

# **Requirements for Developing the Reporting of the Ticketing System**

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<p>This thesis is made for a company providing IT services and support to their clients. The center of the customer service functions is the ticketing system through which the service requests are managed. At present, however, there is a need for further efficiency, planning and resource allocation due to the growing number of clients and service requests (tickets).</p> <p>The main objective of the thesis was to find out how the current ticketing system should be developed in order to get more relevant data out of the system for the company management to plan the resources and business processes. Another goal was to find options for the ticketing system from third party software that would offer the desired features.</p> <p>The theoretical background of the thesis lies in the best practices for IT services in the IT Infrastructure Library framework (ITIL). As a method for mapping out the problems in the current system, a survey among the company management was conducted.</p> <p>Based on these findings, two third party options offering the desired features were represented. In addition, the survey indicated that the system holds a lot of information that, however, is not easily formed into a report. The main deficiency is the lack of statistical information of the received, critical, processed and solved tickets.</p> <p>As a conclusion, an action plan is presented and the thesis will work as a guide for the development of the reporting of the ticketing system.</p>	
<b>Keywords</b> ticketing system, customer service, ITIL, customer service management	

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# **Terms**

## **CRM**

Customer relationship management is a software for managing company's interactions with customers. It includes using tools to organize, automate and synchronize sales and marketing.

## **ITIL**

Information Technology Infrastructure Library is a collection of best practices to the delivery of quality IT services. It is a detailed description of the important processes in an IT organization.

## **Power Pivot**

PowerPivot is an add-in to Excel 2010 that offers data analytics tools.

## **Resource**

Means IT infrastructure, people, money or anything else that helps delivering IT services.

## **Service**

Something that produces value to the customers.

## **Service Level Agreement (SLA)**

A service-level agreement is an agreement between the customer and the service provider where the service is formally defined.

## **SharePoint**

Microsoft SharePoint is a web application platform. SharePoint is mainly associated with content management, document management and for creating organizational intranets.

## **Ticketing System**

A support system used by customer service to receive, store and manage tickets.

## **Ticket**

A support request that has a unique ID and is received as an email from a customer. Is stored and managed in the ticketing system to be handled by customer service.

## **Wiki Page**

A page in intranet to share information, tips and guides with colleagues.

## **Workspace**

An intranet site for working with team members and sharing information and documents.

# 1 Introduction

The request for this thesis came from the Customer Service Manager of the company where I have worked for one year in customer service. The company is growing and the need for serving customers better has been increasing at the same time as the amount of service request has increased. Due to growing demand for better services and more efficient work, the company management has a need for planning and allocating resources, work and task load. Relevant and up-to-date data and analytics are needed in order to evaluate and plan processes.

This thesis has two parts; the first goal is to find out how the current ticketing system should be developed in order to get more relevant data out of the system for the company management to plan resources and the business processes. The second part consists of representing two third party options that would possibly offer the desired features established in the first part.

To reach the main objective I will look into the theory of best practices for IT services in the IT Infrastructure Library (ITIL) framework. The thesis will result into an action plan that can be used when deciding of the development of the current system either with SharePoint or by choosing a customizable third party ticketing software.

## **2 Research Background**

The orderer of this thesis is a Finnish company founded in 2002 employing 21 people. Company's main business area is building data management solutions for customers i.e. building intranets and extranets to customer companies. The company has a large group of customers, thus, one of the important functions is customer service.

### **2.1 Current ticketing system**

In the company the ticketing system is the center of the functions of the customer service and it is built on top of the company's intranet on SharePoint 2010 platform. The ticketing system is used for collecting and handling the support requests, generally called as tickets. Customers send a support request by email to the customer service and the message comes to the ticketing system as a ticket with a unique ID. The customer service agents receive, handle and manage the ticket, and close it after the issue has been resolved.

The current ticketing system has been in use in the company for five years. During this time the company has been growing rapidly and there is more customers and incoming tickets than before. The current ticketing system has many problems related to delivering useful data for the use of the management of the company. There is a growing pressure in developing the systems so that resources can be better divided in the areas needed. Additionally, in the growing IT market the competition is increasing, thus it is important to develop the customer service. This can be done better and more effectively if the ticketing system is developed in a way that the company management can get more accurate data out of the system in form of reports and statistics.

The ticketing system is built on Microsoft SharePoint 2010 which is a business collaboration platform. SharePoint is mainly associated with intranet, content management and document management as it offers tools for managing and sharing information, automating business processes, collaboration and interaction with colleagues. (Bates & Smith 2010, 1.) SharePoint is the dominant software for creating organizational intranets and according to a recent survey SharePoint holds 50% of all intranets (The Worldwide Intranet Challenge 2013). It has a similar interface as Microsoft Office and

is closely integrated with the Office suite. The web tools are designed to be usable by non-technical users. (Wikipedia 2013a). The latest iteration of SharePoint is SharePoint 2013 with many new more powerful and easily customizable features.

## **2.2 Other research**

The importance of ITIL can be seen in the amount of thesis done related to it. At least three other theses have been made from different points of view of how to implement an ITIL compliant configuration for a certain company with a specific tool.

The topic has also been approached from the point of view of the customers and how the quality can be assured with working with IT service management.

My research will focus on the reporting and statistics approach of IT service management in a ticketing system. The company in question is satisfied with their ticketing system in relation to carrying out every day tasks and processes. However, the lack of the system comes from the point of view of key metrics data and statistics.

## **2.3 Objectives**

The first part of the thesis will handle how the current ticketing system should be developed in order to get more relevant data out of the system for the company management to plan resources and the business processes. The objective is to find out the exact issues of the ticketing system that need to be solved to enhance the data collection, reports and statistics of the system. The second part consists of representing two third party options that would possibly offer the desired features established in the first part.

To reach the main objective I will look into the theory of best practices for IT services in the IT Infrastructure Library (ITIL) framework. In the conclusions section an action plan is made for the development of the ticketing system.

The scope of this thesis holds an overall description and the presentation of the system deliverables accessible to the management at the moment. It covers what should be the



outcome after the developing of the system i.e. what kind of information should be able to be pulled out and what ready made systems there are for the ticketing and customer service management. Thus, the technical implementation of the ticketing system and how the system should be coded are not discussed.

## **2.4 Methods and research questions**

The main methods used in this thesis is qualitative methods and comparative analysis. As a method of mapping out the needs of the company, open questionnaires have been given to the Customer Service Manager and the CEO. Method of questionnaires sent by email was chosen because of the limited time period for the research and because it is an easy and convenient way for the respondents. (Walliman 2011, 97). Through these questionnaires important information and aspects can be gathered from point of view of business processes, efficiency, resourcing and profitability. In the second part of the thesis comparative analysis will be used to present potential third party software to reach the goals of the thesis.

The results of this thesis will present answers to the following research questions:

- What kind of data is currently retrievable in form of reports and statistics from the ticketing system?
- For what kind of data is there a demand from point of view of customer service and business processes?
- What is the best solution for the ticketing system, what options are there?

### **3 Theoretical background**

The theory background for this thesis is a globally used collection of best practices, called the IT Infrastructure Library, to the delivery of quality IT services (Rouse, M. 2006). It is an extensive and elaborated guide for designing, developing and implementing quality IT services. Nowadays ITIL is not just a set of books for a theoretical framework, but it is an approach and philosophy that is constantly been further developed by different parties of the IT service and technology. (Van Bon et al. 2007, 9-10.)

The history of ITIL lies in the UK in the 1980s when the government instructed the CCTA (Central Computer and Telecommunications Agency, now the Office of Government Commerce, OGC) to develop an independent standard for an efficient and effective delivery of IT services. As a result ITIL was developed and published. (Van Bon et al. 2007, 9.)

To succeed with ITIL it is important to understand that you cannot adopt or implement ITIL because it is not a specification. It rather provides a roadmap with the opportunity to improve IT service quality, reach business and IT alignment, increase IT efficiency and reduce IT costs. ITIL can help with establishing processes and provides a method for planning common processes, roles and activities and how they should communicate with each other. (Hank 2006, 49-52; Brewster, Griffiths, Lawes, Sansbury 2010, 7.)

For IT service management practices to take form in a company, expertise inside the company is necessary and recommended. This is possible by completing courses through which you can obtain ITIL Foundation certifications that are regulated by the ITIL Certification Management Board (ICMB). (Rouse, M. 2006.) Other than having expertise of ITIL for the managers, it is of high importance to gain IT staff commitment and to involve them in every step of the process from beginning until the establishment. The IT staff members are of key importance because they are the people who eventually manage the projects and perform the processes. (Hank 2006, 49-52.)

ITIL describes the things that should be taken into account when designing processes. It is a continuous way of operating IT and does not end with one project. The benefits come from following ITIL guidance, focusing on determining and doing the right things in the right order with the business goals in mind. (Hank 2006, 49-52.)

### 3.1 ITIL: The Service Lifecycle

The present updated version of ITIL called version 3, approaches service management from the lifecycle of a service. The Service Lifecycle consists of five phases (figure 1) which are service strategy, service design, service transition, service operation and continual service improvement. (Van Bon et al. 2007, 19.)

Service Strategy is the axis of the Service Lifecycle (figure 1) that runs all other phases. It is the phase of objectives, understanding how the services can meet customers' needs and what resources are required. The phases service design, service transition and service operation implement this strategy. Adjustment and change is present at all times. The continual service improvement phase is about learning and improving and also present at all phases. This phase initiates improvement programs and projects, and prioritizes them based on the strategic objectives of the company. (Arraj 2013, 3; Van Bon et al. 2007, 19.)

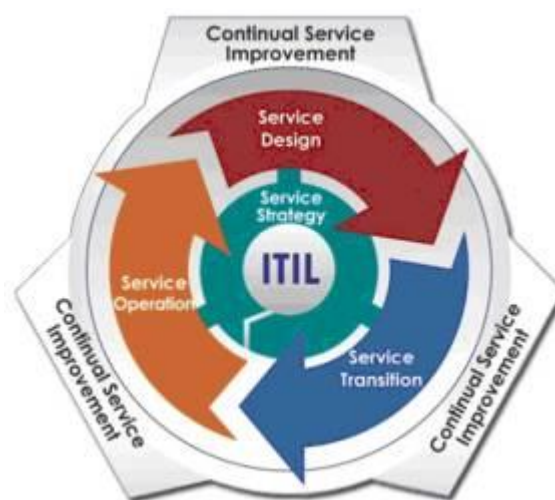


Figure 1. The ITIL Life Cycle. (Anderson, B. 2009.)

### **Service strategy**

The first phase is about evaluating the company's business and pointing out what it needs and what is the cost-effective way of serving it (Greiner 2007, 10). It guides planning and implementing service management from a strategic point of view. The goal is to map out the competition, to know own strengths and listing feasible performance aspects. The company should determine at least what kind of services they should offer and the target group, how to stand out from the competition, how to allocate resources and how to grow its value. (Arraj 2013, 3; Van Bon et al. 2007, 21-24.)

### **Service design**

Service design is the next step in the Service Lifecycle after Service strategy. Here the strategies are turned into designs while keeping the business objectives in mind. Decisions are made about the services that will be offered and how to deliver them, what infrastructure is needed and how to ensure business continuity. (Greiner 2007, 10.)

This can be used both to new services as well as modifying current services. The most important objective of Service design phase is the design of new or modified services for production environment. (Arraj 2013, 4; Van Bon et al. 2007, 69.)

### **Service transition**

Service transition is the phase in which new systems and services are put into production or existing systems are improved (Greiner 2007, 10). The goal is to support the change, to reduce variations and errors in the new or changed service and to ensure that the service meets the requirements. (Van Bon et al. 2007, 93.) In the words of Van Bon et al. "A Service Transition is effective and efficient if the transition delivers what the business requested within the limitations in terms of money and other necessary means." (Arraj 2013, 4; Van Bon et al. 2007, 94.)

### **Service operation**

Service operation phase provides guidance for day-to-day operations (Hank 2006, 49-52). The daily processes of a company should be well organized and the measuring and data gathering should be done systematically. In this phase certain activities are required to provide and support services. These are the services, the service management processes, the technology and the people. (Van Bon et al. 2007, 109.)

To optimize the Service operation performance there is a need for a long-term incremental improvement. All long-term Service operation processes, functions and output should be reviewed. This means for example taking new tools into use or changing the design process. Additionally short-term improvement of existing situations, functions and technology must be evaluated. These include small changes that are implemented to change the fundamental significance of a process or technology. This might include fine tuning, training or staff transfer. (Van Bon et al. 2007, 109.)

### **Continual Service Improvement (CSI)**

There is a continuing need for improvement in the IT services to compete in the business field. CSI focuses on the activities and processes to improve the quality of services in a series of planned and controlled actions. In this cycle there is a confirmation phase for each improvement. There is a repeating pattern of improvement efforts with varying levels of intensity, instead of a single continuing improvement effort which is always on the same level. (Van Bon et al. 2007, 139; Brewster et al. 2010, 7.)

It is important to evaluate and analyze which services are profitable and which services could do better. The goal of CSI is to reach better the business requirements by continual improvement of the efficiency of IT services. One way to increase the effectiveness is reducing errors in a process. In addition, this can be done by automating manual processes or removing less necessary activities. There should be activities that will increase the quality, efficiency, effectiveness and customer satisfaction of the services and the IT Service Management processes. Cost effectivity in services should be done without harming customer satisfaction and using appropriate quality management methods. (Van Bon et al. 2007, 140.)

## **3.2 Data and information management**

It is important to consider data in terms of control to develop, deliver and support effective IT services. Successful data management ensures that users have access to the information that they need for their work, information is shared in the organization,

and the quality of the information is maintained at certain level. Also legal aspects of privacy, security and confidentiality have to be taken into account. ITIL recommends looking into data management from the point of view that what data there is and how is it classified. Another factor is what data should be collected through the business processes. (Van Bon et al. 2007, 91.)

Data should also be valued by certain aspects like its availability. Some business processes would not be possible if a certain data were not available. This would also cost a lot to the organization. Another way of assessing cost is the cost of replacing data that has been lost or destroyed. Assessment on how data are created, its availability and archiving it should also be made. (Van Bon et al. 2007, 91.)

### **3.3 Required factors in an ITIL process**

When completing service improvement with an ITIL process, certain factors are required. Roles should be defined, thus there should be for example the manager, implementer and an auditor. Also authorities for performing activities should be set. Responsibilities should be given according to roles, which means also considering the outputs and compliance to requirements. Activities should be set to meet responsibilities. In addition procedures should be agreed that is, documentation of the activities for operating, planning, reporting, metrics and maintenance. The process workflow responsibilities should be described in as much detail that the staff can follow. The main focus is that a process framework is established without consuming too much time for perfect workflows and procedures. Elements of existing workflows, processes and procedures should be utilized while adding new activities to existing processes. (Hank 2006, 49-52.)

## **4 State of the current ticketing system**

The main objective of this thesis is to find out what needs to be developed in the ticketing system to enhance the data collection, reports and statistics of the system. To reach this goal I sent open questionnaires (attachment 1) by email to the operative management of the company i.e. the Customer Service Manager and the CEO. These questionnaires were conducted in the beginning of November 2013.

The questionnaire answers provided me with indepth information and analysis on the current state of the ticketing system and about the future development, both from customer service and business process point of view.

### **4.1 Reports and statistics available at the moment**

At the moment the ticketing system has accurate data on the basic information of a single ticket and the overall situation of all tickets in certain point of time. The fields linked to a single ticket that are relevant information in an overall perspective are status, customer, contact person, creation time, closing time and assigned to person. However, all of this data isn't easily formed into a report. This will be discussed in more detail later.

The management mainly follows the sum of the received and unsolved tickets in monthly bases and the accumulation of the hours used in service operations. The hour data is gathered from another system. This data is easily accessible and always up to date.

### **4.2 Data demand from business processes point of view**

The data that is collected is sufficient but there is also some important information missing. Current data is mainly used to control resources inside the company in long term (recruiting and planning) and short term (weekly resourcing). The biggest problem in the current ticketing system is the lack of history information like durations of each status (for example "In process", "Waiting on someone else" and "Not started") of a single ticket. This information is also needed in reports and meetings with clients

who have SLA (Service Level Agreement). SLAs also demand that based on the level of SLA and the criticality level, the response time on the ticket should be of certain time period. There criticality level is not marked on the ticket and is manually evaluated with each ticket. In addition, the system automatically sets a due date of two days in every ticket and alerts the agent to whom it is assigned when the due date is at hand and when it is overdue. At the moment the due date is manually adjusted when needed and in practice the due date field does not have actual importance because all the monitoring is done manually by the customer service coordinator who receives all tickets at first hand, evaluates them and delegates them forward. Also the response times according to SLAs are only manually monitored and there is no trace of it in the system to review later.

The lack of information per ticket include also category by type of inquiry, overall opening time, the average opening time of a ticket per customer, amount of reopened tickets, amount of people carrying out each ticket, amount of tickets been assigned to subcontracting partners, overall amount of tickets from SLA customers and other customers.

On the other hand, from the management point of view the current ticketing data is too detailed. It would be important to create KPI's (key performance indicator) or active measurement of key customer support metrics. The interest is not in the ticket data itself, rather on the total performance of the customer support function. In other words, things that should be available from a management perspective are: customer support performance (quality metrics), customer satisfaction, customer support efficiency (resource usage, throughput), customer support financials (revenue/ongoing agreements and additional revenue generated).

### **4.3 Developing the reporting of the ticketing system**

Metrics are needed in order to enhance business processes. The key idea would be to create the metrics as simple as possible – that would probably mean the use of KPI's with goals oriented to the business goals of company.



In addition a more holistic view on the customer information is desired. Nowadays the customer information is divided into at least three different systems (CRM, project management, the ticketing system). From a sales perspective it is important to see not only the tickets per customer but a view to the customer in whole – project situation, customer satisfaction, ongoing tickets, history etc. All the data is available in the company, the problem is accessibility and user interface – one cannot check the five or more different systems every time some information is needed. Because of this, the valuable data may go unnoted in everyday customer interactions and thus harm the customer image or customer relationship processes.

#### **4.4 Additional insights on the system**

The interviews revealed also other demands for development related to the business processes and the progress of the company. The current ticketing system was made to match the needs of the customer service and the company almost five years ago. The company has changed a lot since and the whole arrangement of the continual services and customer support has changed three times during that time. This and the development of the SLAs have changed the requirements of reporting greatly, thus, the reporting is now outdated. Future development of ticketing system should also include sales personnel in the planning and more targeted reports for the use of sales.

In the future the flexibility and suitability for every-day customer support processes should be considered and the availability of the information to every employee in the company. There should be easy-to-use view on ticketing data or at least ticketing statistics per customer for example. Additionally the management perspective should be considered. Management wants information on what is happening in customer support and how is the situation compared to last week, last month and so on.

## **5 Options for customer service support**

In this second stage of the thesis I will present two commercial systems as options for arranging the customer service support i.e. to handle the work of the ticketing system. First I will make a presentation on what features and tools these systems offer, their cost, how they differ from the current ticketing system and how they fit with the results covered in the previous section. Finally I will make a comparison between the current system and the two optional systems and present with a suggestion on what should be the actions taken in order to develop the reporting and statistics of the customer service support of the company.

### **5.1 Zendesk**

Zendesk claims to be the leading customer service software that offers help desk ticketing, issue tracking, customer service support and analytics for 25 000 businesses in 140 countries (Zendesk 2013, Wikipedia 2013b). It is a cloud-based software that helps companies to provide quality customer service. The system provides also customizability features and support for developers. (Zendesk 2013.)

#### **5.1.1 Features and customizability**

Zendesk offers native mobile apps for iPad, iPhone, Android, Windows Phone and others. The app has capabilities for doing the customer service work on mobile platform and receive push notifications regarding the tickets. Zendesk advertises that their tools are optimized for mobile browsers also. The system includes tools for customers to create a support ticket through all channels: company website, email, phone, Twitter, Facebook and chat. Tickets from all these channels come in to the one Ticketing software. Zendesk advertises also a possibility to sync the system with common CRM systems like Microsoft Dynamics NAV. (Zendesk 2013.)

Zendesk allows administrators to customize fields that display on the ticket form. Basic text fields as well as customizable dropdown and number fields are available. The interface can be customized with HTML, CSS and JavaScript. Zendesk provides a Sandbox

test environment separated from the production instance, where it is possible to test and develop the product. (Zendesk 2013.)

### **5.1.2 Analytics and statistics**

Zendesk software provides extensive ready made analytic tools for support requests and a holistic view of the customers and their support issues for the use of the company. Key support metrics are included, such as customer satisfaction, first response time, agent performance and ticket volume. (Zendesk 2013.)

There are pre-defined reports that indicate which metrics are the most critical for customer service success, and the data is dividable based on what's important for the company. Once these options are set up, the dashboards and reports automatically update each day with the latest ticket data. (Zendesk 2013.)

Zendesk provides satisfaction metrics by automatically contacting the customer after a customer service request is solved and support received and collects feedback on customer's experience of handling the service request. (Zendesk 2013.)

### **5.1.3 Cost**

Zendesk offers different priced products depending on the extent of the software. From the company's point of view, sufficient features and analytics data are available on the Zendesk Plus which cost 59\$/month per agent (customer support person) and Enterprise plan that cost 125\$/month per agent. By creating an account, it is possible to get access to all the features for 30 days free trial period. After ordering the product it is possible to upgrade or downgrade the plan any time. (Zendesk 2013.)

### **5.1.4 Differences between plans**

Features that are provided in both Plus and Enterprise are e.g. unlimited number of agent accounts, pre-defined responses, custom fields, custom business rules (automated workflows triggered e.g. from ticket changes or time based), automatic customer satisfaction ratings (does not include language support for Finnish), agent collision de-

tection, feedback tab, advanced customization, host mapping (subdomains), internal knowledge base, SSL encryption and certificates, SSO with SAML and attachment limit of 20MB in tickets. (Zendesk 2013.)

The Enterprise plans contain also e.g. following features: unlimited free internal usage, customer success onboarding (guidance on customer service best practices), multiple ticket forms, business rules analysis, custom roles and permissions for agents, audit logs, network access restriction (certain IP addresses) and email compliance archive (all ingoing and outgoing messages in one place). (Zendesk 2013.)

### 5.1.5 Zendesk features vs. current ticketing system

Zendesk offers similar interface as the current ticketing system of the company. The layout and fields seem sufficient enough and are customizable. The out-of-the-box features include different views for example unsolved tickets, unassigned tickets and recently solved tickets (figure 2) and these views can be customized or new views can be created. These are all views that are ready made in Zendesk but in the current ticketing system they have to be separately created. In the current system these views are already in use so necessarily no extra work is required at the moment.

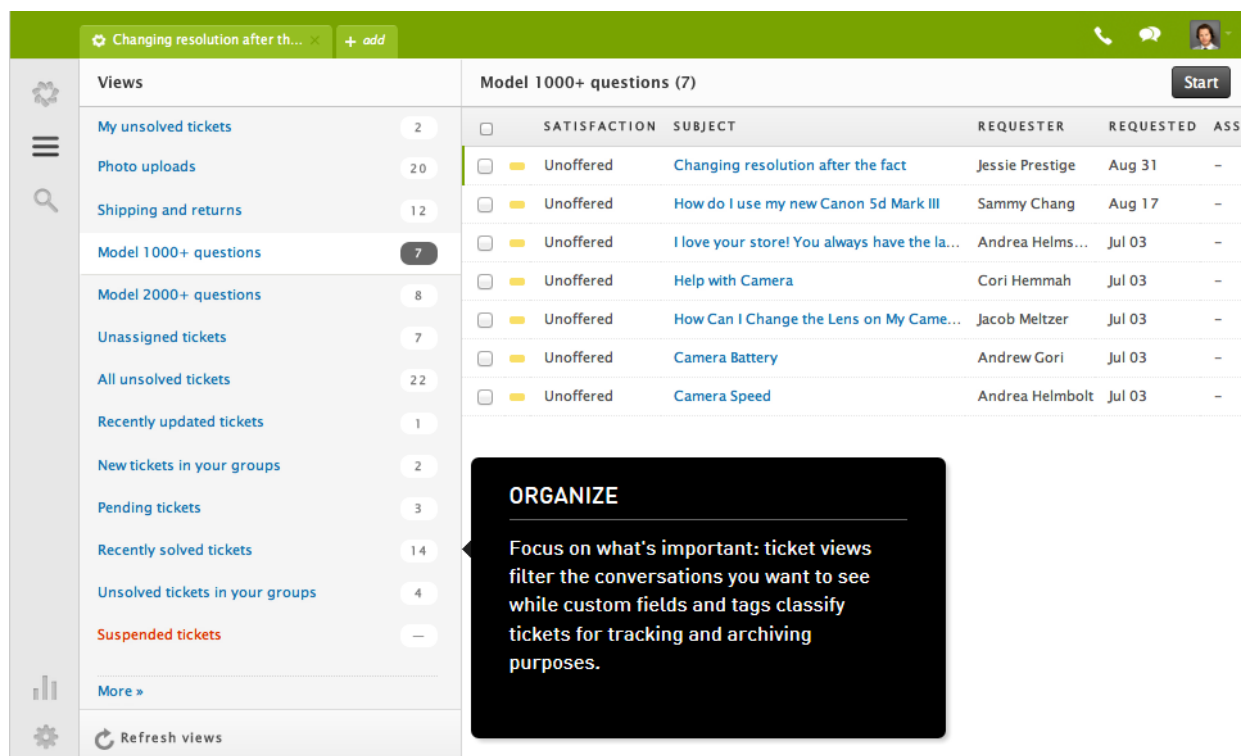


Figure 2. Zendesk views on tickets. (Zendesk 2013.)

For analytics and statistics Zendesk offers extensive tools which are lacking of the current system but of high importance to the company management according to the interview results (see chapter 4 above and figure 3). Zendesk advertises that there are more than 20 readymade report formats to access the support team performance data. The software also offers tools for creating your own reports. These reports are viewable by different time periods and shown in different diagram formats. The analytics data seems to be easily accessible and filtered, most importantly, these analytics come as out-of-the-box features and no additional coding is needed. (Zendesk 2013.)

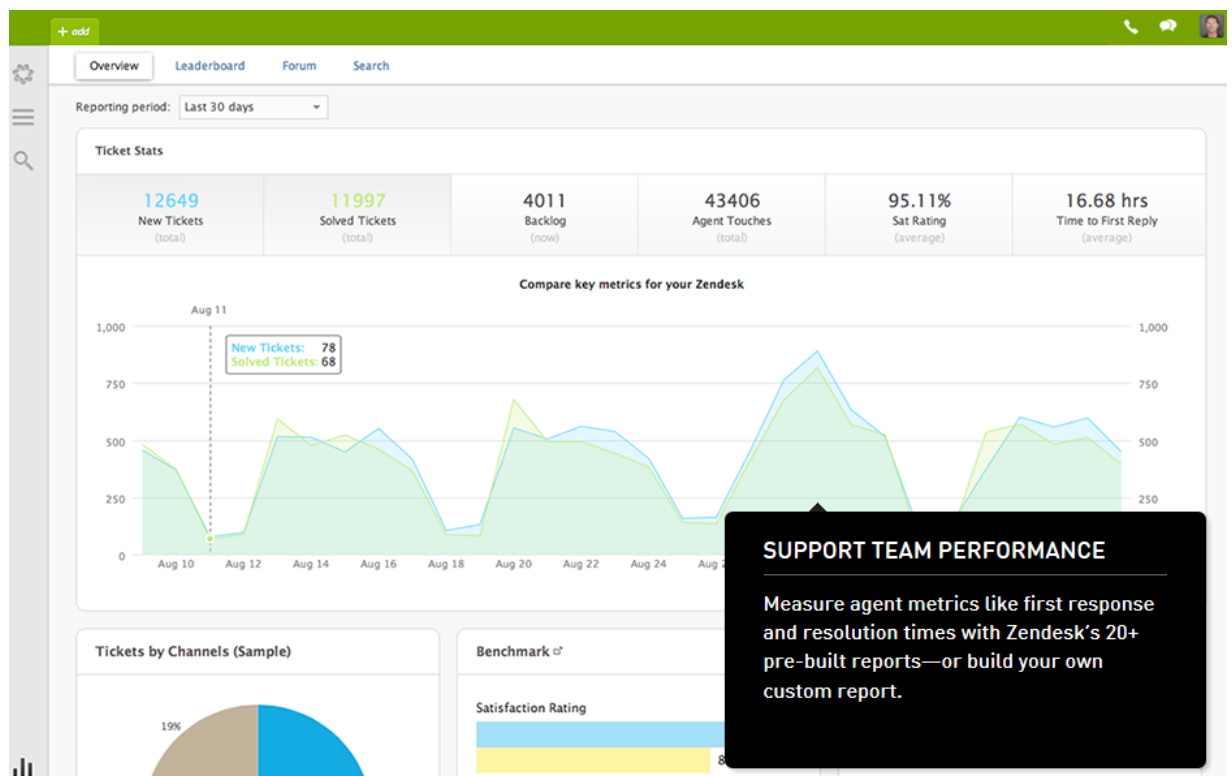


Figure 3. Analytics of performance (Zendesk 2013).

As additional feature, which lacks of the current processes of company, Zendesk offers automated customer satisfaction collection through feedback (see figure 4 on the next page). This data is also presented in many forms of diagrams and tables. (Zendesk 2013.)

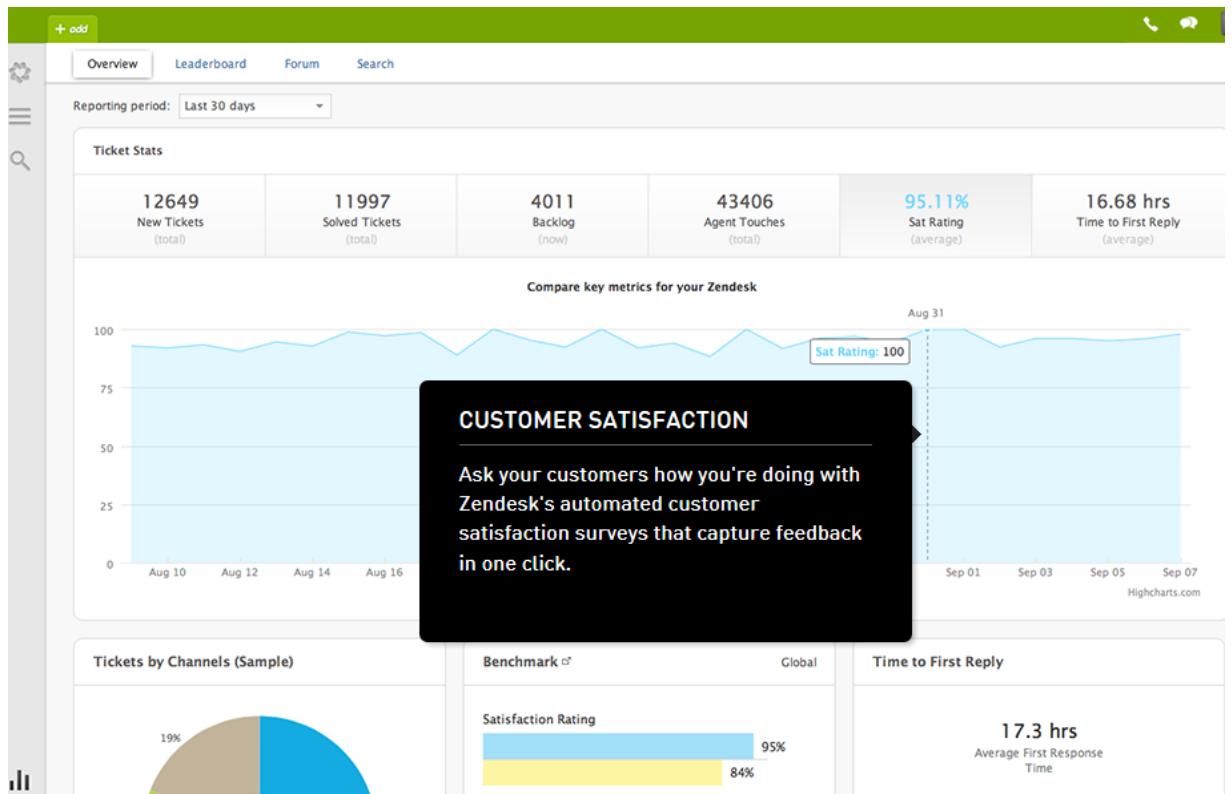


Figure 4. Customer satisfaction metrics (Zendesk 2013).

Zendesk offers many data visualization tools for presenting relevant business data (figure 5) (Zendesk 2013). In current system this is not available, but visualization has to be made manually by using Microsoft Excel tools.

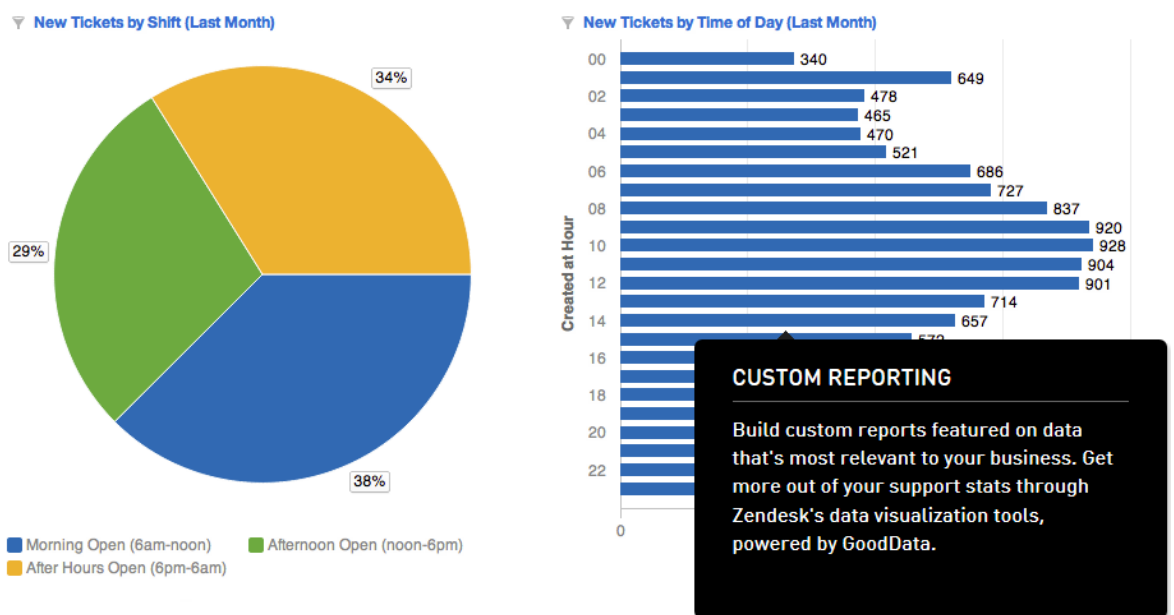


Figure 5. Customer reporting through visualization tools (Zendesk 2013).

Zendesk offers integration with the CRM system. This means that you can see the complete customer profile easily from the ticket by switching a view (figure 6). This is a new feature that is missing from the current ticketing system and could be of medium importance.

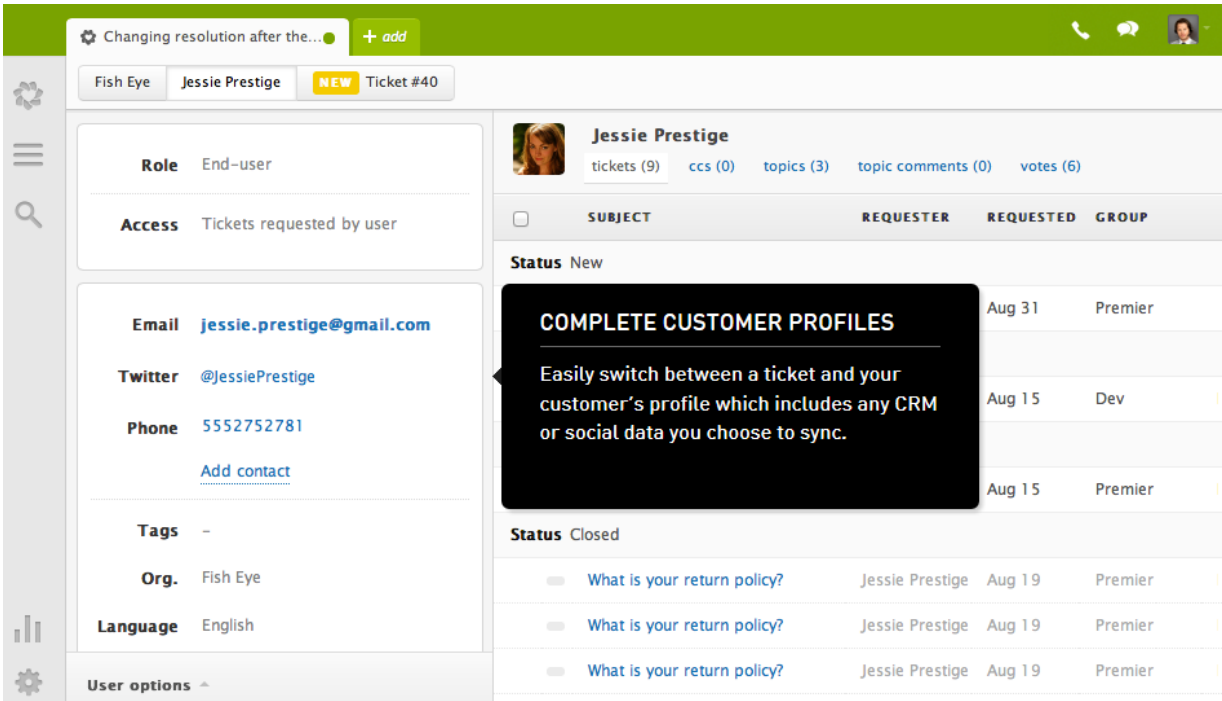


Figure 6. Zendesk CRM and social data integration (Zendesk 2013).

Zendesk has many automated tools for routing tickets, completing tasks and sending notifications (figure 7 on the next page) (Zendesk 2013). Current system lacks of these features which however, seem not to be of key importance but can be useful to deal with customer support everyday routines.

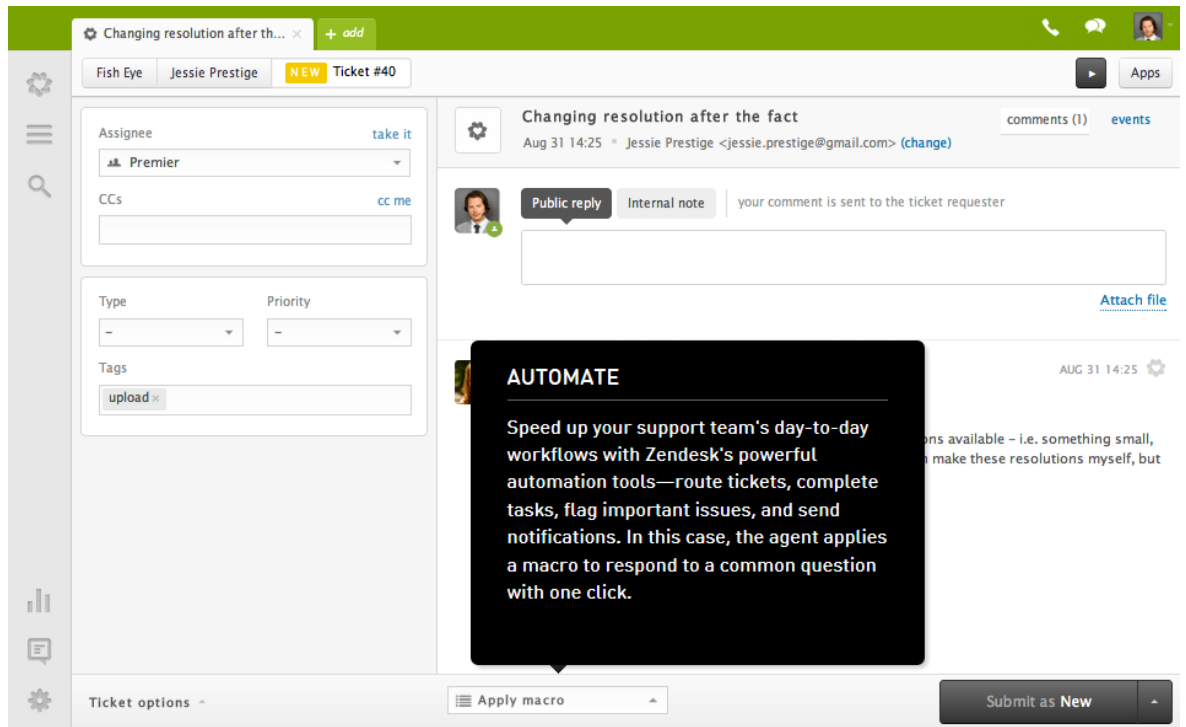


Figure 7. Zendesk automation tools (Zendesk 2013).

Zendesk offers a platform for internal communication of support issues shared with the whole company (figure 8 on the next page) (Zendesk 2013). Current system supports internal notes but these are not distributed throughout the service team. Discussion about tickets is normally done orally or by email. Depending on how this feature works in practice in Zendesk, this can be a feature of medium importance.



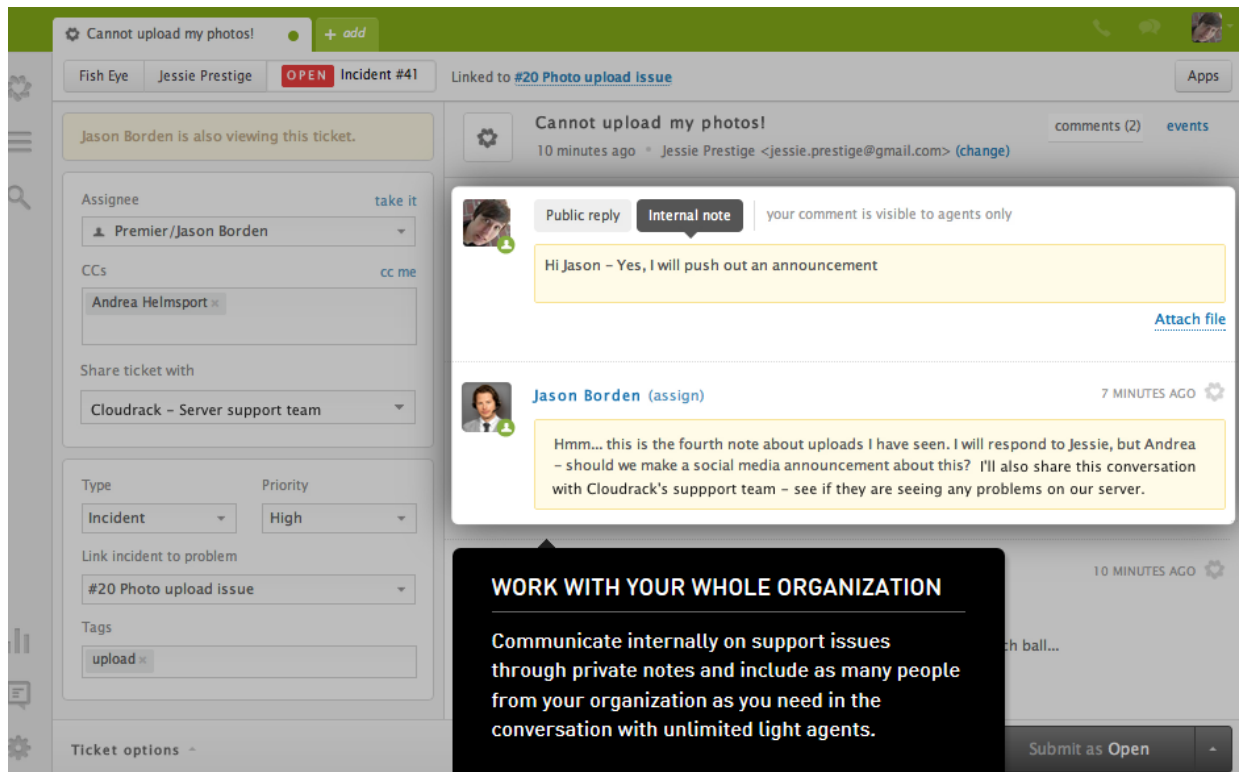


Figure 8. Internal communication in the whole company (Zendesk 2013).

Additionally Zendesk advertises data benchmarking which means the data is possible to be shown in comparison to peer companies. Naturally with current systems this data is not at hand. Benchmarking tools use e.g. global average values to compare with the company data. This tool visualizes for example efficiency and customer satisfaction (figure 9). (Zendesk 2013.)

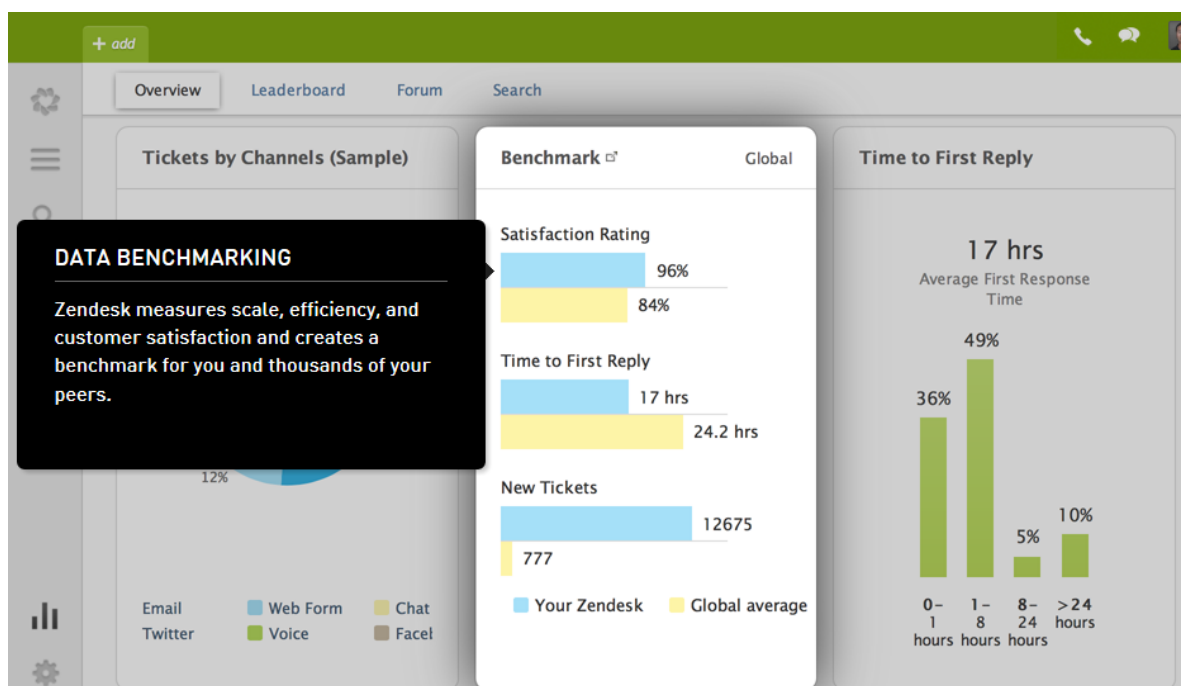


Figure 9. Data benchmarking (Zendesk 2013).

## 5.2 JIRA

JIRA is a Java based product developed by Atlassian and is used for bug tracking, issue tracking and project management. According to the JIRA, their products are used by 19 000 companies in 115 countries. JIRA Service Desk is an add-on product used for customer support which you can integrate to JIRA either by OnDemand or by downloading the software with license. (Atlassian 2013, Wikipedia 2013c.)

### 5.2.1 Features and customizability

JIRA offers two options for hosting JIRA Service Desk, either in the cloud or on your own server. The OnDemand version is hosted in the cloud and includes software updates, technical support, hosting costs, and bandwidth and system administration. The benefits of OnDemand are instant setup, subscription pricing month-to-month, bundled add-ons, remote integrations and distributed collaboration. (Atlassian 2013.)

With download package first year of maintenance is offered free including product updates and support. The download is deployed to a single instance of JIRA in a production environment on one server. The license entitles to perpetual use. The source code is included to help with product customizations. Benefits of download license include hosting on your own hardware, extreme customization, perpetual license with one-time purchase, ad-ons available from the Atlassian Marketplace and complete application control. (Atlassian 2013.)

JIRA Service Desk offers at least the following features: easy to use customer portal, advanced service level agreements (SLA), customizable queues, automated filtering and prioritization, service desk best practices out of the box and email notifications. (Atlassian 2013.)

JIRA claims that the software has automated the management of requests, has clear and simple calls to action and forms are easy to create. Additionally progress and performance is assessed in real-time. Other features include powerful and customizable workflows, unlimited custom fields, bugs and defect management, seamless source and issue integration, powerful search and filtering, customizable dashboards and wall-

boards, advanced security and administration, integration with flexible REST APIs, easily import data from other systems and mobile interface. (Atlassian 2013.)

JIRA Service Desk claims to have quick real-time reports and analytics based on the industry best practices and data can be easily formed into custom reports. (Atlassian 2013.)

### 5.2.2 Cost

JIRA Service Desk is an add-on that can be added to the JIRA main product. The prices depend on the amount of agents who are dealing the service requests. With 10 users, JIRA Service Desk cost is 20\$/month. If you buy the license, unlimited anonymous users (the customers) are included.

### 5.2.3 JIRA Service Desk features vs. current ticketing system

JIRA Service Desk front screen is quite plain and suggest that self-made customizations and modifications are expected (figure 10). Current ticketing system has a slightly more user friendly and appropriate start screen for the customer service agents.

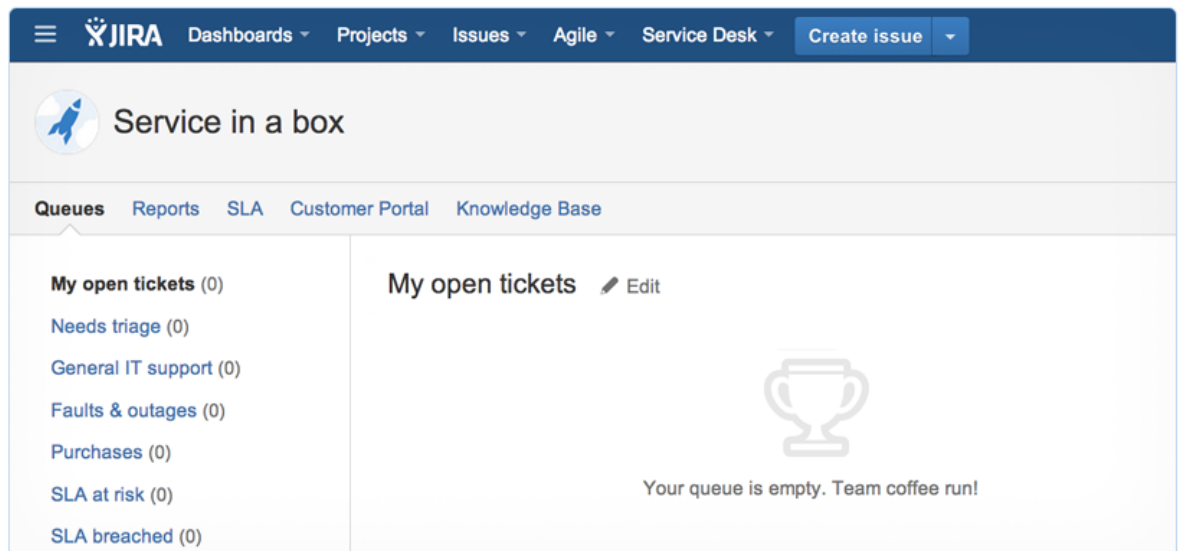


Figure 10. JIRA Service Desk front page (Atlassian 2013).

JIRA offers advanced filtering options for tickets by type, status, resolution, label and priority (figure 11). Similar features are found in the current system. JIRA does not seem to offer any additional useful tools in this matter.

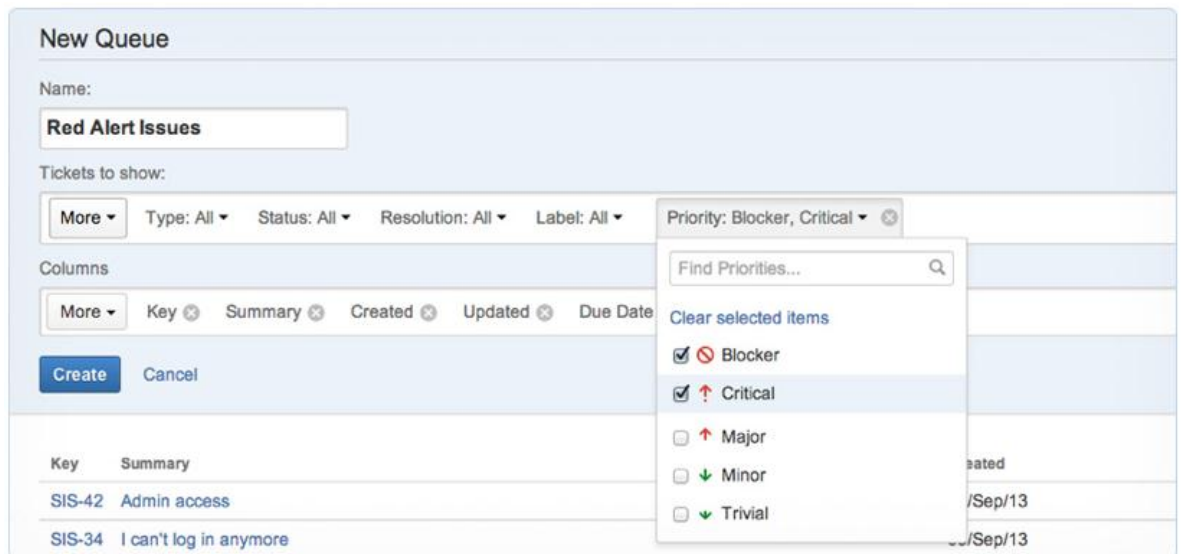


Figure 11. Filtering options (Atlassian 2013).

JIRA offers visualized deadline indicators for tickets which is a feature lacking from the current ticketing system (figure 12). Currently deadlines are not automated in the company's customer support and deadlines are set and monitored manually. This could be a useful additional tool if the customer service policies would be modified and deadlines were to be automated.

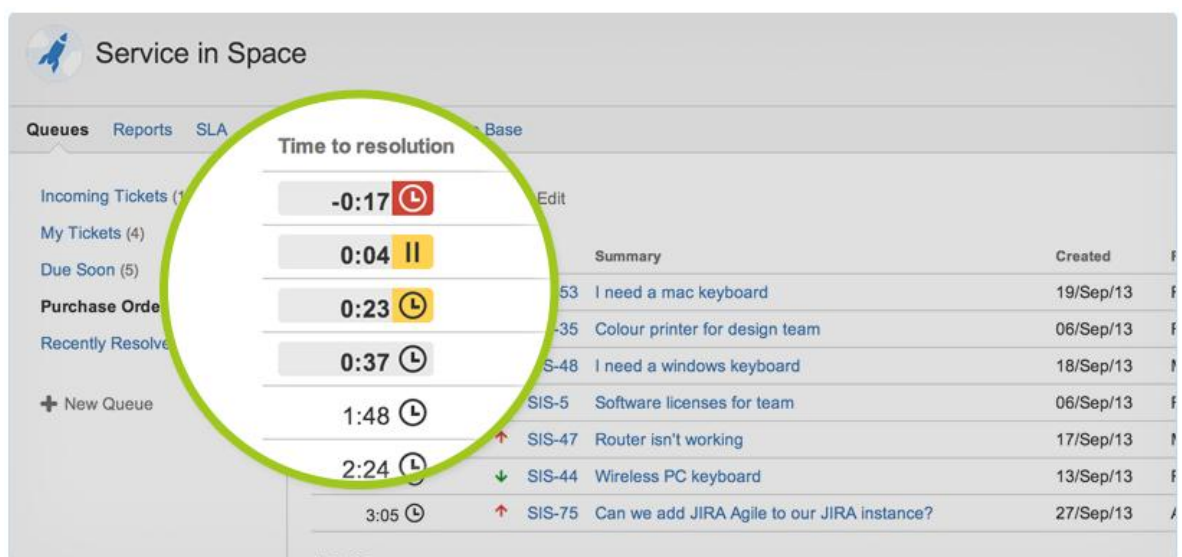


Figure 12. Ticket deadlines in JIRA (Atlassian 2013).

JIRA offers ready-made reports and visual analytics which are not included in the current ticketing system (figure 13). This is an important feature that is missing from the current system.

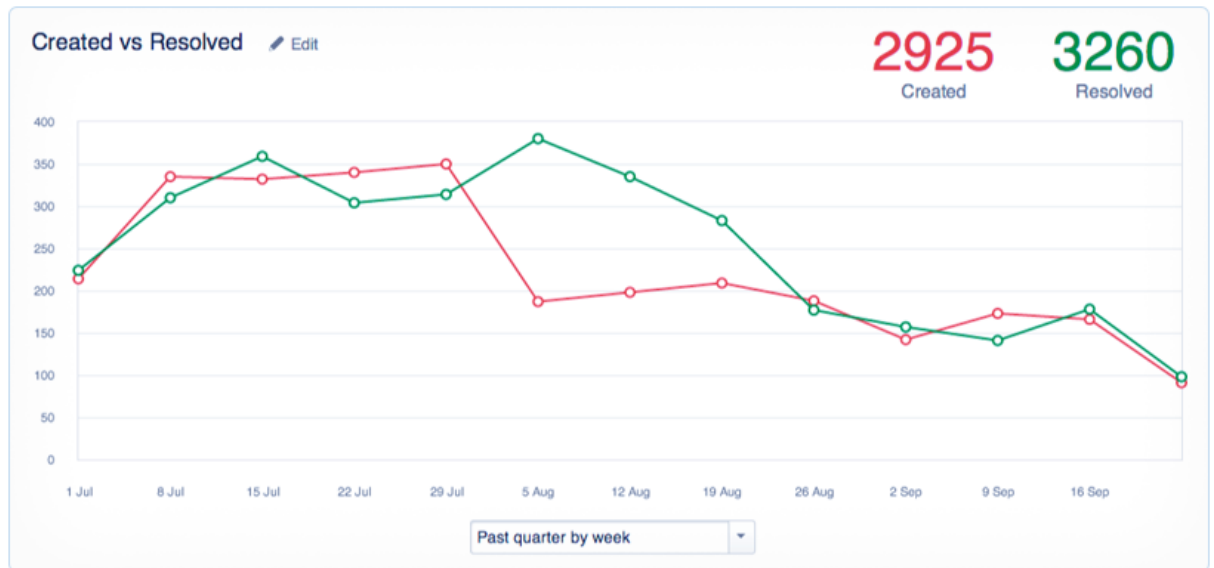


Figure 13. JIRA Service Desk created and resolved tickets (Atlassian 2013).

### 5.3 Comparison between systems and an overview

Zendesk and JIRA Service Desk products both offer more features, analytics and useful ready-made and automated reports than presently are available in the ticketing system. Overall Zendesk offers more information and visualized examples of their product which makes it easier to get a realistic idea of their product.

Both products offer tools for further developing the interface and customizing fields, views, automation and analytics reports (figure 14 on the next page). Seems that Zendesk has more ready-made functions than JIRA and it also advertises integration with CRM currently used by the company. JIRA offers full customizability but it is done with Java programming language which takes the system out of company's core system areas which are Microsoft based tools.

	<b>Advantages</b>	<b>Disadvantages</b>
<b>Current system</b>	Interface is familiar Attached to intranet Easy to use No extra costs Partly integrated with CRM Automated notifications	Analytics missing Important data not available
<b>Zendesk</b>	Mobile apps Multiple channels for customer service Integration with CRM Customizability Sandbox environment Ready-made analytics and visualization of data Customer satisfaction surveys Offers internal communication Agent performance metrics Data benchmarking	Integration of old data? Cost is per agent Customizations needed Only on cloud New system needs learning Integration with extranet?
<b>JIRA</b>	In cloud or own server Notifications Customizability Offers many tools Bug management Powerful search Ready-made analytics and visualization of data Easily import data	Integration of old data? Customizations needed JAVA based New system needs learning Extra costs? Integration with extranet?

Figure 14. Advantages and disadvantages of optional ticketing systems.

The main questions to be evaluated when choosing a new system or further development of the current system are the costs. Both Zendesk and JIRA offer a 30 day free trial to try out their product which makes trying and testing the product easy. When evaluating the cost of the current system, the main aspects are; how much work hours are needed to plan, develop and implement the current system's reports and statistics. There are no extra fixed costs of the current system. The cost aspects of the optional systems are; how much are the fixed annual costs of the products, how much work is needed to customize these products and to learn the new interfaces; how much time and effort takes migrating or integrating the data from current system to the new system. The current system is easy to use and usability would remain about the same also

after further development, thus, less time would be used to learning. A considerable amount of cost of the new systems would come from annual billing based on the number of users which in this case would be the whole company personnel (~20 people).

The benefit of SharePoint and the current system is that the search covers all the data including contracts (document center), tickets (customer service), news and announcements, workspaces (team sites) and knowledge base (wiki pages). This means that all the data is there, it just is not combined; for example the SLA information and ticket are not linked with each other to display the response time in the ticketing system. Integrating the data between the intra and possible third party software has to be considered also from the point of view of the future extranet that is under development in the company. There is already a beta version online to share customers information of their currently open tickets and how many hours are used of their monthly hour reservation based on the SLA. Data integration with the extranet should be then evaluated and solved.

## 6 Discussion and Conclusions

Here I first present the main conclusions, then make suggestions for an action plan and lastly connect the action plan with the theory background.

The results from the questionnaires given to the company management, show that there is deficiency in the data and reports of the current ticketing system. The system holds a lot of information but that is not easily formed into a report that could provide key metrics to the management. The main deficiency is the lack of history information of received, processed and solved tickets. At the moment the tickets are not categorized by type of request, level of SLA or criticality level. Also information about how many people are needed to solve a ticket is missing and the opening time of each ticket cannot be resolved either.

The results from the questionnaire also revealed that from the management point of view there is a need for a more holistic view of the customer service processes and tickets. There is a need for key performance indicators that would help evaluating the total performance of the customer support functions. Management needs information about how is the situation of tickets for example compared to last week or last month. From management point of view also it is preferable that all the employees in the company could have access to an overall situation. There should be views on ticketing data or at least ticketing statistics for example per customer. These findings are not a surprise because before the starting of the project it was known that there is a demand for a study of this subject because of the lack of information from the system. One concrete method is creating targeted views in the ticketing system for the use of the sales department.

Through the interviews also new information was raised. It came out that there is a greater need for developing the different systems of the company. The problematic handling of information does not just associate with the ticketing system, but there is an overall need for combined data. In the future it might be possible that the system is changed or integrated to other parts of the system to answer the demand on overall information needs of the company.



## 6.1 Recommendations to the commission party

It is clear that in order to get more relevant data of the ticketing performance in form of reports and analytics, development work needs to be done. Based on the findings of this thesis I below present few actions to be taken.

The company has to decide whether to continue with the current ticketing system in SharePoint and its further development or to buy the system from third party. My suggestion for third party software is Zendesk because its extensive analytics tools, user friendly interface and easily customizable features. In order to make the decision between these two systems, the company has to determine if transferring the data from the current system to the new is necessary and find out how it can be done. Additionally, costs of the upcoming development work in SharePoint and the deployment and customization of Zendesk has to be estimated.

My suggestions for development of the current system include creating new data fields in the ticketing system (ticketing list). These fields include level of SLA, criticality level, response time, type of request and a mark if ticket is reopened (figure 16, explained below).

New data fields	Set by
Level of SLA	Automatically by customer
Criticality level	Manually assessed (critical, extensive, narrow)
Response time	Automatically by criticality level and level of SLA
Type of request	Manually assessed (e.g. question, incident, problem, task, bug fix, development work.)
Reopened	Automatically (yes/no, default=no)

Figure 16. Suggestions for new data fields in the ticketing system.

The company already has information on which customer has which level of SLA. This information has to be linked in the system so that the information can be pulled to the ticketing list. The criticality level for each ticket has to be manually assessed and inserted. The different criticality levels already stated in the SLAs are critical, extensive and narrow. Based on the level of SLA and the criticality level, the response time can be calculated. The response times are also already stated in the SLAs. In addition I suggest that a field displaying the type of request is added. The different types could be

for example question, incident, problem, task, bug fix and development work. These also have to be manually assessed and inserted for each ticket. An additional field to be added that possibly would be of importance is marking if the ticket is reopened or not. The default value for this field would automatically be “no” that would change to “yes” when the ticket is reopened. The problem with this field is that customers can reopen a ticket with a new issue that is not necessarily related to the old issue. One way to handle this would be that the ticket is transferred to a new ticket and ID and the value of the reopened ticket is changed to “no”. There exists already a tool to combine customer’s tickets if a new ticket is clearly of the same topic as an existing ticket in progress. Additional suggestion is that the value of an existing field of the ticket called “due date” is changed to automatically be set into a meaningful value based on the requirements that are determined for it. For example, deciding that due date should always be one week from opening the ticket for higher level SLAs and two weeks for lower level SLAs. Figure 17 shows the new fields linked to each ticket.

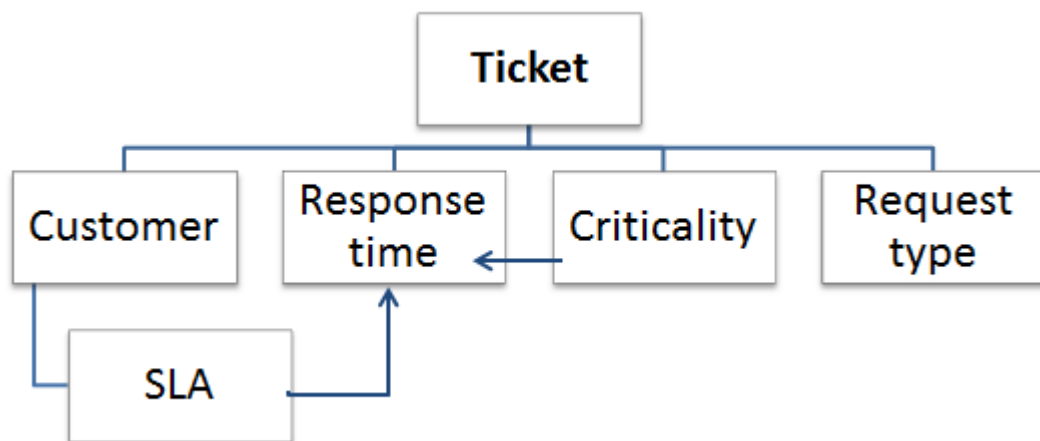


Figure 17. The new fields linked to a ticket. Response time would be determined by criticality level and level of SLA.

Other developmental factors that definitely would be needed in order to have the desired key performance indicators mentioned earlier, are the overall opening time of a ticket and the opening time of a ticket per status. The problem with overall opening time is that although the ticket has the information of the creation date and time and the closing date and time, if a ticket is reopened, also the time the ticket has been closed is calculated in the overall opening time. A related problem is that the actual

opening time of a ticket is the service hours of the customer service i.e. hours after 5pm and the weekends should not be calculated within the opening time. The technical people in charge of the ticketing system should evaluate how these problems could be solved in the implementation of the current system.

All in all an integration of company's different systems should be made in order to get all the relevant data of a customer with one search. The results page would display information from the different systems in one place including for example currently open tickets, hours used to solve tickets, billing information from certain period of time, contracts and agreements under process and so on. In addition to solving the lack of the analytics data, the form of how this data is presented needs to be solved. Can there be ready-made diagrams or integration of for example Power Pivot instead of copying the data into an Excel sheet and forming reports there?

Customer satisfaction is one question that rose from the questionnaire answers. It would be recommendable to send for a certain period of time a satisfaction survey to customers after a ticket has been resolved. The answers should then be gathered, combined and analyzed into a report. The survey for customer satisfaction of customer service should then be repeated at certain time intervals to gather data of the progress. According to the questionnaires the sales department should be invited to take part in more profoundly in the planning of development of the customer service. Therefore this is one of the factors to be taken actions with in the future of the company.

## **6.2 ITIL method**

In previous section I have listed suggestions for development actions to improve the service quality of the company, increase efficiency, reach business goals and reduce costs in long term. Here I describe the service improvement process recommended to the company based on ITIL best practices. The company has one employee with an ITIL certificate which is important for being successful with ITIL practices. It is recommendable that this employee would achieve a second level certificate in the future.

According to the Service Lifecycle's first phase the strengths and weaknesses of the ticketing system have been listed and they have been evaluated from a strategical point of view. Objectives for the development project have been set and now the roles, responsibilities and activities for the employees in this project should be defined. Responsibilities should be described detailed enough for the staff to follow them. Also the resources must be allocated accordingly. Based on the suggestions of this thesis the company should specify what infrastructure is needed and how to manage the services.

In the next phase the company will design the decided development aspects in the ticketing system. After that it is important to reduce errors in the service and check that the requirements set in this thesis are met in addition to the requirements added by the company afterwards. Too much time should not be used to create perfect procedures and elements of existing processes should be utilized while adding new activities to existing processes. When the modifications to the system are in production and there is access to new reports and analytics, the data gathering should be done systematically and well organized in the daily processes of the company. This might mean some small changed in the system or determining new roles for staff.

The development of the ticketing system does not end here but there should be a continual aspect in the improvement efforts, changes varying of their intensity. For example, after the gathering of customer satisfaction is started, new aspects of quality might be revealed. These aspects have to be then objected for improvement with cost effectiveness in mind at the same time. When the desired improvement to the ticketing system have been completed, the necessary data for the employees should be accessible meaning that the information is shared in the company and that the quality of the information is maintained at certain level. Important part is documenting the activities done for planning, operating, metrics and maintenance.

## 7 Summary

The basis of this thesis was the demand for insightful reports and analytics from the ticketing system of the customer service. The company has been growing and there has been a need for developing the ticketing system as the amount of service request has been increasing.

The research questions of this thesis were:

- What kind of data is currently retrievable in form of reports and statistics from the ticketing system?
- For what kind of data is there a demand from point of view of customer service and business processes?
- What is the best solution for the ticketing system, what options are there?

I conducted open questionnaires to the management of the company to find out what is expected from the ticketing system and to answer the research questions. The results from the questionnaires revealed that although there is a lot of data stored in the current system, there is also problems in getting the right metrics from the point of view of the company's management regarding the business processes. The problem is also that the data is not easily formed into a report and it is not easy to get analytics of the customer support functions and overall process.

To answer the needs of development to the ticketing system, two third party ticketing software was presented and compared against the requirements revealed from the questionnaires. In the conclusion part an action plan was introduced considering the different aspects in the current ticketing system, the desired features and the third party software. The conclusion was that the company has to decide whether to continue with the current ticketing system and develop it to answer the needs of business, or to buy the system from third party and make customizations to it. The suggested third party software was Zendesk because of its analytics tools, interface and customizability. As a development plan for the current system, data fields to be added in the ticketing list were introduced. Lastly, the ITIL way of conducting the development project in the company was concluded.

## Bibliography

Anderson, B. 2009. ITIL V3 Service Life Cycle. IT service management and ITIL application support. URL: <http://www.itservicemanagement-til.com/it-service-management-cat/itil-v3-life-cycle/itil-v3-service-life-cycle/>. Accessed: 22.10.2013.

Arraj, V. 2013. ITIL®: the basics. The APM Group and The Stationery Office 2013. The APM Group and The Stationery Office. UK.

Atlassian. Jira 2013. URL: <https://www.atlassian.com/software/jira>. Accessed: 3.11.2013.

Bates, S. and Smith, T. 2010. SharePoint 2010 User's Guide. Learning Microsoft's Business Collaboration Platform. Apress. New York.

Greiner, L. 2007. ITIL: The International Repository of IT Wisdom. Business: the 8th layer. Pp. 9-11.

Hank, M. 2006. ITIL: What It Is And What It Isn't. Business Communications Review 36, 12, pp. 49-52. URL: <http://search.proquest.com/docview/224971428?accountid=27436>. Accessed: 17.11.2013.

Rouse, M. 2006. SearchCIO. URL: <http://searchcio.techtarget.com/definition/ITSM>. Accessed: 30.10.2013.

Brewster, E., Griffiths, R., Lawes, A. & Sansbury, J. 2010. IT Service Management. A Guide for ITIL® V3 Foundation Exam Candidates. British Informatics Society Limited. UK, Swindon.

Walliman, N. 2011. Research methods. The Basics. Routledge. New York.

The Worldwide Intranet Challenge (WIC) 2013. Poll results: what technologies do companies use to develop their intranets? URL: <http://cibasolutions.typepad.com/wic/2012/07/poll-results-what-technologies-do-companies-use-to-develop-their-intranets.html>. Accessed 5.11.2013.

Van Bon, J., De Jong, A., Kolthof, A., Pieper, M., Tjassing, R. Van der Veen, A. & Verheijen, T. 2007. Foundations of IT Service Management Based on ITIL V3. 3rd ed. itSMF International. Van Haren Publishing. Zaltbommel.

Wikipedia 2013a. SharePoint. URL: <http://en.wikipedia.org/wiki/Sharepoint>. Accessed: 30.10.2013.

Wikipedia 2013b. Zendesk. URL: <http://en.wikipedia.org/wiki/Zendesk>. Accessed: 2.11.2013.

Wikipedia 2013c. JIRA. URL: <http://en.wikipedia.org/wiki/JIRA>. Accessed: 3.11.2013.

Zendesk 2013. URL: <http://www.zendesk.com>. Accessed: 2.11.2013.

## Attachments

Attachment 1. Open questionnaire.

Questions for management to find out the needs of the company for the development of the reporting and statistics:

1. What kind of data or information you can get from the Ticketing system at the moment? What kind of information you have been looking for and have managed to find in the current system?
2. Is this data sufficient for the needs of the higher management (CEO and the board=johtoryhmä)?
3. What kind of data, information, reports or statistics you would want to get from the system?
4. How would this data help you to manage work, resources and business processes?
5. Is there something else you would like to say regarding the current state of the Ticketing system and the possible future situation?