

CUSTOMER COMPLAINT INFORMATION SYSTEMS AT NATIONAL STANDARDIZATION AGENCY OF INDONESIA

*Corresponding author

Email:

yuwan.jumaryadi@mercubuana.ac.id

Yuwan Jumaryadi

Department of Information System, Universitas
Mercu Buana, Jakarta, Indonesia
Jl. Meruya Selatan No.1, Jakarta 11650

Abstract

Technological developments changes the flow of information, where anyone can receive information easily. BSN as an Indonesian non-ministerial government institution needs to think about customer satisfaction with the services that provided. Completion of customer complaint is an important thing in fulfillment customer satisfaction. At present, the delivery of information regarding complaints against BSN services is still done in a conventional manner, where each user submits a complaint directly to the Helpdesk. However, in this case the section head is difficult to monitor every complaint that exists to improve the SLA. By proposing an Customer Complaint information system that can monitor customer complaints, it is hoped that it can improve service to any complaints that exist. This research is expected to assist users so that any complaints submitted can be resolved immediately, and are expected to increase SLA.

Keywords: *Customer Satisfaction, BSN, Complaint, SLA*

1.0 INTRODUCTION

In the current era of technological advances, many changes occur in all sectors including the delivery of information [1][2]. Initially the delivery of information used more print media, but along with the development of existing technology, the delivery of information at this time was more likely to use electronic media [3][4].

The National Standardization Agency of Indonesia is non-ministerial government institution with the main task of development and coaching standardization activities in the country of Indonesia. Information technology (IT) support for end users has become a concern of the organization today. The ever-evolving technology has made the development of services to handle effective and efficient customer complaints a challenge for the organization. Organizations must actively seek new ways to provide better services that can meet the growing demands and expectations of customers [5].

Good customer satisfaction can be a determinant in the business activities undertaken [6]. Sometimes the user does not like the difficulties or problems encountered when using the system in the company, and that of course can reduce the level of user satisfaction with the services provided [7].

By making a customer complaint information system, it can monitor existing customer complaints in order to provide better service to customers. In the management of current customer complaints, National Standardization Agency of Indonesia still uses the conventional method, where users who experience problems regarding the applications they have chosen directly contact the Helpdesk to assist in resolving these issues. The method used is not going well, because the section head cannot monitor the problems that exist.

2.0 THEORETICAL

Competitive and successful organizations are organizations that are able to maximize their main assets and competencies, concentrate on core businesses so they are able to compete in existing industries [8]. In maintaining a business strategy, companies often use CRM concepts to build very strong relationships with their customers, so that users are satisfied with the services provided [9].

Information technology currently has a very important role, this can be seen by the frequent use of technology in the delivery of information [10]. Satisfaction is an indicator that can measure the expectations of the user, where the company must be able to monitor it and measure it with the services provided [11].

Complaint management aims to find out about things that can cause user dissatisfaction. Complaint management can be used to define what strategies will be used by companies to be able to provide the best products or services to customers [7]. Complaint management system is needed to communicate effectively with the expert [12], wherein the user first complains about the problem that occurs, and then the Helpdesk will solve the problem according to his expertise [4]. Complaints Management System will store each user's complaints, and then the data obtained from these systems can be used as a reference in the decision to increase the service to the user, so as to improve the CRM [13].

2.1. Information System

Information systems are computer-based systems that are used to process data that can be used as decision makers and generally was designed to assist in the decision making process. Figure 1 shows the elements and relations of information systems.

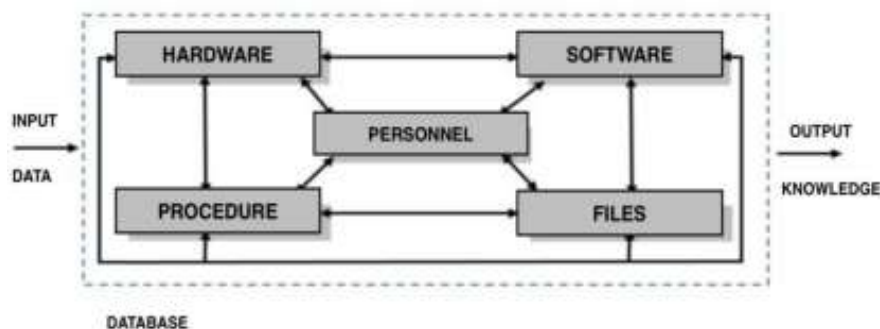


Figure 1. Units & Relations of Information Systems [14]

Computer-based information systems are systems that consist of software, hardware, personnel, files and procedures, which can generate knowledge. Computer-based information systems have been used by many people to help with several things such as decision making [15], data storage and reporting to be more effective [16], and many other benefits.

2.2. Customer Satisfaction

Customer satisfaction is an important thing that needs to be understood by a company if the company wants to develop. If the user is satisfied with the services provided by the company, it will have a positive influence on the company's progress [17]. Customer satisfaction can increase if the user expectation obtained. Vice versa, satisfaction can decrease if user expectation is not obtained [18].

Rapid change and development of Information Technology require organizations to develop the information system. Customer satisfaction is one of the important things from marketing activities, because if the customer feels dissatisfied, it will have an impact on the company's success [19].

Rapid developments and changes in Information Technology require organizations to use HelpDesk System [14]. The Helpdesk system is expected to be able to assist customers in delivering their problems, and also help management managers in monitoring employee performance.

Helpdesk is a customer support center in organization that provides information, support to users, with the intention of solving problems faced by users when using resources or facilities

in the organization. The mechanism for retrieving helpdesk information will be suitable for users in managing complaints and proper system maintenance [5][20]. With the system that handles every problem presented, it can help companies monitor existing problems and maximize the services provided [21]. By providing administrative assistance regarding the work that has been done it will help the user so that the problems faced can be resolved immediately, and also help the helpdesk to monitor any complaints that exist [5].

2.3. Website

A website is a collection of publicly available, interlinked web pages. Websites may be created and maintained by an individual, group, business or organization for a variety of purposes. The World Wide Web is made up of all publicly accessible websites. Websites come in a variety that is almost endless, including educational sites, news sites, forums, social media sites, e-commerce sites, etc. The website pages are usually a mixture of text and other media. That said, the form of a website is not dictated by any rules. A person might create a website of nothing but black and white pictures of roses, or the word "cat" linked with the word "mouse" to another web page. However, many sites follow a standard pattern of a homepage that links off to other categories and content within the website. Websites were initially classified by top-level domains [22].

2.3. XAMPP

XAMPP is free software that supports many operating systems and is a compilation of several programs. Its function is as a stand-alone server or localhost, which consists of the Apache HTTP Server program, MySQL database, and language translators written in the PHP and Perl programming languages. The name XAMPP stands for X, which is four operating systems of Apache, MySQL, PHP and Perl [23].

2.3. PHP

PHP is a programming language that is widely used for handling the creation and development of a web and can be used in HTML. PHP stands for "PHP Hypertext Preprocessor", and PHP is the language that is included in HTML documents, as well as working on the server side (server-side HTML-embedded scripting). This means that the syntax and commands given will be fully run on the server but are included in the normal HTML page, so that the script does not appear on the client side. PHP is designed to be able to work with database servers and is made so that creating HTML documents that can access the database is so easy. The purpose of this scripting language is to make an application where the application which is built by PHP in general will give results to the web browser, but the overall process is run on the server [24].

2.4. Database

Database is a collection of data that is related logically, have a description and used together, which is designed to fulfill the need of information of an organization [25].

2.5. MySQL

The use of DBMS today is very important in all aspects, both on a large or small scale. The DBMS used is MySQL. MySQL is a widely used DBMS. MySQL is the most popular open source database software in the world. MySQL is the first choice for many software and application developers, this is due to the advantages of MySQL including its easy to understand syntax, supported by general programs such as C, C ++, Java, PHP, Python. Based on a survey found on db-engines.com, MySQL in the 2nd position. [26].

3.0 METHODOLOGY

The system development methodology used as the research stage is the System Development Life Cycle (SDLC) [10]. The SDLC method used is waterfall. The stages of the life cycle of the development of the waterfall system used as a stage in this research are as follows:

- a. Planning
At this stage a schedule is made for making system functionality such as user interfaces and databases, which will later be used as guidance in application development.
- b. Analysis
at this stage, the idea of system functionality will be realized. By designing system functionalities, there will be guides for coding processes.

- c. Design
Design that is made in the previous step will be the guide. By using PHP programming language and MySQL as database to implement the design that have made.
- d. Implementation
This step also will also do testing, where programmer will do functionality test and logic test. We also will do Black Box Testing, a testing method focusing on functionality requirements, and if there is something wrong, we will fix bug that will possibly be encountered after it is launched on the market. Programmer will evaluate user satisfaction and that will be the guide to fix the problem and bugg existing.

4.0 RESULANTS AND DISCUSSION

4.1. Proposed System Analysis

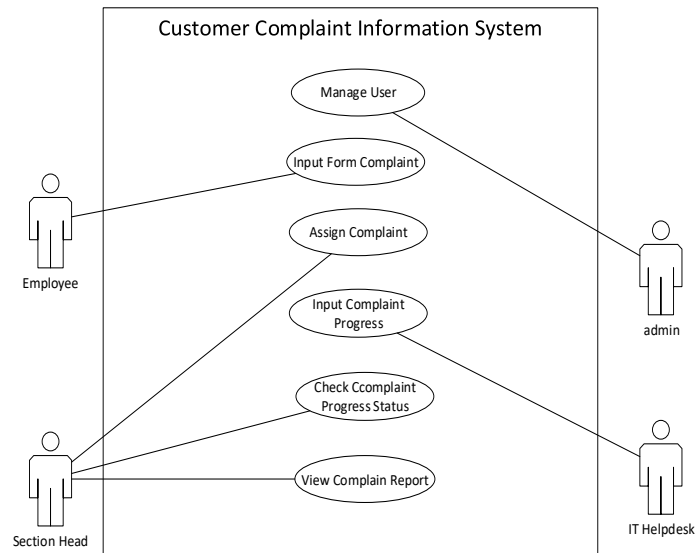


Figure 2. Use Case Diagram of Customer Complaint Information System

With the existence of weaknesses in the ongoing system, a new system is formed, with this expected to run optimally so that it can provide useful benefits for users.

4.2. Functional System Requirement

In this study, the functional requirements of the system are as follows: User, admin, Division Head of IT Services, IT Helpdesk.

1. User / Customer
 - a. Users / Customer should log in to the customer complaint management system by entering email, email, and access rights.
 - b. Users / Customer can choose the type of complaint they experience, and also fill in a description of the problem with the service they are experiencing.
2. Administrator
 - a. Administrators should log in to the customer complaint management system by entering email, email, and access rights.
 - b. Administrators can add, update, delete users / Customer from the system.
3. Division Head of IT Services
 - a. Division Head of IT Services should log in to the customer complaint management system by entering email, email, and access rights.
 - b. Division Head of IT Services can assign assignments to the Helpdesk according to the type of complaint from the user / Customer, and if the Helpdesk takes a leave before the ticket problem is resolved, the Division Head of IT Services can assign another Helpdesk to resolve complaints so that the specified SLA can be reached.
 - c. The Division Head of IT Services verifying user / Customer complaint reports that have been completed by the Helpdesk.
 - d. The Division Head of IT Services can see all complaints to ensure IT services run smoothly.

4. IT Helpdesk
 - a. IT Helpdesk should log in to the customer complaint management system by entering email, email, and access rights.
 - b. If the IT Helpdesk has taken the ticket provided, and is working on it, IT Helpdesk should change the status of the ticket to working on it, and if the ticket is completed then IT Helpdesk should close the ticket to provide information to Division Head of IT Services to verify ticket problems that can be declared close.

4.3. Implementation System

There are several system modules according system design that have been made.

1. Manage Users

Nama Karyawan	Email	No. HP	Posisi	Detail
Annisa Hanifa	annisa@bsn.co.id	081208160816	helpdesk	Edit / Delete
Azam Azmi	azam@bsn.go.id	081210001000	helpdesk	Edit / Delete
Budi Wangid	budi.wangid@bsn.co.id	08121000000	kabid	Edit / Delete

Showing 1 to 3 of 3 entries

Previous 1 Next

Add New Helpdesk / Kabid

Figure 3. Manage Users

This page is a page can be accessed by admin. The features that can be used through this page are displaying information about user.

2. Input Complaint Page

Tipe Keluhan	Jaringan
Judul Keluhan	
Deskripsi Keluhan	
	Submit

Fig. 4. Input Complaint Page

Input complaint page can be accessed by user / Customer. There are 3 types of complaint, that is network, peripheral, application/web.

3. Assignment Complaint Page

Judul Keluhan	Tipe Keluhan	Nama User	Status	Detail
Koneksi Lambat	Jaringan	Yuwan Jumaryadi	Open	Detail

Showing 1 to 1 of 1 entries

Previous 1 Next

Figure 5. Assignment Complaint Page

Each complaint from the/Customer will be sent to the Division Head, then Division Head assigns the Helpdesk to resolve the complaint.

4. Page of Complaint Assignment Detail - Helpdesk

Nama Helpdesk	Annisa Hanifa
Tema Keluhan Pelanggan	Koneksi Lambat
Deskripsi	Lambat tidak seperti biasa
Status	assigned
Tanggal Keluhan	2019-05-01 21:07:50
	<input type="button" value="Update Complain Status"/>

Figure 6. Page of Complaint Assignment Detail - Helpdesk

If the Division Head has assigned a complaint to the Helpdesk, the Helpdesk must change the status of the complaint to inform the Division Head that the complaint submitted is being worked on.

5. Complaint Report

Complain Status Details
Open Complains
Close Complains
Working Complains
Assigned Complains

Figure 7. Assign Complaint Page

Division Head of IT Services can view the report on each complaint, so that the SLA for the IT services provided can be controlled.

5.0 CONCLUSION

With the existence of a customer complaint management system, the head of the Division Head of IT Services can monitor complaints submitted regarding the IT services. Division Head of IT Services also can monitor the assignment of Helpdesk so that the SLA can be fulfilled. This customer complaint information system was built based on the results of interviews with the Division Head of IT Services and Helpdesk, then the results of the interviews were analyzed to make system design. It is hoped that later this application can be developed and accessed on all mobile devices in order to facilitate users in submitting complaints.

ACKNOWLEDGMENT

Thank you to Puslit Universitas Mercu Buana who helped in this research.

REFERENCES

- [1] A. Nugroho dan N. Septafianti, "Aplikasi Monitoring Pengadaan Barang/Jasa Pada Direktorat Penilaian Keamanan Pangan Badan POM RI," *J. Format*, vol. 6, no. 2, hal. 39–55, 2016.
- [2] H. Agustian dan Y. Jumaryadi, "Sistem Informasi Reservasi Kelas Kesehatan dan Pengelolaan Studio (Studi Kasus Studio Headspace Liza Natalia)," *JUST IT J. Sist. Informasi, Teknol. Inform. dan Komput.*, vol. 10, no. 1, hal. 6–12, 2019.
- [3] H. Kesumajansyah dan M. A. B. Yuwono, "Peningkatan Kualitas Pelayanan Di Sf Digital Photo," *SINERGI*, vol. 18, no. 1, hal. 39–46, 2014.
- [4] M. Nückles dan A. Ertelt, "The problem of describing a problem: Supporting laypersons in presenting their queries to the Internet-based helpdesk," *Int. J. Hum. Comput. Stud.*, vol. 64, no. 8, hal. 648–669, 2006.
- [5] R. P. Masongsong dan M. A. E. Damian, "Help Desk Management System," *Proc. World*

- Congr. Eng. Comput. Sci. 2016*, vol. 1, 2016.
- [6] Y. Harwani dan Safitri, "Security and Ease of Use Effect on Customers' Satisfaction Shopping in Tokopedia," *J. Resour. Dev. Manag.*, vol. 33, hal. 20–29, 2017.
 - [7] A. Filip, "Complaint Management: A Customer Satisfaction Learning Process," *Procedia - Soc. Behav. Sci.*, vol. 93, hal. 271–275, 2013.
 - [8] J. Varajão, M. M. Cruz-Cunha, dan M. Da Glória Fraga, "IT/IS Outsourcing in Large Companies - Motivations and Risks," *Procedia Comput. Sci.*, vol. 121, hal. 1047–1061, 2017.
 - [9] R. Hidayat dan L. Listianingsih, "Perancangan Sistem Keluhan Pelanggan Berbasis Web E-RCM dengan Model Waterfall pada PT. Unggul Cipta Teknologi," *Sinkron*, vol. 2, no. 2, hal. 112–118, 2018.
 - [10] G. Maffey, H. Homans, K. Banks, dan K. Arts, "Digital technology and human development: A charter for nature conservation," *Ambio*, vol. 44, no. 4, hal. 527–537, 2015.
 - [11] A. S. Rodriguez, R. P. Campdesuñer, G. G. Vidal, dan R. M. Vivar, "Tools for measuring and improving external customer satisfaction in stores of Santo Domingo, Ecuador," *Int. J. Eng. Bus. Manag.*, vol. 9, hal. 1–12, 2017.
 - [12] Y. Sun, Y. Fang, K. H. Lim, dan D. Straub, "User satisfaction with information technology service delivery: A social capital perspective," *Inf. Syst. Res.*, vol. 23, no. 4, hal. 1195–1211, 2012.
 - [13] A. Rachmadi P., F. Ramdani, dan R. I. Rokhmawati, "Pembangunan Sistem Informasi Manajemen Keluhan Pelanggan Berbasis WebGIS (Studi Kasus: Outlet McDonald's Cabang Watu Gong, Malang)," *J. Pengemb. Teknol. Inf. dan Ilmu Komput. Univ. Brawijaya*, vol. 1, no. 1, hal. 1–5, 2017.
 - [14] S. Serbest, Y. Goksen, O. Dogan, dan A. Tokdemir, "Design and Implementation of Help Desk System on the Effective Focus of Information System," *Procedia Econ. Financ.*, vol. 33, no. 15, hal. 461–467, 2015.
 - [15] G. E. Vlahos, T. W. Ferratt, dan G. Knoepfle, "The use of computer-based information systems by German managers to support decision making," *Inf. Manag.*, vol. 41, no. 6, hal. 763–779, 2004.
 - [16] K. Ravindra, "A Computer-Based Information System for Health Administration," *IETE J. Res.*, vol. 22, no. 5, hal. 281–286, 1976.
 - [17] B. Angelova dan J. Zekiri, "Measuring Customer Satisfaction with Service Quality Using American Customer Satisfaction Model (ACSI Model)," *Int. J. Acad. Res. Bus. Soc. Sci.*, vol. 1, no. 3, hal. 27, 2011.
 - [18] H. L. Kusuma, "Analisis Pengaruh Customer Relationship Marketing dan Layanan Purna Jual Terhadap Kepuasan Pelanggan," *Oper. Excell. J. Appl. Ind. Eng. (OE Journal)*, vol. 9, no. 3, hal. 236–248, 2017.
 - [19] R. Widayawati, "Analisis Faktor – Faktor Yang Mempengaruhi Kepuasan Sehingga Tercipta Word of Mouth Yang Positif Pada Pelanggan Speedy Di Semarang," *J. Sains Pemasar. Indones.*, vol. 8, no. 1, hal. 80–88, 2009.
 - [20] R. Heckman dan A. Guskey, "Sources of Customer Satisfaction and Dissatisfaction with Information Technology Help Desks," *J. Mark. Manag.*, vol. 3, no. 1, hal. 59–89, 1998.
 - [21] C. Cassandra, "Pengembangan Model Sistem Informasi Aplikasi Helpdesk Online PT. Mustika Memadata," *ComTech Comput. Math. Eng. Appl.*, vol. 6, no. 2, hal. 173, 2015.
 - [22] Technopedia, "What is a Website?," 2019. .
 - [23] F. U. Sembel dan M. Ziveria, "Decision Support System for Selection of the Best Students in SDIT Gema Nurani complete information data that is," *I-STATEMENT Inf. Syst. Technol. Manag.*, vol. 4, no. 2, hal. 101–114, 2018.
 - [24] Y. A. Binarso, E. A. Sarwoko, dan N. Bahtiar, "Pembangunan Sistem Informasi Alumni Berbasis Web Pada Program Studi Informatika Universitas Diponegoro," *J. Informatics Technol.*, vol. 1, no. 1, hal. 72–84, 2012.
 - [25] T. Connolly dan C. Begg, *Database Systems: A Practical Approach to Design, Implementation, and Management*, 6th ed. London: Pearson, 2015.
 - [26] I. Warman dan R. Ramdaniansyah, "Analisis Pebandingan Kinerja Query Database Management System (DBMS) antara MySQL dan MariaDB 10.1," *J. Teknoif*, vol. 6, no. 1, hal. 32–41, 2018.