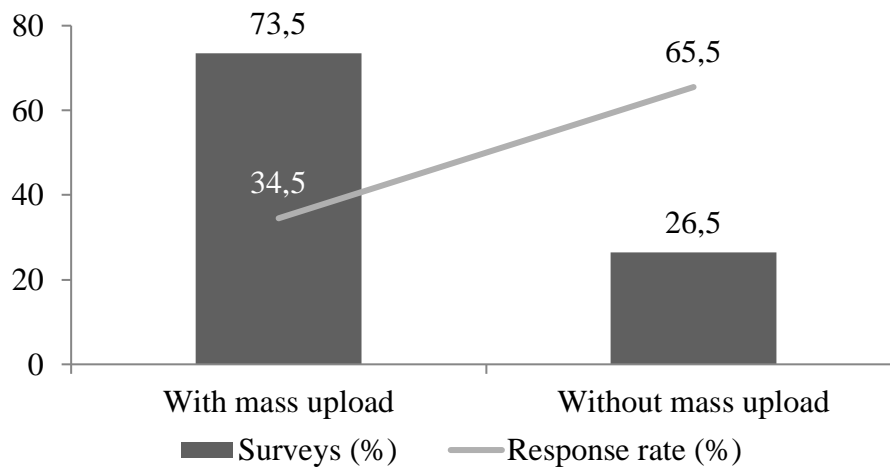


Figure 59: Comparison between mass uploaded surveys and others

Since mass upload also helps initiators there might be come resistance from their side in case mass upload function is stopped. This may initially result in decrease in number of surveys. It seems that there are other ways to tackle these issues as well if mass upload function cannot be deactivated. This involves making the template for mass upload function as a control and protected document so that no one can add additional values other than the ones that are specified and asking initiators to delete older version and informing them if some changes are made in future. The other way is to make the tool robust so that it does not register those surveys which have missing and/or additional input. This should anyhow be done to prevent registration of surveys with missing mandatory values. These suggestions however do not provide safeguard against respondents getting higher number of surveys per day which was highlighted as a de-motivational factor.

6.2.6 Initiator

More mature and large organizations generally are traditional functional organizations. The disadvantage of such organizations is the limited coordination and integration (Wheel & Clark, 1992; Maylor, 2010). Each department focusing on its goals and as a result of this internal focus the employees fail to understand the effect of the internal customer/supplier relationship (Macaulay & Cook, 1994). The coordination and integration is also effected by the geographical differences between the GSCs and regions. As stated in section 4.1, GSCs are located in Mexico, China, India and Romania while internal customers are distributed in nearly all corners of the world. This explains the behavior of initiators; they are just working in isolation without knowing the impact of their work on their internal customers. The other reason could be their lack of identifying respondents as their internal customers. Would any initiator be willing to send 100 surveys in one day to an external customer? There need to be some education to initiators on how their behavior is impacting internal customer and the internal customers need to be treated in a same way as external customers are expected to be treated.

6.2.7 Respondents

Receiving more than one survey at a given time was a big “No” according to respondent’s views during the interviews. Some of them even added that in such cases they won’t respond to even a single survey. It was earlier noticed in figure 32 that as soon as respondent received multiple

surveys the response rate dropped to zero. This response from respondent is also in line with the findings as discussed in Survey fatigue section 3.7. In fact, one can argue that in case of RcSE survey the fatigue could be higher as respondents need to fill out same survey over and over again thus taking away the fun part as well.

In section 5.3.2 it was highlighted that respondents while filling multiple surveys in one day were giving similar ratings on different surveys. This was acknowledged by some of the respondents during interviews while others denied it. This kind of behavior can be seen as a resistance or issue of trust since in most of the cases they don't receive feedback. They are therefore thinking that their feedback is not important so if they decide to give a feedback or same feedback on multiple surveys, it does not matter as it will eventually go into a black hole. This might also be the case that they think that the questionnaire is not useful from their point of view (Krosnick, 1991).

The difficulty in identifying which survey corresponds to which delivery was identified as the main reason for this behavior especially when receiving multiple surveys. This issue was also highlighted by interviewee from the QUAD team. The first part of the survey contains information such as project name, project number, type of delivery, status etc. In order to make it easier for the respondents to identify the deliveries, it is suggested to add the duration for which the survey is initiated to collect the feedback. Adding two more boxes "from" and "till" could serve the purpose.

6.2.8 Invitation email

From the benchmarked invitation email, it is concluded earlier that use of branding, richness of context, layout of the email and survey invitation link are some of the improvement areas. Although some of these issues are rectified in internal benchmark from GSC Mexico as shown in figure 7 but still some more focus should be given to the context. Since this is the initial point of contact with internal customer, it should be used to motivate the respondents. One of the advantages with current questionnaire of the RcSE survey is that it consists of only five questions and should take at the maximum 4 – 5 minutes to fill out the survey. This information should also be added in the invitation email. Muñoz-Leiva et al. (2009) have shown that personalization of the email can have a positive impact on the response rate.

6.2.9 Survey questionnaire

Just like survey invitation email, branding needs to be incorporated in the survey questionnaire as well. In addition to the branding it is also suggested to have a short introductory text at the start of the survey. The quality of the comments was one of the issues highlighted earlier. This introductory text can be used to address this issue. The introductory text at the start of survey being used by Chalmers University can be benchmarked in this regard. Similarly, for the improvement of comment quality, text should be added where comments are required. Also keeping comments as mandatory part of the survey is suggested to be reconsidered as this might drive the behavior of giving higher ratings to avoid giving comments. For the current version of the survey, the instruction related to rating comes at the end of the survey. This can either be made a part of the introductory text or moved to the start of the survey.

The rating of the survey was discussed with an expert and as per his advice there was no issue with them. His/her suggestion was not to include the 0 rating while calculating the average of the ratings which is already incorporated. The improvement suggestion here was to use average of individual questions rather than overall average of the survey as this will give more clear picture, see figure 20 for reference where the dashboard consists of average for individual questions. The description of the rating as done in QUAD is also a good example in this regard which can be copy pasted to more elaborate the ratings as shown in figure 13.

As soon as the respondent finishes the survey, the thank you screen as shown in figure 12 could be one of the improvements done in order to show appreciation towards respondent for taking out his/her time providing the feedback.

6.3 Data collection and analysis

6.3.1 Response rate

Different surveys have been discussed throughout the report. When it comes to response rate, internal surveys like CSAT (83%) and Dialog (95%) have much higher response rate as compared to RcSE survey (45%). Few of the reasons have already been shared in table 5. One of the other reasons could be lack of communication. Emphasize on communication has been seen in case of external benchmarks. Chalmers University is trying to develop a small video while Hilton hotel have TV screens in their elevators.

Communication has to be top down and the exercise needs to be conducted on a defined frequency. This strategy will also help to improve the perception of top management commitment. Suggestion in this regard would be to prepare a communication plan; the messages should be consistent and come from either top management in GSC or region. The main purpose is to motivate respondents and help in getting constructive feedback. Like Hilton hotel the messages should be displayed in the different areas to remind the respondents how important their feedback is. Different mediums like emails, video messages or flyers could be used. This communication can also be used to improve the quality of the comments as well. Providing examples of what are good and not good comments as shown in table 7 could be an example to drive the behavior.

6.3.2 Data quality

Issues with data accuracy, data completeness and data consistency have been identified during the data analysis. These issues may result in traceability and redundant data (Smith & MCKeen, 2008; Miska et al., 2014 as cited in Silvola et al., 2016). Apart from these the duplicate rating and duplicate comments are also considered to be contributing to data quality. The main culprit for data quality was noticed to be mass upload function and inability of the RcSE tool to reject wrong inputs. Some of the suggestions in this regard have already been discussed. While benchmarking with Chalmers University it was highlighted by the interviewee that surveys are generated automatically so most of the data quality issues seen in the RcSE survey are non-existence. During the research work some discussion was done with different people in Ericsson especially from DTRA team to find an input which can be used to trigger an automatic survey once the delivery is completed but unfortunately no such input was found which could serve the purpose. However, it is recommended to make the survey generation process automatic.

This step will act as a kaizen for data quality related issues generated due to mass upload function, sending multiple surveys to respondents and issues related to periodicity of survey.

6.4 Feedback and implementation phase

Both the literature from the VoC and customer satisfaction confirms that data collection is not the difficult part. The difficult part is to make use of the data by transferring it to the right person which can analyze it, prepare actions and then share with the rest of the organization (Denove & Power, 2006; Goodman et al., 1996). This loop however is missing in case of RcSE survey process. The data is collected and is stored in the RcSE tool. Some evidences were collected where this data is being utilized for analysis and used for improvement activities. However, the visibility if the actions were completed or not is limited. CSAT uses OPAL tool for registering the actions. Improvement tracker or OPAL can be used for registering the actions and thus follow up can be easily done if the actions have been completed or not. Goodman et al., (1996) also emphasis on the use of tracking tool for visibility of the actions.

Receiving the feedback on the surveys and visibility for the respondents on actions was two of the most important motivational factor highlighted during the interviews with the respondents. One of the reason is the lack of responsibilities i.e. “Who should be responsible for viewing the feedback and further generating actions for responsible persons?”

6.5 RcSE process

Some of the issues discussed in different for example usage of RcSE survey by different GSCs, frequency of the survey and development of internal practices/tools. All of these issues seem to arise due to lack of a standardized process for RcSE survey which also results in no feedback or improvement actions being delivered from the feedback collected from the internal customers.

The practice of developing internal practices/tools should be discouraged. Having said that it does not mean that regions or GSCs should not work towards process improvement, in fact that energy should focus on improving the RcSE process/tool and not developing local processes. Clarity in roles and responsibilities will help to eliminate such practices. The improvement tracker and reports in QUAD can be used as an internal benchmark for the RcSE tool. Some of the aspects of the QUAD are captured in this thesis. However, an evaluation needs to be done between RcSE and QUAD to understand if RcSE is the way forward or can it be replaced by QUAD.

6.5.1 Standardized process proposal

Bergman & Klefsjö, (2010) have defined three roles when it comes to process management. These roles are process owner, process manager and competency supplier. As GSC are responsible for initiating the RcSE survey, the process owner should therefore be from the GSC. In Ericssons' term, process managers are called as process drivers which help process owners to make sure that process is running smoothly. The competency supplier as described by Bergman & Klefsjö (2010) are the departmental managers who are supplying the respective competencies. There is one more responsibility that was defined as “Responsible”, which is an individual who is responsible for the closure of the actions.

During the external benchmarking some learning were recorded

- Governance meeting – Monthly as seen in the case of Toyota and other companies
- Periodicity – Already developed by GSC Mexico
- Tool for visualization - Improvement tracker & QUAD

The overall proposed process map is shown in figure 60. The process starts with an initiator initiating a survey from RcSE tool either by using the mass upload function or by entering the values manually. As soon as the survey is initiated, respondent receives a survey invitation email. Proposed change at this point is to add two automatic reminders and closing the survey after three weeks (15 working days). Once the response is registered it is recorded in the tool. These responses can be used to generate different reports. Reports generated in QUAD can be benchmarked.

In order to make sure that actions are registered against the feedback provided, a governance system needs to be in place. The competence supplier (GSC) should be responsible for looking into the feedback, prioritizing issues and preparing actions to eradicate the issues. RcSE tool should be able to generate customized reports for this purpose. The proposal is to have a report which shows graphical representation of average of each individual question followed by comments given against the specific question. The tool should also be able to identify/tag negative comments. A monthly meeting between the process owner/process driver and competency supplier (GSC) should take place where the responsible (GSC) should present their finding, suggested action and follow ups. Standardized templates should be prepared for these meeting. After these meetings process owner/process driver should summarize these finding and share it with management team of GSC and Regions. Any feedback from management team should be shared with competency supplier (GSC).

The action as a result of survey feedbacks, governance meetings or feedback from management team should be registered in the RcSE tool. Improvement tracker can be copy pasted in this case. As soon as an action is registered in the system, responsible should be notified by using an email. Respective respondent should also be notified that an action on his/her feedback is registered in the system. Two reminders should be configured in the system; first one before the deadline and the other after the deadline has passed. Upon completion of the action, an email should notify the person who has entered the action and the corresponding respondent who has provided the feedback that the action has been completed.

Figure 61 shows the overall governance system in case some improvements need to be incorporated in the system. Minor improvements such as copy pasting best practices from other surveys or additional reports should be taken care of by process owners/process driver. They should be meeting quarterly while the major improvements like review of questionnaire, addition or deletion of question should be done by the Steering committee. Steering committee should have one or two representatives from process owners group as well. All of these improvements should be logged through change request and feedback from one group should be shared with others. The purpose of this governance system is to make sure that decision on improvement actions are taken quickly and survey questions are reviewed on timely basis.

There could be two possible improvements to above proposed process. The first one as shown in appendix F represents the use of app similar to the one as being used by Hilton hotel can be used to visualize the results. In addition, appendix G shows the process if the survey initiation process is made automatic. Note that in this case one of the stakeholders; initiator is completely eliminated from the system. It is also recommended that a pilot project in one of the regions should be carried out before the expansion of the idea to whole regions. This will help in understanding any complication during the process and identifying new improvements.

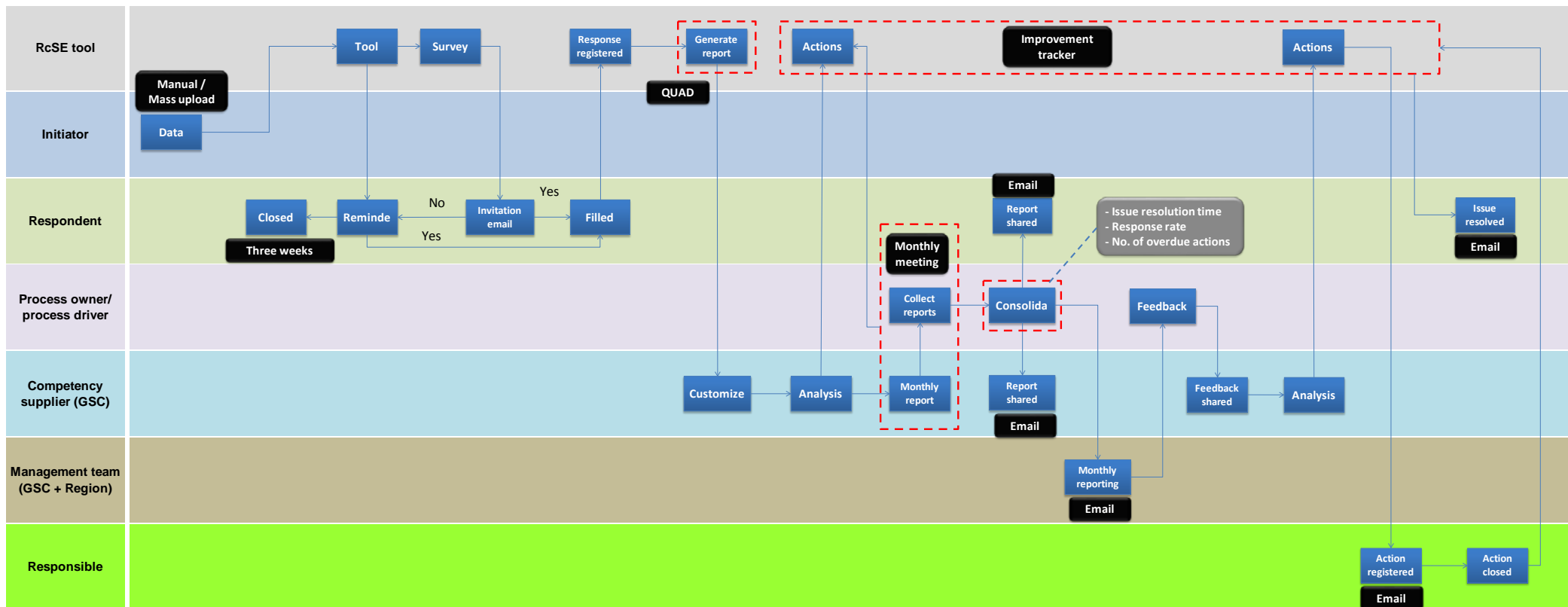


Figure 60: Proposed process map

7. Conclusion

This section provides an analysis based on the empirical findings. The analysis is in parallel strengthened by the theories provided in section 3.

RQ1: How can the RcSE survey questionnaire support the identification of the right voice of the internal customers?

Surveys are one of the most common means of capturing the voice of both external and internal customers. Ericsson uses different kind of surveys for both capturing the voice of the customer and customer satisfaction level. For internal customers, one of such survey is called RcSE survey. Unlike other surveys, the questionnaire for the RcSE survey has not been updated since its introduction in 2013. Different improvement actions suggested in past few years have also been pending. However now more focus is being given to the survey and some improvements in rating and definition of the rating have been introduced. During the interviews different voices of the customers suggested that some of the questions were either too broad or were irrelevant. The comparison done with SERVQUAL also confirms the hypothesis that the current questionnaire does not capture all the dimensions of the service quality and is also unable to capture the right voice of the customer. Therefore, there is a need to update the questionnaire for capturing the right information and this activity should be considered by involving the internal customers and new questionnaire should be developed with consent of the customers.

RQ2: How is the quality of the data collected through surveys?

Some interesting behavioral aspects were captured while analyzing the survey data. It was found that by using the mass upload function, initiators are bombarding respondents with surveys and as noticed respondents get as high as 100 surveys per day. As a result, respondents fill out multiple surveys while giving same comments or ratings, which adds biasness to the survey data. The overall response rate calculated at the start of the thesis was dropped from 45% to 38% due to biased data. Quality of the comments received was also highlighted as a data quality issue. Comments like ok/not ok, satisfied/not satisfied were identified in the data base. These comments do not add any values to the improvement process as no information can be extracted from them. The data quality was analyzed with respect to consistency, accuracy and completeness. Quality issues related to all these dimensions were captured. Registering more output variables as compared to specified inputs, initiation of surveys with missing mandatory data and use of fake values were some of the data quality related issues highlighted. Most of the issues were linked back to either use of the mass upload function or lack of robustness of tool. The situation can be defined in one phrase as “Garbage in garbage out”.

RQ3: How can the data collected through survey be used to identify and prioritize the voice of the customer?

The feedback on the surveys was one of the biggest voice captured. Literature also emphasizes on the importance of feedback and visibility of actions. It was found in the early stage of the thesis that RcSE survey does not have a defined survey process. Process owners, periodicity, governance system, feedback to customers and visualization of results were some of the

learning collected through external benchmarking. Improvement tracker, QUAD and improvement proposal for invitation email and questionnaire were found during the interviews as internal benchmarks. These learnings along with some of the findings from the literature were used to define a proposal for the RcSE survey process.

8. Future research

Survey fatigue is one of the area which was observed during the thesis. Not much research was found during the literature reviews. The literature found also tend to focus on this topic by referring to surveys coming from different sources at the same timeframe. The further research should focus on the impact of the nonresponse corresponding to receiving one survey multiple times over a span of time.

When it comes to voice of customer, literature talks mostly about the traditional ways such as surveys, focus groups, interviews, observations etc. Modern techniques as use of smart phone and smart phone application seem to be lacking at this point of time.

Literature defines surveys, focus groups and interviews as passive method of collecting data as they focus on the past experience or memory of the customers. How Ericsson can make use of methods like lead user and customer co-creation for their internal customers can be something to look further into.

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Appendix A

First round interview

What is your function at Ericsson?

What is your responsibility for the RcSE survey?

What is your opinion about the RcSE? Any improvement suggestions?

Does your team receive or send out the RcSE survey?

Does your team fill out other survey besides RcSE?

How do you see these surveys compared to the RcSE survey?

Do you get any feedback from your customers regarding the survey?

What would be your/your team reaction if the RcSE survey is discontinued?

What sort of KPIs or individual objectives do you have from the RcSE survey?

How often do you send out the RcSE survey?

How do you follow up the questions?

How high is your response rate?

Do your teammates use the reminder function?

Do you recommend any other member of your team who could be interviewed?

Appendix B

Second round interview

What is your role at Ericsson?

What is your role when it comes to the RcSE tool?

Are you satisfied with the RcSE survey and its process?

What should be included and excluded from the RcSE survey?

What is your and your team members' opinion about the RcSE survey questionnaire? Any improvement suggestions?

Do you get any feedback back after you have filled out the survey?

What motivates you to fill out the survey?

What do you think are the demotivating factors in filling out the survey?

What would be your/your team reaction if the RcSE survey is discontinued?

How often do you get reminders for filling out the survey?

How often do you fill out the RcSE surveys?

How often do you receive a RcSE survey?

Are you happy with the amount of surveys that you are currently receiving?

Do you receive RcSE surveys from all regions or from specific ones?

How often do you receive multiple surveys in one day?

- *If yes, have you ever had contact with your initiator?*

What are your overall perceptions on the deliverables?

Do you have any suggestions for alternative methods?

Appendix C – Invitation emails

SGS studentbostäder (Paulsson, 2016)

Vad tycker du om SGS Studentbostäder? Vinn en hyresfri månad!

Det är mycket viktigt för SGS att ha nöjda hyresgäster. Dina åsikter är en förutsättning för att vi ska få rätt uppfattning om vad du tycker om oss och vi skulle därför bli mycket glada om du besvarade denna enkät. CMA Research AB har fått uppdraget att genomföra denna undersökning. Dina svar behandlas anonymt, d.v.s. ingen utanför CMA kommer att få ta del av svaren annat än i sammanställd form! SGS delar ut en hyresfri månad och 100 biobiljetter bland de svarande (första pris: en hyresfri månad, andra till femtioförsta pris: två st biobiljetter).

Använd nedanstående länk / Link to survey:

<https://response.easyresearch.se/s.asp?id=198244401&Pwd=299413CA>

What is your opinion about SGS Studentbostäder? Win a month's free rent!

Satisfied tenants are of great importance to SGS. Your view is necessary in order to give us the correct understanding of what you think of us and we would therefore be very grateful if you could answer this questionnaire. CMA Research AB has been commissioned to carry out the study. Your answers are anonymous, i.e. no person outside of CMA will take part of the answers other than in a compiled version! A contest with one month's free rent and a total of 100 cinema tickets as prizes will be arranged among the respondents (one month's free rent as first prize, two cinema tickets each as second to fifty-first prize).

Vi vill framföra vårt tack på förhand för Din medverkan!

We would like to thank you in advance for participating in this study!

Anders Johansson, CMA

E-post: anders.johansson@cmaresearch.se

Magnus Paulsson

VD, SGS Studentbostäder

Chalmers University (The Programme Board, 2016)

You have not yet filled out this course survey. Your feedback is very important in order for us to get a fair impression of the course when developing it for next year. We therefore urge you to fill out the survey as soon as possible.

Dear student,

below you will find the link to the course survey for IB8135 Project management 2015/2016 LP2-LP2. The course survey is used at the evaluation meeting, where the teachers, student representatives and the programme board discuss how the course has worked.

If you write comments please do mention what has worked well with in the course, and provide constructive feedback if you feel that something has worked less well. Offensive comments are not constructive and will be removed from the survey.

Below you will find your personal link to the survey:

<https://course-eval.portal.chalmers.se/sr/Survey/3009/en?un=GYzCC2XN&pw=bnryseUxx>

The last date for filling out the survey is 1/31/2016. On the following day you can find the result of the survey without comments in the [Student portal](#). Once the evaluation meeting has been held, a link to the minutes of the meeting will be published in the survey.


If you have questions regarding the survey or if something does not work as intended, you may contact the Director of Studies of the programme giving the course. You can find who that is at [this link](#).

Sincerely,


The Programme Board

Please note that you can not reply to this e-mail.

American Society for Quality (ASQ)



A STEM teaching career, would you recommend one?



ASQ WEEKLY
News for Members
March 2, 2016

Dear Moeen Ud Din,


As someone in education, we want to know your thoughts on STEM Education (science, technology, engineering and math), and encouraging young minds to pursue teaching. ASQ is exploring this topic among teachers in advance of National Engineers Week, February 21-27.

Your thoughts are valuable. If you have already completed the [survey](#), thank you. If you have not, please accept our invitation to do so. All responses will be held in strict confidence and all data will be used for tabulation purposes only.

Thank you for sharing your thoughts on education and STEM.

[Take the Survey!](#)

Sincerely,
Your Communications Team



ASQ Weekly Survey: Tell Us How We Are Doing

Please take a few minutes to complete the ASQ Weekly survey. Rate our performance and suggest new content. Help us make ASQ Weekly better for you. [Take the survey.](#)

[Like](#) [Tweet](#)

ASQ weekly (2016)

ASQ communications (2016)

Appendix D – Chalmers university questionnaire (source: Director of studies, responsible for Chalmers course evaluation process)

CHALMERS

Course survey SJ0740 Marine propulsion systems

The only question which is mandatory to answer is the question about your overall impression of the course, but we would appreciate if you could answer all the questions.

If you write comments, we encourage you to write them in a constructive manner (if you write that something has worked well or less well, also state why), so that we can use them to develop the course before the next round. Your comments are anonymous and cannot be linked to you.

This questionnaire begins with a set of questions which are the same for all courses at Chalmers and for GU courses organised by Chalmers. If a person responsible for the course has chosen to add their own questions to the questionnaire, you will find these after the general questions.

If you write comments, please keep them factual and constructive. Offensive comments will be removed.

I am...

Which programme do you attend?

1. Prerequisites

	1 - Disagree completely	2	3	4	5 - Agree completely
I had enough knowledge to be able to follow the course	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

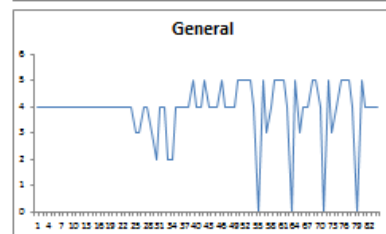
Comments (Did the course start at an adequate level? Was it assumed that you had knowledge which you could not get from your previous studies? etc.):

2. Intended learning outcome

	1 - Disagree completely	2	3	4	5 - Agree completely
The intended learning outcome (see course plan) clearly describes what I am expected to learn in the course	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

Comments (Should some learning outcome be clarified? In what way? Do the learning outcomes seem relevant? etc.):

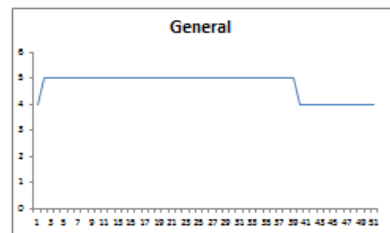
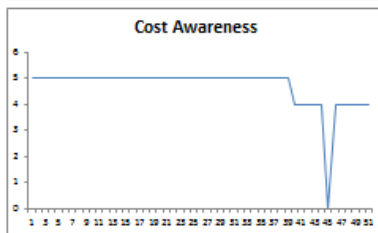
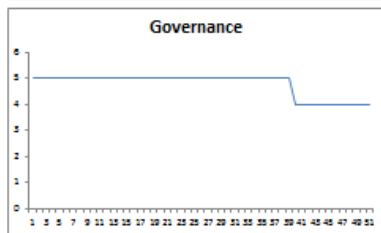
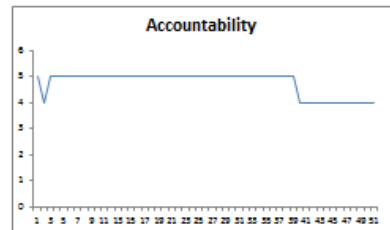
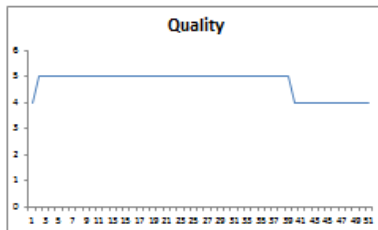
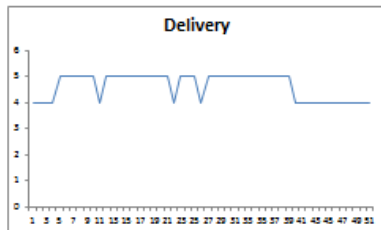
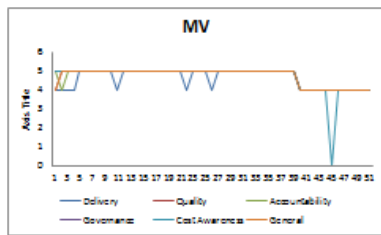
CL



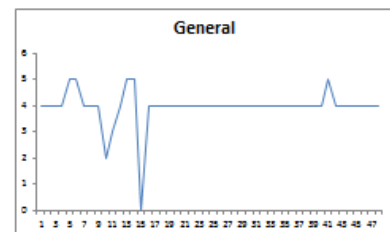
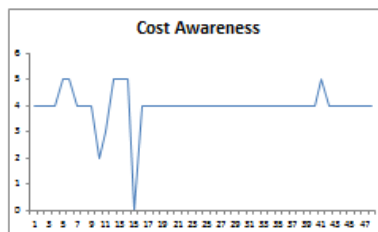
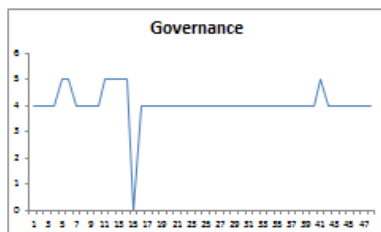
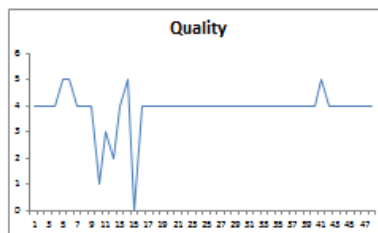
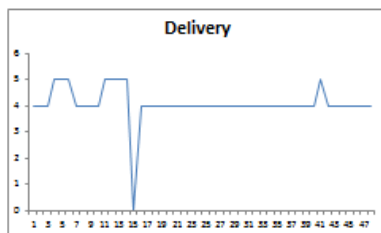
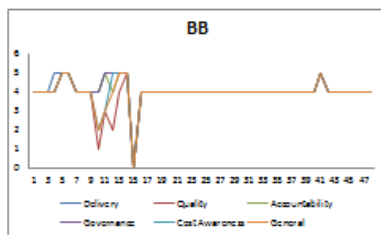
The 'General' line graph shows the number of cases over 65 days. The y-axis represents the number of cases, ranging from 0 to 6. The x-axis represents time in days, from 0 to 65. The data is as follows:

Day	Cases
0	4
1	4
2	4
3	4
4	4
5	4
6	4
7	4
8	4
9	4
10	4
11	4
12	4
13	4
14	4
15	4
16	4
17	2
18	2
19	2
20	2
21	2
22	2
23	2
24	2
25	2
26	2
27	2
28	2
29	2
30	2
31	2
32	3
33	3
34	2
35	3
36	4
37	3
38	4
39	5
40	3
41	3
42	4
43	4
44	3
45	4
46	5
47	3
48	3
49	3
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55	4
56	5
57	3
58	3
59	4
60	3
61	4

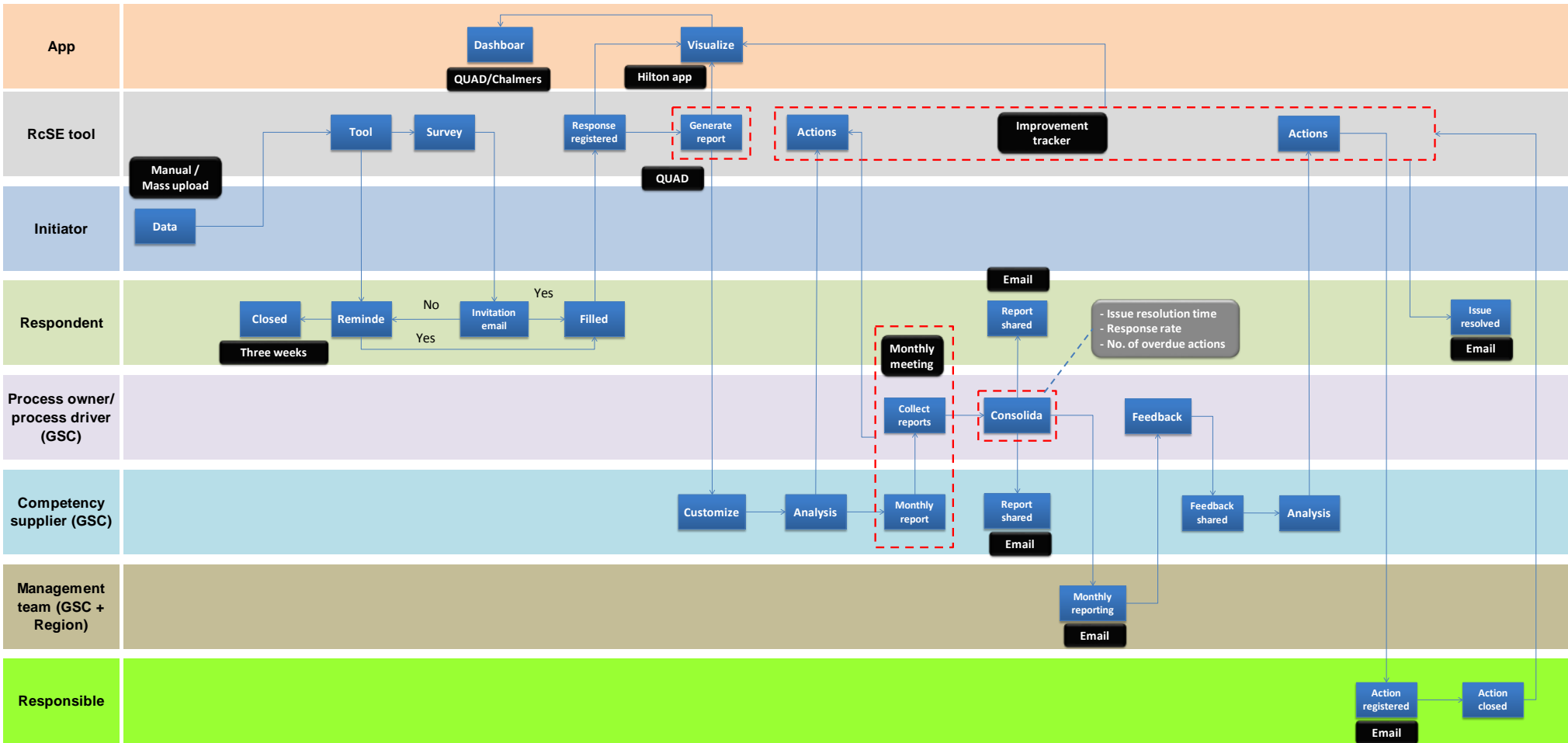
MV



BB



Appendix F - RcSE proposed process with app



Appendix G - RcSE proposed process with automatic survey initiation

