Development of Web-Based Personnel Information System on My-HK Unesa

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Abstract. Services in the field of staffing related to proposed promotions and positions, study tasks and study permits, pensions, and data archive management that are conducted manually require energy and a long time. The use of information systems is very necessary to support acceleration, convenience, and comfort in providing services. However, staffing services at the State University of Surabaya are conducted manually. The purpose of this study is to develop a staffing information system on my-HK Unesa based on the web and conduct an effectiveness test. The method used in this study is research and development (R&D) with a system development method, namely waterfall. The result of this study is the My-HK Unesa information system that has successfully run and functioned according to requirement analysis. The effectiveness test has been conducted using the End User Computing Satisfaction (EUCS) method through questionnaires with respondents of employee staff, lecturers, and administrative staff. The results showed that from the aspect of content by 84.58%, accuracy by 87.78%, format by 91.87%, ease of use by 91.04%, and timelines by 88.13%. So, in general, respondents are very satisfied with the development of the My-HK Unesa information system. Thus, the results of the development of the My-HK Unesa information system can be implemented by evaluating and improving to provide effective and efficient services.

Keywords: Development · Information system · My-hk unesa

1 Introduction

Staffing services related to promotion and position, study duties, study permits, and employee pensions that are carried out manually require a lot of energy and time. So that the transformation of services from a manual model to a digital technology-based information system is very necessary to achieve goals effectively and efficiently [1]. One form of transformation to digital is by developing information systems as needed. These information systems in staffing services are necessary because they can support speed, convenience, and comfort in service [2]. Higher education must be responsive to the use of technology and information systems to improve the quality of services.

The staffing service model related to proposed promotions and positions, study tasks, study permits, and pensions at the State University of Surabaya is conducted manually

due to limited information systems. The service is conducted starting by the proposer who sends his physical file to the staff in their respective work units. Then the work unit staff scans the files and processes them which are then sent to the legal staff and staff of the Unesa center in physical form or via email. Usually, the file is sent in physical form, so it is necessary to re-scan the file and then process it. Even though these activities are routinely conducted by employees with a lot of files. So the activity is quite a time consuming and more energy [3]. Especially with the risk of loss or damage to data. As well as being constrained by the status of processing that the proposer cannot know and must ask the staff staff.

Research on the use of information systems to manage staffing services has been carried out. [4] conducted a study that aimed to determine the implementation of the SIDASRI Application (Independent Accurate Data Information System), the management of promotions to functional positions of teachers. The study resulted in that there was a positive influence of the implementation of the SIDASRI application on the management of promotion because it accelerated the completion time of promotion management. However, the research conducted by Darnawati was carried out on the functional position of a junior high school teacher in Tempe District, Wajo Regency. And used only for promotion. While this research was conducted at the State University of Surabaya. In addition, the system is also used to manage proposals for promotions and positions, study assignments for study permits, pensions, and data archives [4].

Similar research was also conducted by Donoriyanto *et al.* which aimed to produce an effective and efficient Lecturer Workload / Beban Kerja Dosen (BKD) information system compared to the manual carried out so far. The system design method used is a waterfall. The result is that compared to the old way of being done manually, the new way by utilizing information systems worked more effectively. This shows that utilizing information systems helps the management process more quickly, effectively, and efficiently [5]. Donoriyanto's research was conducted at the East Java National Veterans Development University and only processed the workload of lecturers. Meanwhile, the research conducted was carried out at the State University of Surabaya to process proposals for promotions and positions, study assignments for study permits, pensions, and data archives of lecturers and administrative staff.

From the previous description, it is necessary to transform the manual service model into a digital within the State University of Surabaya to achieve the goal of providing effective and efficient services. Therefore, the State University of Surabaya innovated by developing a web-based information system My-Law and Staffing (Hukum dan Kepegawaian/HK) State University of Surabaya (Universitas Negeri Surabaya/Unesa) which was later called My-HK Unesa. My HK Unesa was developed to provide information in the field of law and staffing related to proposed promotions and positions, study duties, study permits, and pensions as well as filing files [6]. So that with this research, it is hoped that staffing management related to proposed promotions and positions, study assignments for study permits, pensions, and staffing data archives will run effectively and efficiently.
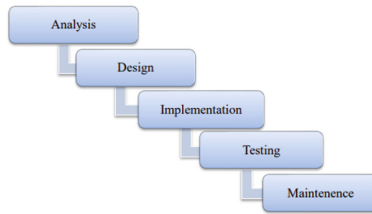
Fig. 1. Waterfall model

2 Methods

The research method used is Research and Development (R&D). Adopting the R&D steps revealed by Saputro consists of three (3) stages, including preliminary study, development, and testing [7].

2.1 Research

Research was conducted to analyze the needs of the system. Preliminary studies are conducted with literature studies and field studies through questionnaires and interviews with staffing managers. At this stage, a draft of the model is generated.

2.2 Development

Conducting the development of information systems based on draft models. The method of developing the information system used is the waterfall. The waterfall method is used because it is easy to understand by ensuring each stage is met before proceeding on to the next stage [8]. The waterfall method has 5 stages, as in Fig. 1.

The step waterfall method as follows [9] :

2.2.1 Analysis

Analyze the needs of the information system to be developed, both functional and non-functional.

2.2.2 Design

Planning and designing software based on the results of analysis, ranging from algorithms, use case diagrams and others.

2.2.3 Implementation

The process of developing an information system based on the design that has been made. This process includes writing code and compiling it into operational applications.

Table 1. My-HK Unesa requirement

No	Requirement	Information
1	Proposed management of promotion & position	Proposed status available
2	Proposed study assignments & study permits	Proposed status available
3	Proposed pensions	Proposed status available
4	Proposals by period	Staff uploads data
5	Data Archive	All proposed data is stored
6	Announcement	All users can access

2.2.4 Testing

Check the information system whether it meets the specifications. In this phase also find faults in the system and fix them.

2.2.5 Maintenance

This stage includes the maintenance of information systems ranging from correcting errors, improving performance as well as improving reliability, and others.

2.3 Testing

The information system that has been developed is conducted testing of menu functions and effectiveness tests to respondents. The effectiveness test was conducted using the End User Computing Satisfaction (EUCS) method.

3 Results and Discussion

The development of the My-HK Unesa information system consists of several stages.

3.1 Research

Interviews and questionnaires were conducted to analyze the requirement of the system. At this stage, several requirement systems are in Table 1.

Table 1 shows that the most important needs in the system are the fulfillment of the menu of management of promotion & position, study assignments and study permits, pensions, data archives, and announcements.

3.2 Development

The My-HK Unesa information system into 3 types of users, namely: guests (without account), central staff, and faculty staff shown in Fig. 2.
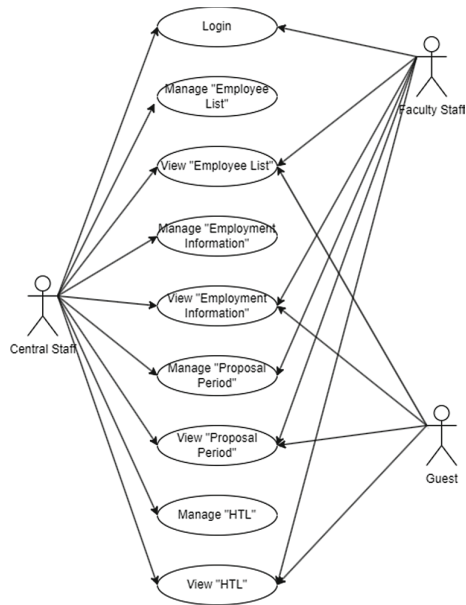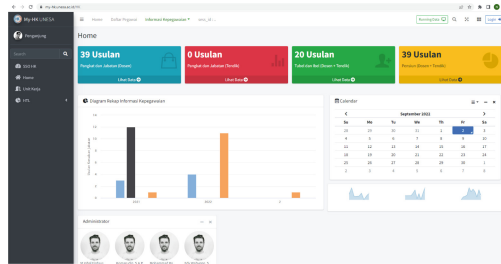
Fig. 2. Use Case Diagram.

Fig. 3. Home Page.

Unesa's My-HK information system can be accessed on the https://my-hk.unesa.ac.id/HK page. The menu of the page is shown in Fig. 3, 4, 5, 6, 7, 8 and 9.

3.3 Testing

The testing stage is conducted to test whether the information system is running by its function. It is shown in Table 2.

At this stage, a system effectiveness test was carried out with a sample of 30 people consisting of employee staff, lecturers, and administrative staff. The characteristics of the respondents based on employee status are as in Fig. 10.

Fig. 4. Management of promotion and position page.

Fig. 5. Proposed study assignments and study permits page.

Fig. 6. Proposed pension page.

Of the 30 respondents, it consisted of staff as much as 67%, lecturers as much as 20%, and administrative staff as much as 13%. The characteristics of respondents based on gender are as in Fig. 11.

Respondents consisted of males as much as 60% and female as much as 40%.

The effectiveness test was carried out using the EUCS method from Doll & Torkzadeh which consists of 5 aspects, namely content, accuracy, format, ease of use, and timelines [9]. Data were obtained through questionnaires with alternative answers using a Likert scale. There are 4 alternative answers, namely 4 = strongly agree, 3 = agree, 2 = disagree, and 1 = strongly disagree. The following are the results of the respondents' questionnaire answers based on each aspect. The content aspect consists of 4 question

Fig. 7. Delivery period page.

Fig. 8. HTL page.

Fig. 9. Running data page.

items, so the number of answers for the content aspect with 30 respondents is 120 answers. From Fig. 12, it can be seen that the results of the questionnaire response based on the content aspect obtained that as many as 49 strongly agree on answers, 68 agree on answers, and 3 disagree answers.

The accuracy aspect consists of 3 question items, so the number of answers to the accuracy aspect with 30 respondents is 90 answers. From Fig. 13, it can be seen that the results of the questionnaire response based on accuracy aspects were obtained as many as 47 strongly agree answers, 42 agree answers, and 1 disagree answer.

The format aspect consists of 4 question items, so the number of answers to the format aspect with 30 respondents is 120 answers. From Fig. 14, it can be seen that the

Table 2. System test results

| No	Requirement	Menu Name	Results
1	Availability of information on the status of the proposed promotion and position	Proposed Management of promotion and position	Success
2	Availability of information on the status of study assignment proposals and study permits	Proposed study assignments and study permits page	Success
3	Availability of pension proposed status information	Proposed pension	Success
4	Availability of online proposal submission and upload period information	Delivery period	Success
5	Availability of media for online data archives	HTL	Success
6	Availability of information media and staffing-related matters	Running data	Success
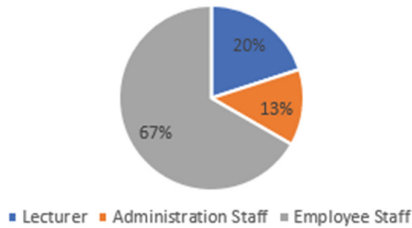
Fig. 10. Characteristics based on employee status.
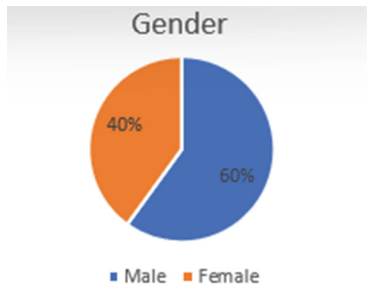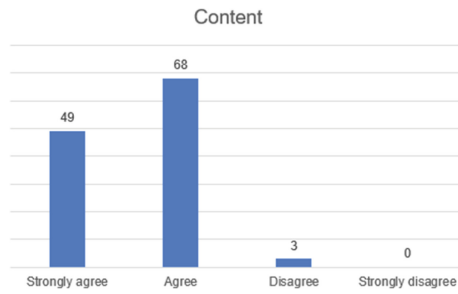

Fig. 11. Characteristics based on gender.

Content

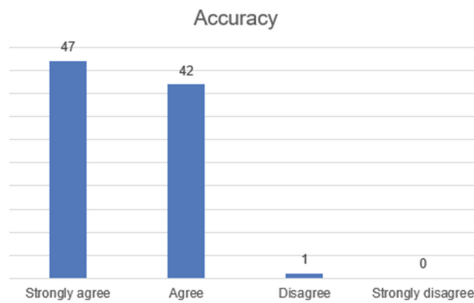Fig. 12. Responses based on content aspects.

Accuracy

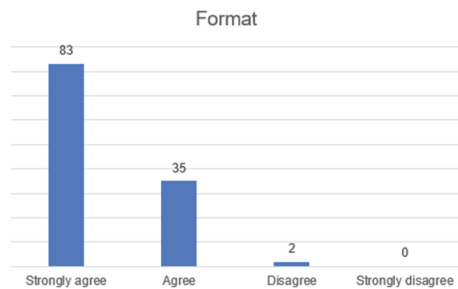Fig. 13. Responses based on accuracy aspects.

Format

Fig. 14. Responses based on format aspects.

results of the questionnaire response based on the format aspect obtained as many as 83 strongly agree on answers, 35 agree on answers, and 2 disagree answers.

The ease of use aspect consists of 4 question items, so the number of answers to the ease of use aspect with 30 respondents is 120 answers. From Fig. 15, it can be seen that the results of the questionnaire response based on the ease of use aspect obtained as many as 79 strongly agree with answers, 39 agree with answers, and 2 disagree with answers.
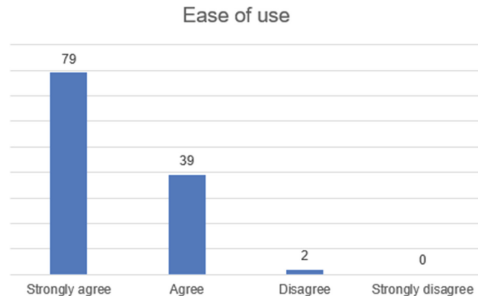
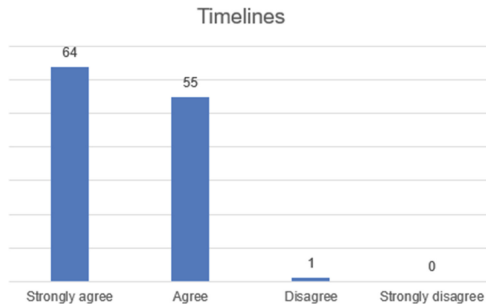**Fig. 15.** Responses based on ease of use aspects.

Fig. 16. Responses based on timelines aspects.

The timelines aspect consists of 4 question items, so the number of answers to the timelines aspect with 30 respondents is 120 answers. From Fig. 16, it can be seen that the results of the questionnaire response based on the timelines aspect obtained as many as 64 strongly agree on answers, 55 agree on answers, and 1 disagree answer.

The questionnaire response data was then analyzed by calculating the satisfaction index using Eq. (1) [10][11].

$$index\% = \frac{\sum RS}{\sum PS} \times 100 \tag{1}$$

Information:

ΣRS = Total of results score

ΣPS = The highest score of the Likert scale x total of question items x total of respondents.

The satisfaction values that have been calculated are then grouped into a range of categories divided into 5 types, which are shown in Table 3.

Table 4 is the satisfaction index and category of each aspect.

Table 4 is the result of user satisfaction which shows that the satisfaction index in the content aspect is 84.58%, the accuracy aspect is 87.78%, the format aspect is 91.87%, the ease of use aspect is 91.04% and the timelines aspect is 88.13%. It can be known that in general users are very satisfied with the development of the My-HK Unesa information system. The aspect that has the highest satisfaction index is the format which means that

Table 3. The range of categories

Range	Category
0%–19,99%	very dissatisfied
20%–39,99%	dissatisfied
40%–59,99%	quite satisfied
60%–79,99%	satisfied
80%–100%	very satisfied

Table 4. User satisfaction results

No	Aspect	Index	Category
1	Content	84,58%	very satisfied
2	Accuracy	87,78%	very satisfied
3	Format	91,87%	very satisfied
4	Ease of use	91,04%	very satisfied
5	Timelines	88,13%	very satisfied

respondents feel very satisfied with the My-HK Unesa interface display. Meanwhile, the aspect that has the lowest satisfaction index is content, which means that there need to be improvements related to the completeness of the content on My-HK Unesa. To achieve effective and efficient service delivery, it is necessary to evaluate and improve the system.

4   Conclusion

The My-HK Unesa information system has been developed and can run and function according to requirement analysis. My-HK Unesa provides information related to proposed promotions and positions, study assignments and study permits, pensions, and archiving staffing data. The effectiveness test conducted on respondents including lecturers and administrative staff as well as staff managers showed that from the aspect of the content at 84.58%, accuracy of 87.78%, the format at 91.87%, ease of use of 91.04%, and timelines of 88.13%. This shows that in general respondents are very satisfied with the development of the My-HK Unesa information system. To improve effective and efficient services, it is necessary to improve the system based on the results of the evaluation.

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