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Electronic Correspondence Management Application Design

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Abstract

The aim of this research is to find out how to implement and optimize the electronic correspondence management application for all employees. Data collection in this research used literature study methods, field studies, observations, and interviews. In the method used for this research, the author uses the phases contained in the FAST methodology (framework for the application of systems thinking). Based on the results of this research, it was found that designing an electronic correspondence management application can be done using the system development methodology proposed by FAST (Framework Application of System Thinking) using 7 phases out of the 8 phases contained in FAST. The phases used are: definition scope, problem analysis, requirements analysis, logical design, physical design, construction, and implementation. In terms of building this electronic correspondence management application, the implementation process or writing code can use the PHP and MySQL programming languages.

Keywords: ecm, letter, disposition, work control, report.

INTRODUCTION

One of the main factors in the success or failure of a business is customer satisfaction. If customers are happy with the services provided by business actors, it is not impossible that they will become more loyal to the business, and vice versa, if they are not satisfied with the service, then they will give a bad assessment of the company and will not return to using the product or service. PTC as a service provider company always monitors customer satisfaction every 3 years and as proof of its seriousness in maintaining customer satisfaction, the company includes elements of customer satisfaction in its organizational policy: ISO 9001:2008. Quality targets. Values: Work according to the demands of the customer. And joint work ethics. Based on this, the company improves the quality of service it provides to customers (Bunafit, 2014).

Data from a third-party customer satisfaction survey on one of the businesses in the following image: Competence and responsiveness attributes are still lower than competitors or other attributes in the company are the company's capabilities that have strategic value and become a center of expertise to realize the company's mission or that contribute to providing profits for the company. The competency in question is related to technical expertise, process reliability, close relationships between the company and customers, dedicated employees,

market share, and broad service coverage. Responsiveness is a company's responsiveness to customers, both in the form of responsiveness to written and unwritten information. The responsiveness in question is related to the quality of information handling, such as the reliability of receiving information, clarity of information flow, PIC responsibility and authority, equipment reliability, and other factors that influence the quality of information handling (Lee at al., 2008). Attributes (competence and responsiveness), which have lower index values than other survey attributes, are expected to increase in value in future surveys. Based on the information above, the author and field supervisor focused the research on problems related to responsiveness. This is because to increase the competence index, it is necessary to increase responsiveness first. The author collected data on the incoming letter correspondence process carried out by the secretary (company general administration) for 5 working days. The low responsiveness index in the results of previously conducted customer satisfaction surveys was triggered by the problem of poor information handling in the company (Razaq, 2019).

The presence of computer technology makes it possible to design a computer-based system. The use of computers as a result of the development and progress of information technology in many government organizations and business environments has not made offices completely paperless. The internal correspondence process, which has been running manually so far, has been less efficient. Each disposition process requires quite a lot of paper to photocopy and distribute letters, from the initial incoming letter to the Main Director's desk to the staff carrying out the contents of the letter (Stewart, 2014). By using computers, it is easy to store, organize, and retrieve various data to produce information according to needs and more efficiently. To overcome the problem of poor and inefficient information handling in order to increase the responsiveness index, there is a need for a web-based application that allows users to access information anytime and anywhere. So that the correspondence process for incoming letters can run smoothly and efficiently (Chung & Lim, 2019).

Electronic correspondence management (ECM) is a web-based correspondence management system that can be used to carry out internal company correspondence activities. The ECM application can be used as an alternative solution to the poor responsiveness index and information handling problems in PTC. The ECM application allows the directors to monitor or control the performance of workers and also serves as a reminder for managers to immediately dispose of every letter or task that is their responsibility, then complete the job or report if the letter or task has been completed. This application design was realized to obtain a quality system to build performance effectively and efficiently (Gopal & Sundip, 2020). With this application, all company-related letters or incoming orders can be accessed directly anytime and anywhere so there are no longer any obstacles such as distance or presence to carry out disposition or control of employee work.

METHOD

Data collection in this research used literature study methods, field studies, observations, and interviews. The author evaluates the development of electronic correspondence systems that have been created previously. The evaluation used a literature review of three comparable scientific works as a comparison in order to understand the benefits and drawbacks of scientific works in the development of the electronic correspondence system that the company will develop. In the method used for this research, the author uses the phases contained in the FAST methodology (framework for the application of systems thinking). The following are the phases in the FAST methodology used by the author in this research. Scope definition: In this phase, the author collects information that examines the level of feasibility and scope of the project, namely by using the PIECES

(Performance, Information, Economics, Control, Efficiency, Service) framework. In the problem analysis phase, the author explains further whether the problems that arise can be solved. At this needs analysis stage, the author aims to identify and recognize the problems and solution needs of the user, as well as the data processes and interfaces needed to build the system. The steps taken in this stage include identifying system requirements by analyzing requirements in the form of functional and non-functional requirements.

In this phase, the author describes the business processes of the proposed system. As well as using the UML (Unified Modeling Language) tool as application development because the author wants to explain and visualize the analysis process and aims to help capture the behavioral structure of objects to make it easier to describe interactions between elements and systems and maintain concentration on the proposed system. For this physical design phase, the author uses an advanced method of analysis, namely OOD (object-oriented design), to model relationships better to accurately determine the software components and the system design that will be proposed. For this reason, the author reuses UML as a tool. In order to filter the use cases and objects used to show the actual environment of the solution for the purpose of this research. In this phase, the author also designs the physical design of the system being built. At this construction stage, the author aims to write program code, test, document, and evaluate the system to determine whether it is running well and correctly. After the testing stage, at this stage, the author operates the system that has been built. At this stage, implementation brings the production system into operation.

RESULT AND DISCUSSION

The mechanism in the correspondence process is less effective because it is still manual, relying only on agenda books and has not been monitored properly. The mechanism for searching for letters again takes a long time because the storage is still not properly classified. There is no database, which makes the procedures in the process take longer because it is not yet neatly integrated. The duplication (photocopying) process tends to be slow because the queue takes more than 60 minutes. The letter distribution process is slow because sometimes it takes more than two days. The delivery of information is hampered because sometimes the PIC is not in place. Delivery of information from superiors to staff regarding incoming letters tends to be slow. There is no integrated database to store and follow up on incoming letters. Incoming letters have not been archived properly. The duplication process requires a lot of paper so it requires higher costs. Many large projects are delayed due to slow correspondence.

The absence of control over incoming mail is managed by utilizing technology. Incoming letters are not coordinated, which slows down the correspondence process. There is no monitoring carried out by superiors toward staff. Time efficiency in terms of the distribution and disposition of letters or assignments is still lacking. Follow-up on letters is considered less efficient because sometimes one letter is handled by two people. The company does not yet have a computerized mailing system with a database. There are no reports of letters or assignments that have not been or have been followed up. Based on the results of the analysis obtained, the author can outline several weaknesses in the current system, including: It involves a lot of staff because it is not computerized. There are repetitive activities in the letter duplication process. The archiving process is not well documented. There are no reports of letters or assignments that have not been or have been followed up. Weaknesses that exist in the company related to correspondence management can lead to the conclusion that all parts of the letter are not controlled professionally, which results in difficulties in monitoring follow-up on incoming letters. The following is a running system procedure, which is visualized through a use case diagram. After the researchers carried out an evaluation of the correspondence information system that had been created. Researchers concluded that there

are weaknesses in these systems, such as: The system is not integrated with the user database, thus allowing repetitive activities and retrieval of data that has been created.

In accordance with the system requirements phase, this process is created so that the workflow cycle for creating the ECM system can be accepted and understood by system users. There are several sections involved in running this ECM system, including the staff, manager, secretary to the directors, and directors. Then, in the input system, every running process is carried out by what is called an actor. The Secretary to the Directors actor receives the letter first, then uploads the letter into the ECM system. If the incoming letter is in hardcopy form, the Secretary to the Directors actor scans the hardcopy of the letter, and then the scanned results are uploaded into the ECM system. During the upload process, the Board of Directors Secretary actor inputs the letter attributes such as letter title, letter date, letter destination, to, project type, letter number, date of the incoming letter, sender's name, sender's position, company, and the attachment you want to include. After the letter has been uploaded along with its attributes, director actors (President Director, Finance Director, Operations Director, and Marketing Director) can access the letter that has been addressed to them.

This activity diagram can also be replaced with some text, but the use of text is sometimes difficult to understand if you choose alternative options for certain events. Therefore, activity diagrams can also be presented in graphical form. This sequence diagram will later explain in detail the sequence of processes or messages carried out in the system to achieve the goals of the use case, where these processes or messages are events or methods from objects to classes that are contained in the development of this system. The following are several sequence diagrams of the design of this ECM system, namely: The user wants to log in to the ECM system by inputting the username, position, and password, and then the system will validate the username, position, and password. The system displays an input window, and then the user enters the username, position, and password. If the username, position, and password are entered correctly, the system will display the main page. If you enter the username, position, and password incorrectly, the system will display an error message and ask the user to re-enter the username, position, and password. The Secretary of the Board of Directors wants to upload letters and letter description attributes based on the completeness of the letters received from the company. The main director wants to monitor letters that have been previously disposed of.

The President Director chooses which division will carry out monitoring and the system will display a list of incoming letters that have been disposed of along with the duration (processing time) of the letters. The secretary of the board of directors, PIC (Person in Charge), and people related to the letter disposition process can read the letter by downloading the letter file attached to the list of incoming letters to determine the next action. The director or manager wants to dispose of or provide information about the letter to staff or related divisions who have the authority to know the contents of the letter that will be disposed of. When the director or manager carries out a disposition, the date of the process when the disposition is carried out will be immediately recorded in the system and database. The difference between the date the letter was received and the date the disposition process was carried out is monitored by the president and director. The relevant directors or managers who are authorized to know about each letter that is posted can read the letter that is communicated to them by downloading the attached file. The party receiving the information is determined by the decision-maker. The staff wants to provide a report on the work or contents of the letter that they have completed. The report will be sent to the relevant manager page. The relevant manager wants to complete the job, which is to indicate that the letter process has been completed and the calculation of the monitoring date has stopped.

Interface design to make user interactions as simple and efficient as possible in terms of

achieving user goals. The main page display is divided into several parts, namely background (displays an image as the basis of the display), header (displays the text/title of the Electronic Correspondence Management application), and a menu area that displays the company logo and a menu to access the Main Director page, Corporate Secretary page, page Finance Director, Operations & Marketing Director page, Directors Secretary page, HR & General Division page, Finance Division page, P3 Division page, BUJP Division page, and Operations Division page, as well as a link. The design of the login page display is divided into several parts, namely login details (displaying requirement fields that must be filled in, such as selecting a position, filling in a username, and entering a password), and login procedures (containing instructions or steps to be able to log in and use the application). The display design of the main menu page (Secretary of the Directors) is divided into several parts, namely the header (containing the logo and text of the Secretary of the Directors page) and several menus that can be accessed by the Secretary of the Directors (menu for viewing the list of letters, uploading letters, changing passwords, and exiting application/logout), as well as information regarding the menu displayed.

The design of the Main Director's letter list page display is divided into several parts, namely the header (page title), a field to search for the title of the letter, a table of lists of letters incoming to the company, as well as a logout button and a button to return to the Main Director's page. The display design for the President Director's disposition list page is divided into several parts, namely the header (page title), a table listing incoming letters to the company that must be immediately disposed of (there is a button for disposition), as well as a logout button and a button to return to the President Director's page. The design of the Main Director's disposition page display is divided into several parts, namely the Main Director's disposition form (to fill in the disposition objective, provide information, and provide a disposition message), an information table regarding details of the letter to be disposed, as well as a logout button and a button to return to the Main Director's page. The header (page title), a field to search for the letter title, a status table for letters that the President Director has disposed of, a logout button, and a button to return to the Main Director's page are the various components of the display design for the President Director's letter disposition status page.

The display design of the work control page is divided into several parts, namely the header (containing the logo and text of the Main Director's work control page) and several menus that can be accessed by the Main Director to see the duration of the letter process in each division (BUJP, Secretary, HR & General, P3, Finance, and Operations), as well as information regarding the menu displayed (underneath there is a button to return to the main page and log out). The display design of the main menu page (Board of Directors) is divided into several parts, namely the header (containing the logo and text of the Board of Directors page) and several menus that can be accessed by the Board of Directors (menu for viewing letter lists, making dispositions, viewing disposition status, viewing/reading info, changing password, and exiting the application/logout), as well as information regarding the menu displayed. The page display design for viewing and reading directors' information is divided into several parts, namely the header (page title), a table listing letters that are informed to the directors when the main director makes a disposition (there is a button to download the letter), as well as a logout button and a button to return to the directors' page.

The display design of the main menu page (Manager) is divided into several parts, namely the header (containing the Manager logo and page text) and several menus that can be accessed by the Manager (menu for viewing the list of letters, making dispositions, viewing completed letters, viewing/reading info, changing password, and exiting the application/logout), as well as information regarding the menu displayed. The display design for the list of completed letters page is divided into several parts, namely the header (page

title), a table listing letters and tasks that have been completed by staff (there is a button to change the status of completed letters), as well as a logout button and a back button. The staff page display design is divided into several parts, namely the header (which contains the logo and page title) and a menu that can be accessed by staff (for viewing the mail list, viewing mail assignments, changing passwords, and logging out), as well as a description of the menu displayed.

Based on the form that has been filled out by the director's secretary, the address of the letter is "President Director". Then the letter will be included in the list of letters that must be immediately disposed of by the main director. Now the position of the letter is with the President Director, who is responsible for continuing the letter distribution process. The President and Director can read and download letters that have been included in the letter disposition list before dispositioning them or providing information to parties related to the contents of the letter. The President and Director can click the "DISPOSITION" button to place the letter. After clicking the disposition button, the letter disposition form will appear. After testing that focused on the functional requirements of the software and testing several letter distribution scenarios from the time the letter was uploaded by the director's secretary until the letter was processed, a solution to the problems previously stated in the PIECES framework was found.

CONCLUSION

Designing an electronic correspondence management application can be done using the system development methodology proposed by FAST (Framework Application of System Thinking). Using 7 of the 8 phases contained in FAST, the phases used are: scope definition, problem analysis, needs analysis, logical design, physical design, construction, and implementation. In terms of building this Electronic Correspondence Management application, the implementation process or writing code can use the PHP and MySQL programming languages. This can be proven from the results of system implementation and source code, as well as the application print screen in the attachment. To optimize the ECM application, it is equipped with alerts that are useful for reminding responsible users to immediately process letters for which they are responsible. This alert will display the number of days the mail has been pending. The functions of this Electronic Correspondence Management application can run well by including detailed letter information attributes such as letter destination, PIC, project type, letter number, letter date, incoming letter date, sender's name, sender's position, company, and letter title. This was proven in the system testing process, where the test results almost completely matched what the author expected.

Application developers must be able to develop applications with new technology that are more attractive and user-friendly. When developing an application, it is best to carry out the material/file collection stage thoroughly to make it easier to develop the application. To get maximum application display, it is best to use a device that uses a screen resolution according to the developer's recommendation, namely 1366 x 768 pixels. Application maintenance should be carried out periodically. Good coordination between the developer and the institution must be well established so that there are no misunderstandings and the application created can be as desired.

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