International Journal of Engineering & Technology, 7 (2.14) (2018) 212-215

International Journal of Engineering & Technology

Website: www.sciencepubco.com/index.php/IJET

Research Paper

E-Service in University Research

Nurliana Nasution[1], Alexsander Yandra[2], Mhd Arief Hasan[1]

[1]Technical Information Department, Universitas Lancang Kuning, Pekanbaru, Indonesia
[2]Administration Department, Universitas Lancang Kuning, Pekanbaru, Indonesia
Corresponding Author E-Mail:Nurliananst@Unilak.Ac.Id

Abstract

The advancement of information technology plays important role in running an organization's business. E-service is a kind of business process as a result of the information technology advancement. A Research Institute and community service (*LPPM*) in a university keeps its role to manage all the activities of academic in which providing an excellent services for the lecturers as university researchers. An effective and efficient application for providing an excellent service is needed to facilitate the activities of research and community service conducted by lecturers. E-service provides a relationship between organizer service and community as the users mediated by information technology. E-service is a form of software design using internet to facilitate the interactions of clients (people or other forms of electronic services).

Keywords: *E-Service, Research, Community Service, University*

1. Introduction

The advancement of information technology [1]–[8] has great influences on organization in running the business. E-Service is a kind of business process as a result of the advancement of information technology. Internet has been successful to facilitate an organization to provide an exellent service effectively and efficiently[9]. As the result, rigorous competitions between electronic providers is increasing in the means of users' demands[10].
Nowadays, numbers of organization stipulate identical products for users. The difference among the organizations is only on how giving the service for users which finally creating users' perceptions on the quality of service. The quality of service has important role to the sustainability of organization to run the business. High quality of E-Service increases the users' satisfaction and loyalty, whereas low quality one decrease in terms of users' dissatisfaction. For long term satisfaction of users, an organization needs to consider this important point. The effectiveness of online service can be measured through the users' satisfaction on the their interaction with the technology use and the providers of service[11].
A research institute and community service in a university keeps its role to manage all the activities academic in which providing an excellent services for the lecturers as university researchers. Therefore the unit covers the development and data management for the university power in making institutional decisions.
The activities of a research institute and community service in a university is a part responsibility of the three pillars Higher Education (comprising education, research, and Community Service) in developing science and technology. Therefore, the crucial functions are making coordination, improving the quality and quantity of research, implementing science and technology based innovations, and providing a widely society corporation to mediate the results of research[12] .
Yet, sparse literature and practice on computer and nets used by parties including companies and universities are in the form of E-Service such as E-Learning[13]–[15] dan E-Commerce. E-Service cuts the budget and affords comfort for users. In its recent development, many users function websites for E-Commerce dan E-Learning to sell services or products, even for promoting educational services[16].
E-Service offers mutual relationship between organizer service and community as the users mediated by information technology[17]. The main objective is fulfillment of online research services and community service activities in university (Case study in Lancang Kuning University). By providing E-Service, there will be an ideal and clear procedural descriptions on how to propose research and community service skims for university lecturers.

2. E-Services

As mentioned above, E-Service is a software design (internet mediated) to facilitating the interaction of the clients. It can be done in direct or other E-Service to assign one program[18]. According to [10], [19], E-Service is defined as human actions, efforts, and works facilitated by internet. Therefore, E-Service can have stable resistance of users and clients. Three main components are described from E-Service definitions above: provider, users, and transmitters (Technology). For instance, public E-Service is a form of public institution which has business with the users, citizenships, and its solely business.
In this term, provider is one of three components of E-Service. Internet is the main mediator for E-Service, in which classical mediators can be telephone, call center, public kiosk, phone cellular, television). In the context of this study, the attributes of E-Service are:

a. The service uses a software application owned by LPPM accessed by internet.

Copyright © 2018 Nurliana Nasution. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

b. The application is developed with some level of users (lecturers, reviewers, and administrators) as the legal parties in the unit of LPPM.
c. The service software provides an effective and efficent service for university lecturers to propose the reserach and community service.
d. Provider has secured policy to protect the services given.
e. Provider has private policy to protect the confidential data of users and regulations on how the data is kept. The confidential policy is not covered in the topic of this study, for more details see[20] for derivations and the use.
f. The service is used by person or other application using internet access.
g. The reviewer party has an authority to assess research proposals.
h. The approved lecturers' research and community service proposals should be followed up by filling a log, budget estimation, progress and final reports.
i. The service is free access for lectures.

3. Rapid Application Development

Rapid Application Development (RAD) is defined as a software design approach which is oriented in products and develop a system by suiting software development and requirement gathering to help the end users envision entire solutions[21]. Rapid Application Development (RAD) is a software prototype development employing various tools to quickly produce minimally-coded software applications that enables to create a fully functional system within a very short period of time. The model of RAD is adapted from a high speed linear sequential model in which the rapid development is achieved by using component-based construction. Rapid Application Development is shown as follows :

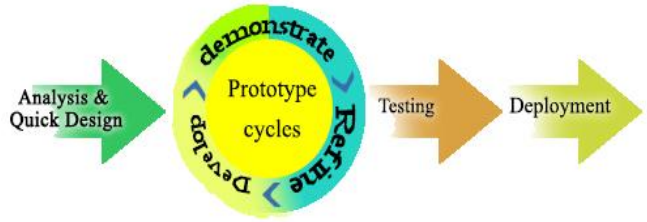


Fig.1: Rapid Application Development

4. Research Methodology

The information system used in the research and community service is web server internet. The system accommodates online service in the activities of research and community service which covers proposing, reporting the progress, the budget justifications, final report, and assessment result of reviewers. The application is designed to replace a previous manual system which was high on cost and big data storage. The new system is integrated with web database using PHP and MySQL. The web server functions to store huge data of lecturers, reviewers, research and community service proposals, and assessment result of reviewers. All the activities are done in online.
The procedures of this study consist of some stages. Firstly, collecting the data of lecturers, reviewers, research and community service proposals, and assessment result of reviewers. The analysis of ongoing process of the system can design and develop a new information system and web server used by lecturers, reviewers, research and community service proposals, and assessment result of reviewers. Therefore, a trial of the system is needed to make sure whether it is running on the right track as planned by the unit of *LPPM*, Lancang Kuning University. The flowchart is shown in Figure 2

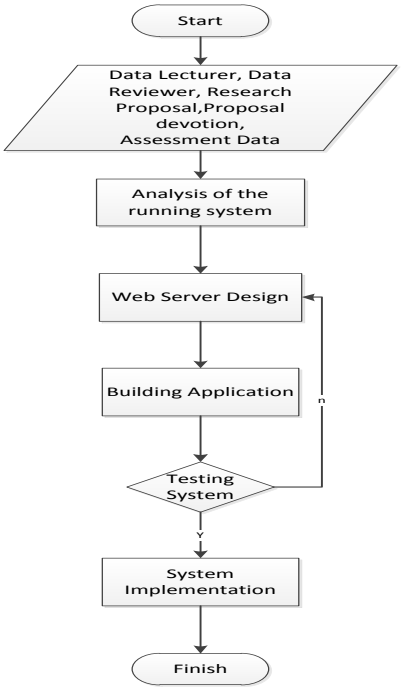


Fig.2: Research Method

5. Proposed Models

A. Process of Business System
E-Service platform is designed In the process of business system. It is a proposed model to develop service system on how to propose research and community service in University context. The system offers possibilities to propose an online activities and to know whether the proposals can be continued for the reviewing process or not. Having a reviewer approval is a pass for lecturers to create logs and reports. Due to certain limits of time, there will be an online progress reports reported by lecturers for the next assessment of the proposal by reviewers. The final stage of the service system is uploading final reports of research and community service. All the activities are done in online system in which the results can be delighted by reviewers for having the next year proposal. The proposed model of business system in LPPM is using case activity as depicted in Figure 3 and the Font Sizes for Papers in Table 1 below.

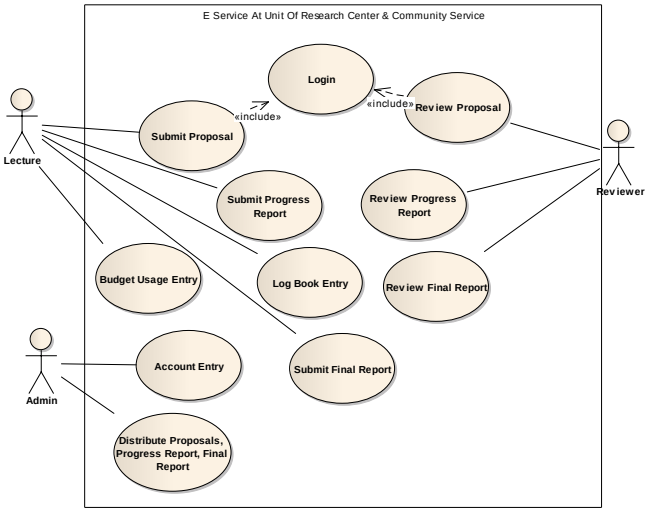


Fig.3: Use Case Activity

B. E-service Proposed Model for Research and Community Service.
All lecturers have rigths to submit the research and community service proposals in the unit of LPPM. Some stages of services provided are :

1) Proposals Submission : Proposal submission is the first stage of the system in which the lecturers need to fill the entity of proposal such as the scheme, title, abstract, uploaded documents, approval of research teams, budget, approval form, and outputs of the research. The sequence diagram is shown in Figure 4.

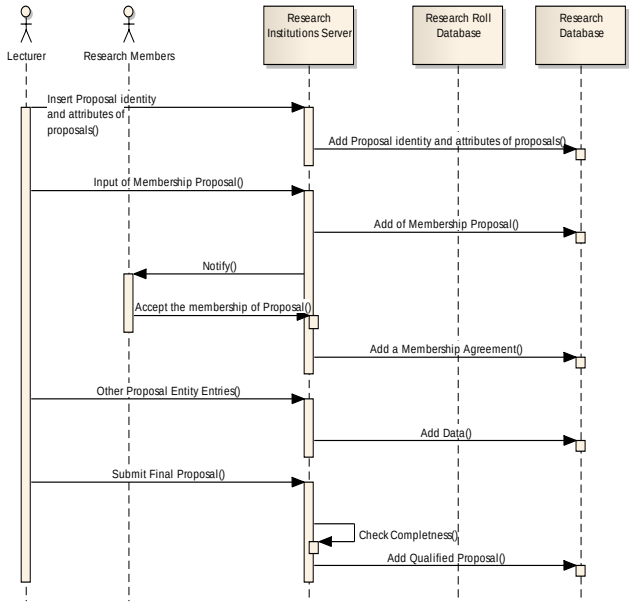


Fig.4: Sequential Diagram

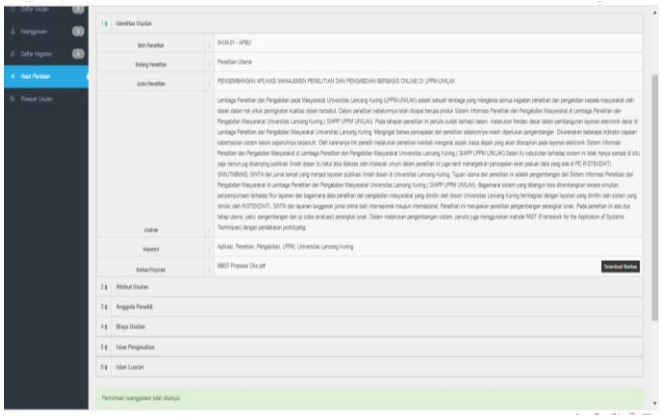


Fig.5: Process of Proposal Submission

Figure 4 and 5 clearly show the process of proposal submission. Starting from the attributes of proposal up to the most important process of submission process, i.e. uploading the documents and research team members. An approval of each member should be traced through their personal account. When all process are well done, the submission process is finished.

2) Reviewers' Assessment Process: When the submission period is finished, the administrators distribute the proposals to be assessed by the reviewers. Rubric is used to assess the proposals for certain aspects, such as the importance of research topic, outputs (journals, products, and intellectual property rights), research methodology, and feasibility. The processes is shown clearly in Figure 6 below.

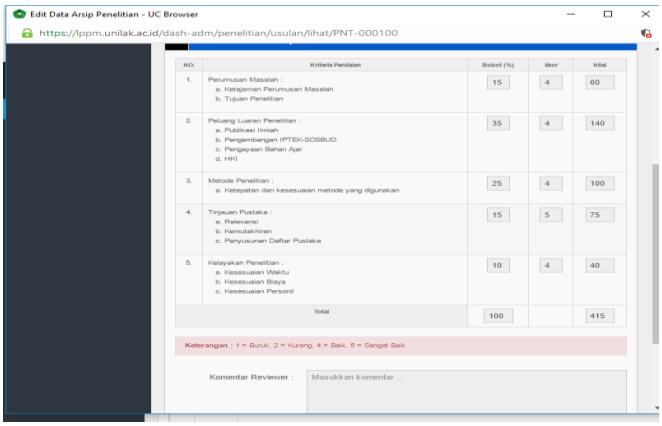


Fig.6: Proses Review Proposal

3) Determinating a Winning Research Proposal: After the process of reviewing the proposal, administrators determine the winning research and community service proposals. It is determined based on the rank scores of the proposal. Below is the sample of the winning proposal (Figure 7).

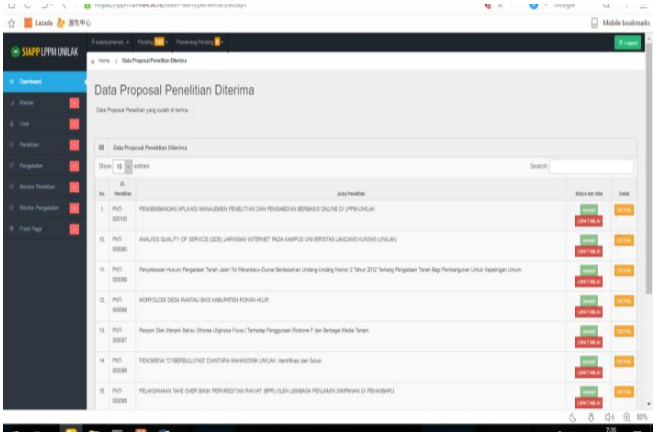


Fig.7: Accepted Proposal

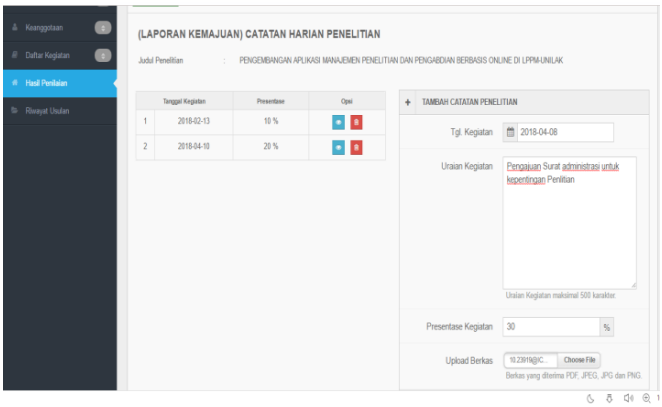


Fig.8: Log Entry

The lecturer's winning proposal is required to entry the log, report of budget justification, progress and final reports as shown in Figure 7 (see the procedures of proposal submission). Administrators keep the responsibilities on re-distributing the proposal to the reviewers to assess the progresses and results. The information is used to regulate the next submission.

6. Conclusion

E-Service for the activities of research and community service in university context is very useful. For lecturers, it offers an effective and efficient services in the lecturers' proposal submission process. For *LPPM,* E-Service provides effortless and uncompli-

cated records and monitors of research data. Automatically, the service improves the service quality for the institution needs.

Acknowledgement

We thank Research Institute and Community Service, Lancang Kuning University Pekanbaru, Riau who supported this study which finally can develop a useful product in the form of information system management for research and community services. The findings of the study will be an article for additional references for future researchers in this topic.

References

[1] M. I. Setiawan *et al.*, "E-Business, The impact of the Regional Government Development (APBD) on Information and Communication Development in Indonesia," *J. Phys. Conf. Ser.*, vol. 1007, no. 1, p. 012045, Apr. 2018.

[2] K. Adiyarta, D. Napitupulu, R. Rahim, D. Abdullah, and M. Setiawan, "Analysis of e-learning implementation readiness based on integrated elr model," *J. Phys. Conf. Ser.*, vol. 1007, no. 1, p. 012041, Apr. 2018.

[3] D. Napitupulu *et al.*, "Analysis of Student Satisfaction Toward Quality of Service Facility," *J. Phys. Conf. Ser.*, vol. 954, no. 1, 2018.

[4] M. Setiawan *et al.*, "E-Business, the impact of regional growth on the improvement of Information and Communication Development," *J. Phys. Conf. Ser.*, vol. 1007, no. 1, p. 012044, Apr. 2018.

[5] M. Setiawan *et al.*, "E-Business, Airport Development and Its Impact on the Increasing of Information of Communication Development in Indonesia," *J. Phys. Conf. Ser.*, vol. 1007, no. 1, p. 012046, Apr. 2018.

[6] Rusli, N. Noni, N. Ihsan, and A. S. Ahmar, "The Development of Research Management Information System Based on Web at Universitas Negeri Makassar," *J. Phys. Conf. Ser.*, vol. 1028, no. 1, p. 012050, 2018.

[7] F. A. A. Fauzy *et al.*, "Registration System and UTM Games Decision Using the Website Application," *Int. J. Eng. Technol.*, vol. 7, no. 2.2, pp. 45–47, 2018.

[8] D. Lazim *et al.*, "Information Management and PSM Evaluation System," *Int. J. Eng. Technol.*, vol. 7, no. 1.6, pp. 17–19, 2018.

[9] R. Rahim, "Man-in-the-middle-attack prevention using interlock protocol method," *ARPN J. Eng. Appl. Sci.*, vol. 12, no. 22, pp. 6483–6487, 2017.

[10] D. Lestarini and K. Surendro, "Designing kano-based e-service quality model to improve user satisfaction," in *2017 2nd International conferences on Information Technology, Information Systems and Electrical Engineering (ICITISEE)*, 2017, pp. 147–152.

[11] I. T. I. Al-nuaimi, A. K. Bin Mahmood, E. E. Mustapha, and H. H. Jebur, "Analysis of Significant Dimensions of E-Service Quality in Malaysian Universities," *Int. Symp. Math. Sci. Comput. Res. tend*, pp. 179–184, 2015.

[12] E. Retnoningsih, "Knowledge Management System (Kms) Dalam Meningkatkan Inovasi Lppm Perguruan Tinggi," *Evolusi*, vol. I, no. 1, pp. 76–85, 2013.

[13] A. S. Ahmar and A. Rahman, "Development of teaching material using an Android," *Glob. J. Eng. Educ.*, vol. 19, no. 1, pp. 72–76, 2017.

[14] A. Rahman, U. Mulbar, and A. S. Ahmar, "Development of Web-based Logical Thinking Abilities and Android as an Alternative Solution for Research Instruments," *J. Phys. Conf. Ser.*, vol. 1028, no. 1, p. 012168, 2018.

[15] J. Simarmata, A. Djohar, J. Purba, and E. A. Juanda, "Design of a Blended Learning Environment Based on Merrill's Principles," in *Journal of Physics: Conference Series*, 2018, vol. 954, no. 1.

[16] Y. Wu, Q. Luo, Y. Liu, Y. Yu, Z. Zhang, and Y. Cao, "Research on Personalized Knowledge Service System in Community E-Learning," pp. 124–131, 2006.

[17] A. S. Fauzi, N. A. Hidayah, and N. Kumaladewi, "E-service system design in registrating certification and presentating halal product information on the Indonesian Olema Council (Case study: Indonesian Olema Council (MUI) Bogor Regency)," *2014 Int. Conf. Cyber IT Serv. Manag. CITSM 2014*, pp. 93–97, 2014.

[18] D. Berardi, D. Calvanese, G. De Giacomo, M. Lenzerini, and M. Mecella, "A foundational vision of e-services," *Web Serv. E-Business, Semant. Web*, vol. 3095, pp. 28–40, 2004.

[19] J. Rowley and J. Rowley, "An analysis of the e-service literature : towards a research agenda," *Emerald Insight - Internet Res.*, pp. 339–360, 2007.

[20] G. Yee and L. Korba, "Negotiated security policies for E-services and Web Services," *Proc. - 2005 IEEE Int. Conf. Web Serv. ICWS 2005*, vol. 2005, pp. 605–612, 2005.

[21] K. E. Kendall and J. E. Kendall, *Systems Analysis and Design*. 2013.