Monitoring and Optimization of e-Services in IT Service Desk Systems

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***Abstract*— Information management systems have become the heart and key organ for successfully growing company. This paper presents methods and tools for measurement and analysis of e-Services in IT Service Desk Systems. Object of the study are these e-Services. Subject of the research is to propose Business Intelligence tools for their monitoring and optimization. Therefore the aim of this paper is to investigate and analyse the performance of these e-Services in IT Service Desk Systems.**

Keywords*— Business Intelligence (BI), QlikView, ITIL, ITSM, SLA, e-Services, Service Desk Systems

I. INTRODUCTION

Living in the age of continuously evolving technology, business organizations are dependent and subordinated to the growing customers‘ expectations for adequate and agile IT solutions to their needs. The adequacy of the strategies for implementation of IT solutions has a direct impact on managing organizational change [14]. At the same time customers requirements are indispensable for market development of Information and Communication Technologies [11]. Therefore, there is a demand for constantly monitored and well managed IT services. Factors such as customer satisfaction and retention have forced companies to build a bridge between business units and IT, providing a single point of contact between end users and IT specialists. One of the most common and preferred solutions are Service Desk Systems (SDS) for IT Service Management (ITSM). Cultural essentials also should be taken into account when assessing the needs of consumers. In the Balkan region there are clearly expressed specifics in the consumer needs - at both the end user and enterprise levels, users of IT services [12, 13, 15].

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The paper offers methods and tools for performance measurement, analysis and optimization of e-Services in IT Service Desk Systems. Object of the study are these e-Services. Subject of the research is to propose Business Intelligence tools for their monitoring and optimization. Therefore the aim of this paper is to investigate and analyse the performance of these e-Services in IT Service Desk Systems.

The actuality of the study is determined by the importance of the research problem. Nowadays businesses generate a huge amount of data, orders, warehouse availability, broadcast and of course - customers. A large part of the corporate data is unusable in the process of making management decisions. The highly competitive business environment causes companies to constantly reassess their strategies, and to be able to do that they need specific information at the right time. This information converted into knowledge could increase profits, reduce costs and make management more effective. Derived from detailed practical information this knowledge is very important for achieving and maintaining competitive advantage. To remain agile and well leveraging between business demands and technology trends IT services management needs to evolve implementing Business Intelligence (BI) solutions.

II. E-SERVICES PERFORMANCE MEASUREMENT

A. The Concept of IT Service Desk Systems

Considering the fact that everything is truly information-based, undoubtedly one of the most important assets that every organization has is the data and information they generate. In order IT departments to ensure the quality of e-Services they provide, SDS, also known as Ticketing Systems, are widely

implemented. SDS are designed for collecting, tracking and processing requests for IT service support processes within a company [5]. They serve as a facilitator of relations between end users of IT services and the IT support staffs that provide them. As such they have to be regarded as an element of the broader process of establishing common IT standards within the corporation business applications for ensuring high quality and maximum efficiency of the IT operations.

Having introduced such systems, ITSM is a key part without which services could not be analyzed, improved and developed. ITSM is a process-based practice focused on aligning IT systems and services including IT Planning, Support, Delivery, Security and Infrastructure. ITSM is often guided by the IT Infrastructure Library (ITIL), a globally recognized framework of best practices for ITSM [3].

Whereas ITIL defines and documents the best practices, ITSM deploys them to meet clients' requirements and expectations. One of the core objectives of ITSM is the definition of Service Level Agreement (SLA) and key performance indicators (KPIs) [1]. IT Service Delivery as part of ITSM is responsible for the execution of services in compliance with predefined time and quality parameters.

B. Methods and Tools for Monitoring and Optimization of e-Services

Some dimensions commonly used for measuring the level of e-Services is the time-frame for request resolution [6], compared to the initially agreed one in SLA. Analysis of these results can be performed with QlikView, a software for visualization and BI [4] used for Data Mining [2], [7], etc. QlikView provides an advantage by allowing support teams to turn the collected data into accessible and meaningful information to business and management units. For the purpose of this study QlikView has been used for creation of reports and performance measurement. QlikView analysis of requests, collected from an IT service provider, compared to the targeted KPIs for resolution of requests within the contracted SLA are given below in Fig. 1.

C. Analysis of the Results

Customer perceptions for these tickets have also been evaluated trough customer satisfaction surveys and visualized with QlikView in Fig.2 and Fig.3. Obtained results can be used for further analysis of e-Services, their quality level and customer satisfaction.

Survey questions have been divided into four basic metrics for service evaluation: Q1-Quality, Q2-Time, Q3- Empathy, Q4-Overall perception. The average obtained results show values below the aimed ones (3.38; target >3.5) for customer satisfaction from the provided IT services. Although the KPI for requests delivered within SLA (Fig.1) is higher than the targeted value (96%; target >90%), from (Fig.2) we can see that the question corresponding to it is with lowest rates. This indicates that the business needs for speed of resolution and the targeted ones by the company do not match.

Fig. 1. SLA and Survey Score results obtained with QlikView

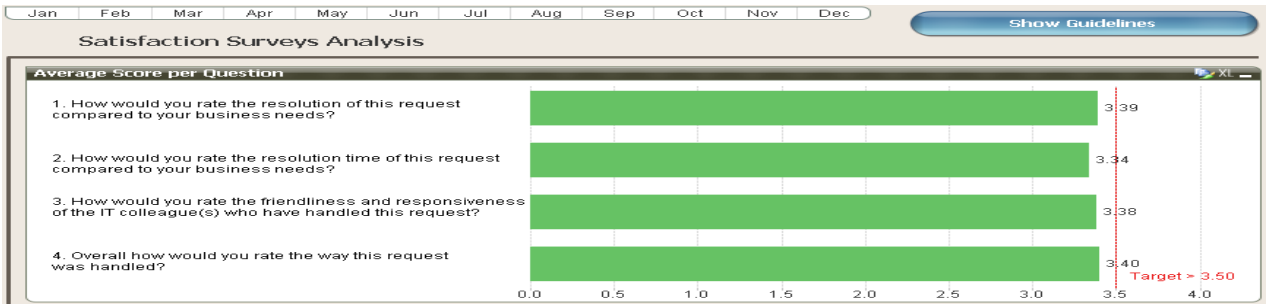

Fig. 2. QlikView Survey questions and scores for one year

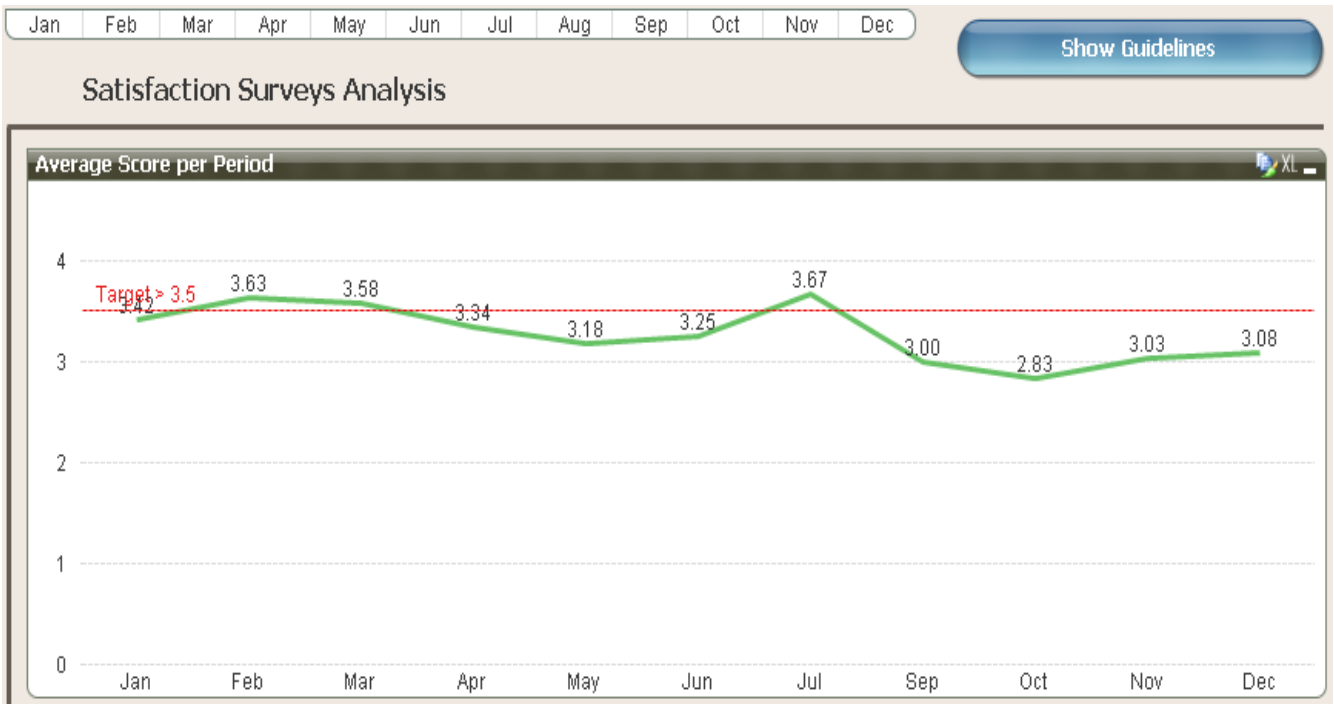

Fig. 3. Average Survey Score results for a one year period

As we can see from Fig.4 and Fig.5 the lowest survey rates have been given for October (2.83).

The average score of the values for the other months is closer to the minimum target value. Therefore the score for October, which is much lower, is the one that drastically downgrades the overall result. Response rate meter for the same month shows a good percentage of answered surveys-50%, which is above the accepted level of trustworthiness. Therefore the obtained results can be treated as reliable and indicative for customer's evaluation of the service.

Analysis for October presents low scores for each question of request handling survey. The question regarding time factor is the one that has affected the overall satisfaction. If we check the SLA measurement for this month we can monitor values of only 87.93%. Requests that have not been delivered on time and have breached SLAs are the reason for the low survey score. Therefore further analysis of requests need to be performed in order the time factor and its behaviour over clients' perceptions to be investigated.

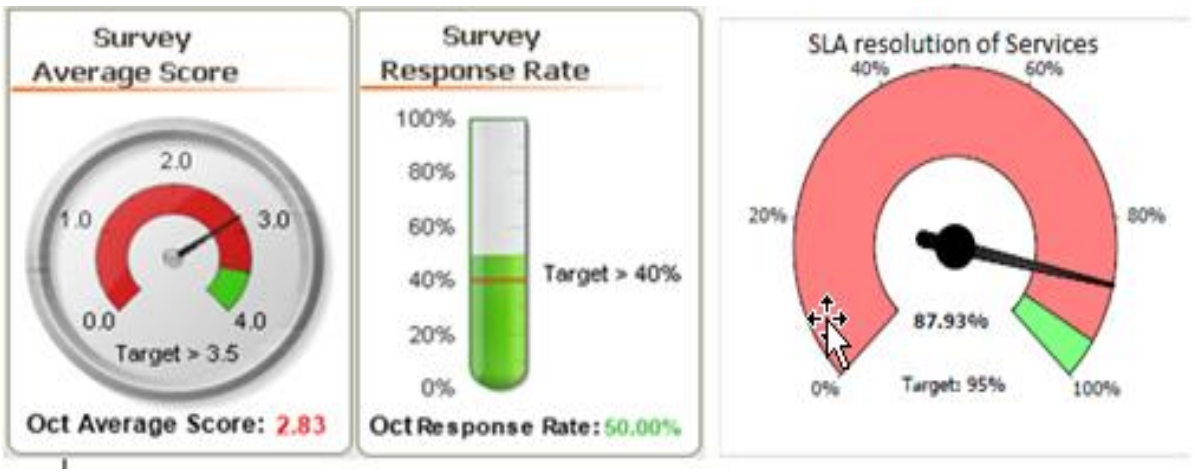

Fig. 4. SLA and Survey Score results obtained with QlickView for October

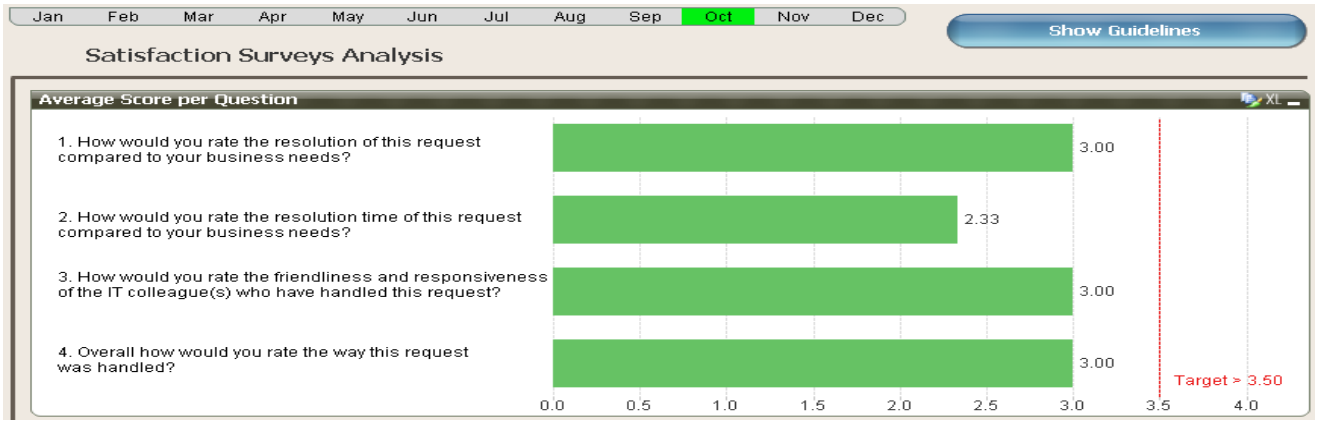

Fig. 5. QlikView Survey questions and scores for one year

III. Conclusions

To remain agile and well leveraging between business demands and technology trends IT services management needs to evolve. Implementation of SDSs and continuous monitoring of their services and requests parameters are a must. QlikView is modern and preferred BI tool for visualization of results and data interpretation. The tool can be used for analysis of large data regarding quality of requests in SDS, the factors that affect customer satisfaction and their retention. From the conducted measurements of client's perceptions has been concluded that time factor is most critical and important for clients, yet further examinations with QlikView need to be performed for more detailed results. From obtained results we have explored that the time frame for delivery of service is the factor that has the greatest weight over customers' perceptions. Continuous measurement of the average response and resolution times that the support team delivers to customers provides accurate glance over the quality of service. Providing support within the upper borders for agreed service levels standards, ensures agility and flexibility of service. It also provides greater visibility when problems arise. Monitoring of request resolution combined with customer surveys is the key for delivering high quality service and bringing value to the client.

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