iBudaya: Indonesian Culture Portal Based on Software as a Service (SaaS)

Winarno[1], Wella[2], Rudy Pramono[3]

[1,2] Faculty of Engineering and Informatics, Universitas Multimedia Nusantara, Tangerang, Indonesia
[1] pmwinarno@student.umn.ac.id
[2] wella@umn.ac.id
[3] Faculty of Tourism and Hospitality, Pelita Harapan University, Tangerang, Indonesia
[3] rudy.pramono@uph.edu

Abstract—**The society of Indonesia faces problem of cultural crisis, especially the younger generation who prefer foreign culture rather than the local culture. This research aimed to find a way to conserve local culture by combining local culture with the development of information and communication technology. The method used in this study is content crowdsourcing because it requires the help of all society member to fill the content and data that will be managed later in large volumes. Therefore, it will use cloud computing, Software as a Service (SaaS). This research has successfully developed a portal called ibudaya that can accommodate cultural values and local wisdom in the form of multimedia content, such as in the format of video, pictures, pdf, Word, and Power Point. This research has successfully developed a portal that can accommodate cultural values and local wisdom in the form of multimedia content. The cultural portal can be accessed through the link address http://iBudaya.applikasi.online/. This portal will be further refined in terms of cultural content procurement, where the content is in the form of videos, pictures and folklore texts.**

Index Terms—**cultural portal, ibudaya, software as a service**

I. INTRODUCTION

Minister of Home Affairs of Republic of Indonesia Tjahjo Kumolo stated that the Indonesian nation is currently facing a cultural crisis [1]. Additionally, if not immediately enforced efforts to 'form' explicit national identity and national awareness, then the Indonesian nation will face the destruction [1]. This opinion is also reinforced by Renita Sari Adrian, an observer of Indonesian culture. She said Indonesia does not have a place that Indonesia really in the center of Jakarta, whereas Indonesia is rich with culture [2]. Likewise with the opinion of an Indonesian entertainer, Irfan Hakim. Irfan regretted the lack of prestige of young generation towards indigenous culture of Indonesia [3]. Whereas foreign cultures are very easy to spread in Indonesian society, especially the younger generation [3].

According to a culturist Emha Ainun Nadjib, one of the serious problems of a nation is the faded and alienated culture of the nation itself. Related to the current cultural crisis in Indonesia, there are two groups of Indonesian society. First are those who easy to become western. Secondly, and the second are those who easily become Arabs. The culture of our nation seems to be a foreign things for our own nation, away from us. This nation is in a cultural crisis [4]. Yet according to the Minister of Home Affairs of pluralistic Indonesian people, it is a fact that must be seen as a national asset, not a risk or a burden. The people is a national potential that must be empowered, enhanced its potential and productivity of physical, mental, and cultural [1].

Professor of Anthropology Diponegoro University of Semarang, Agus Maladi Irianto assess information technology is very effective as a means of cultural politics, as did South Korea [5]. Former Chairman of the Arts Council of Semarang (Dekase) added that the existence of social media and television today is very influential to many people and has changed the centuries as anthropological studies first [5].

So this study aimed to develop an information and communication technology (ICT) that can introduce, conserve, and socialize cultural values and local wisdom, which can be video, photography and digital narration.

The development of information and communication technology is in the form of a cultural portal in its data collection using techniques of crowdsourcing and management of its digital media content based Software as a Service (SaaS). Crowdsourcing has become a promising paradigm for completing tasks that are beyond machine capability through outsourcing tasks to the crowds online [6]. Crowdsourcing has grown, such as Wikipedia and Turk Mechanical, to the techniques currently used by corporations and academics for different purposes [7]. Crowdsourcing enables good characterization and performance evaluation of today's large-scale

networks using distributed strength and intelligence [8].

Software as a Service (SaaS) as a trend in the information technology (IT) industry has attracted many interest from researchers and practitioners [9]. Software as a Service (SaaS) provides access to applications to end users over the Internet without any initial investment in infrastructure and software [10]. In a cloud computing environment, Software as a Service (SaaS) refers to the ability of a system on a single cloud provider to communicate with a system [11].

This research seeks to change the perception of old fashioned local culture by combining local culture with the development of information and communication technology which is now being used by the society of all circles.

II. LITERATURE REVIEW

A. Previous Research

Search found that the technique of crowdsourcing is very effective and efficient in engaging company employees to actively provide innovative ideas for the company [12]. However, this approach requires full attention in designing sociotechnical participation architecture. He added that for the sake of walking crowdsourcing techniques, it takes the element of incentives/bonuses to increase the competitive in the "crowd" [12]. But considers that portal or knowledge management is ineffective in use because of fluctuating and disturbing "crowds" [13]. Opposed by [14], his research concludes that knowledge management is an important issue for organizations.

The results suggest that crowdsourcing is still a relatively new concept for business and science, and therefore requires the development of a holistic ontology. Crowdsourcing can be a useful model for corporate activity and holistic ontology providing a new way of managing crowdsourcing operations. Therefore, crowdsourcing requires management, which can be based on a crowdsourcing management ontology. Crowdsourcing Ontology provides eight concepts that managers can use to manage crowdsourcing activities. Ontology includes the concept of openness, platform, management, resources, compensation, task, focus, and maturity. This concept influences the end result and the value the company receives from crowdsourcing activities [15].

Conducted a study of the Chinese government web portal where they used a new evaluation framework based on the principles of contemporary public administration and web evaluation theory. They found that different levels of e-government development in China and developed countries have narrowed, but some aspects of interaction between government and citizens are still in the early stages [16].

It can be concluded from existing studies that the portal website or knowledge management is widely used in order to improve the competitive advantages of an organization, especially business organizations. They engage users / "crowds" to provide content in their portal/knowledge management, even for up-to-date and up-to-date content, the management rewards/incentives for those actively involved [17].

This approach can be implemented also in a large "crowd" where there is a need for good management in crowdsourcing. Because the success of crowdsourcing method is not seen from the size of the "crowd" owned but how the management can manage the "crowd". Therefore, this study uses crowdsourcing method so that the content on the cultural portal can be crowded and up-to-date.

B. Software as a Service

Cloud computing offers various types of IT resources in the form of web services, such as Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS) as can be seen in Figure 3.1 [18]. Cloud Computing, Software as a Service (SaaS) is getting more and more attention from researchers and practitioners. Regardless of the relevance and potential to increase IT flexibility and reduce costs, but concerns are still on the user side [18].

In research it was found that Cloud Computing and Enterprise Systems had an impact on value creation and organizational performance [19]. Also, ensure that Software as a Service (SaaS) is very suitable for large organizations/companies that do need to manage data with a large volume [19]. Cloud computing, Software as a Service (SaaS) is performed by customers on hardware or software that they do not own [9].

Software as a Service (SaaS) as a trend in the information technology (IT) industry has attracted many interest from researchers and practitioners [9]. Software as a Service (SaaS) provides access to applications to end users over the Internet without any initial investment in infrastructure and software [10]. In a cloud computing environment, Software as a Service (SaaS) refers to the ability of a system on a single cloud provider to communicate with a system [11].

SaaS also developed in Indonesia, proved in 2006 one of the providers of IT Indonesia to provide SaaS to the people of Indonesia [9]. Asia Cloud Computing Association (2015) found that the use of cloud computing in Indonesia is still very small, only 14% of companies in Indonesia are using this service. It has also been proven in 2014 (Asia Cloud Computing Association, 2014) that Indonesia is at the 12th level of 14 Asian countries that adopt cloud computing

technology. The existence of regulatory factors and the Indonesian government that led to the adoption of cloud computing is still less desirable [9].

C. *Crowdsourcing*

Crowdsourcing has become a promising paradigm for completing tasks that are beyond machine capability through outsourcing tasks to the crowds online [6]. Crowdsourcing has grown, such as Wikipedia and Turk Mechanical, to the techniques currently used by corporations and academics for different purposes [7]. Crowdsourcing enables good characterization and performance evaluation of large-scale networks using distributed strength and intelligence [8].

The concept of crowdsourcing has been around for centuries, a recent study shows that over 40 different definitions of this term are in the literature and there is a need to learn the applications, challenges, and benefits of crowdsourcing [20]. According to many organizations use crowdsourcing as a way to discover the various tasks a "crowd," a group of people that can be reached through the Internet [21]. The main goal of crowdsourcing is cost savings or the possibility of handling difficult tasks without human support [21].

The semantic mix of social media faces new challenges, such as the following [22]: (1) Source of knowledge, where social media information is obtained from different channels, such as censorship, program generation, user generation, and other shared resources. (2) The heterogeneity of storage, in which the semantics of social media originates from a cross-fusion of forms, including text, images, audio, and video, which do not use the same storage format. (3) Multimodal expressions, where semantic data obtained in a crowdsourcing environment have the ability to convey knowledge. However, due to data complexity, there are a number of problems with different semantic data modes when analysed, such as multi-feature spatial expression, multi-correlation, and large amounts of noise. (4) Dissemination socialization, where semantic information is not considered in the dissemination process. In short, computing based crowdsourcing provides a viable way to combine semantics efficiently but finds many problems due to the above characteristics. Crowdsourcing ontology has eight concepts that managers can use to manage crowdsourcing activities. Ontology includes the concept of openness, platform, management, resources, compensation, task, focus, and maturity. This concept influences the end result and the value the company receives from crowdsourcing activities [15].

III. RESEARCH METHODS

The semantic mix of social media faces new The development of the Indonesian Culture Introduction

portal begins with a study of the library regarding the multimedia trends that fit this cultural portal. Plus this portal brings cloud computing base, Software as a Service (SaaS) where more in-depth understanding of the service is needed. In addition, it is also necessary to learn/survey about user interface in accordance with the interests of the people of Indonesia, especially the younger generation who will be active in the cultural portal. The next stage after studying theory and field studies, then the next step is to analyse and design the cultural portal. From this stage, then the design is realized by writing the computer program. The next step is testing the program. And finally the program is hosted in the server with the domain nama called iBudaya.applikasi.online as a temporary domain name.

IV. RESULTS AND DISCUSSION

This article focuses on using the portal as a result of second-year research, which focuses on uploading cultural contents. The cultural portal is given the domain name iBudaya.id.

The first time we enter the portal website ibudaya.id then we will have a display as above picture in Figure 1. There are some menus at the upper right of the display, such as Register and Login.

Fig. 1. Example of a figure caption

If the user just want to see the contents in the portal, then the user can directly view the screen, or scroll the screen to see some contents there, so the user can find some contents by their titles. And then the user can click one of the content icon to see the content completely, as shown in Figure 2.

Fig. 2. Playing the content

The viewer can see the content without making Registration. But if the viewer want to have access to

upload contents, then the viewer must register his/her self first.

If a user want to join, then the user must register first. To register, the user should click the Register menu at the upper right of the display. After clicking Register menu, then appear Registration display as Figure 3.

Fig. 3.   Register page of ibudaya.id

In this Registration menu, the user must fill: email address, user name chosen, password, Name, capcha code. And to confirm, the user must click Register button. After clicking the Register Button, the user will be informed that he/she will get an email, contains notification to activate her/his account. In the email, there is an address to be click to activate the user account, as shown in Figure 4.

Fig. 4.   Notification e-mail for user account activation

After clicking the link to activate in the email, then the user will go to the Home page of the ibudaya.id, as shown in Figure 5.

Fig. 5.   User view of home page of ibudaya.id after login

From the Home page screen of ibudaya.id the user can Login to the system. After Login, the user will go to Home Page find a diplay with some menus: Control Panel, Login as UserName, and Logout. The

Control Panel menu consist of sub-menu like Home (to go to Home again), Upload (to upload document), My Files (to view the list of uploaded files), and Message (to the comment from other users).

From Home Page menu, the user can upload a document by clicking the Upload Menu, as shown in Figure 6.

Fig. 6.   Menu for user to upload document

The user then must choose file to be uploaded, give the name of the document, and also give the description about the document, and also give the Tag. After finish filling the form, then the user click submit.

After the user upload a document, then the system will display all the documents uploaded in My Files Menu. In this Menu, the user can delete file that is not wanted, by clicking the cross (X) icon, as shown in Figure 7.
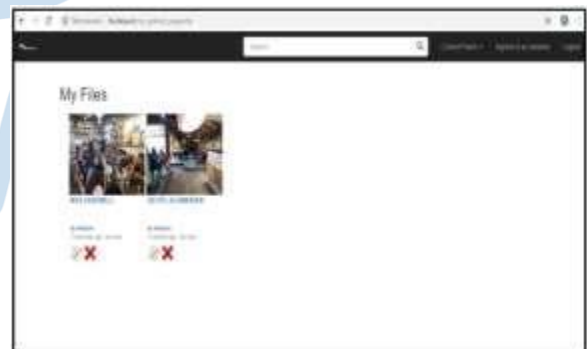

Fig. 7.   My files menu

Also in this My Files Menu, the user can view or play the document for him/her self. To see all of the document uploaded by all of the users, the he/she can go to Home page Menu. iBudaya.id also provide menu to communicate with other user, it is like e-mail mechanism. The menu is called Inbox Menu.

Fig. 8. Messaging menu for communications

When we click the Messaging Menu, then appear Messaging display as shown in Figure 8. In this Messaging Menu, a user can compose a message that will be sent to other user, by clicking Compose Menu. And also the user can check whether he/she get a message from other user(s), by clicking Inbox Menu. He/she also can check what messages that he/she has sent to others, by clicking Sent Menu.

V. CONCLUSION

This research has successfully developed a portal that can accommodate cultural values and local wisdom in the form of multimedia content. The cultural portal can be accessed through the link address http://iBudaya.applikasi.online/. This portal will be further refined in terms of cultural content procurement, where the content is in the form of videos, pictures and folklore texts.

FUTURE WORK

The follow-up of this study is to collect content that can be entered into the portal of culture. It was only in the collection of content using crowdsourcing techniques. Crowdsourcing techniques are expected to make it easier to gather volunteers who want to create content.

ACKNOWLEDGMENT

REFERENCES

[1] Zonalima, "Mendagri: Yang Kita Hadapi Saat ini Adalah Krisis Budaya," 2016. [Online]. Available: http://www.zonalima.com/artikel/9633/Mendagri-Yang-Kita-Hadapi-Saat-ini-Adalah-Krisis-Budaya/.J. Clerk Maxwell, A Treatise on Electricity and Magnetism, 3rd ed., vol. 2. Oxford: Clarendon, 1892, pp.68-73.

[2] Liputan6, "Renita Angkat Budaya Indonesia yang Kaya," 2017.[Online].Available: http://citizen6.liputan6.com/read/2877170/renita-angkat-budaya-indonesia-yang-kaya.

[3] Liputan6, "Irfan Hakim Sayangkan Generasi Muda Gengsi dengan Budaya Asli Indonesia," 2016. [Online]. Available: http://video.liputan6.com/read/2416841/irfan-hakim-sayangkan-generasi-muda-gengsi-dengan-budaya-asli-indonesia.

[4] Kompasiana.com, "Agnes MO, Arab dan Budaya Kita," 2016.[Online]. Available:http://www.kompasiana.com/faizabdalla31/agnes-mo-arab- dan-budaya-kita_56abab38a723bd43048b45ca.

[5] Republika.co.id, "Antropolog: Teknologi Efektif untuk Politik Kebudayaan," 2017. [Online]. Available: http://nasional.republika.co.id/berita/nasional/daerah/17/03/25/ondksv284-antropolog-teknologi-efektif-untuk-politik-kebudayaan.

[6] M. Safran and D. Che, "Real-time recommendation algorithms for crowdsourcing systems," Appl. Comput. Informatics, vol. 13, no. 1, pp. 47–56, 2017.

[7] J. Goncalves, S. Hosio, M. Vukovic, and S. Konomi, "Mobile and situated crowdsourcing," Int. J. Hum. Comput. Stud., vol. 102, no. xxxx, pp. 1–3, 2017.

[8] E. Gregori, A. Importa, L. Lenzini, V. Luconi, N. Redini, and A. Vecchio, "Smartphone-based crowdsourcing for estimating the bottleneck capacity in wireless networks," J. Netw. Comput. Appl., vol. 64, pp. 62–75, 2016.

[9] I. van de Weerd, I. S. Mangula, and S. Brinkkemper, "Adoption of software as a service in Indonesia: Examining the influence of organizational factors," Inf. Manag., vol. 53, no. 7, pp. 915– 928, 2016.

[10] L. Wu, S. Kumar Garg, and R. Buyya, "SLA-based admission control for a Software-as-a-Service provider in Cloud computing environments," J. Comput. Syst. Sci., vol. 78, no. 5, pp. 1280–1299, 2012.

[11] R. Rezaei, T. K. Chiew, S. P. Lee, and Z. Shams Aliee, "A semantic interoperability framework for software as a service systems in cloud computing environments," Expert Syst. Appl., vol. 41, no. 13, pp. 5751–5770, 2014.

[12] A. Majchrzak and A. Malhotra, "Towards an information systems perspective and research agenda on crowdsourcing for innovation," J. Strateg. Inf. Syst., vol. 22, no. 4, pp. 257–268, 2013.

[13] R. Nowacki and K. Bachnik, "Innovations within knowledge management," J. Bus. Res., vol. 69, no. 5, pp. 1577–1581, 2016.

[14] J. Zhao, P. O. De Pablos, and Z. Qi, "Enterprise knowledge management model based on China's practice and case study," Comput. Human Behav., vol. 28, no. 2, pp. 324–330, 2012.

[15] A. Sivula and J. Kantola, "Ontology Focused Crowdsourcing Management," Procedia Manuf., vol. 3, no. Ahfe, pp. 632–638, 2015.

[16] L. Yuan, C. Xi, and W. Xiaoyi, "Evaluating the readiness of government portal websites in China to adopt contemporary public administration principles," Gov. Inf. Q., vol. 29, no. 3, pp. 403–412, 2012.

[17] G. Von Krogh, "How does social software change knowledge management? Toward a strategic research agenda," J. Strateg. Inf. Syst., vol. 21, no. 2, pp. 154–164, 2012.

[18] F. Pfarr, M. Chowanetz, and A. Winkelmann, Critical success factors for software-as-a-service adoption, vol. 46, no. 9. IFAC, 2013.

[19] J. Rodrigues, P. Ruivo, and T. Oliveira, "Software as a Service Value and Firm Performance - A literature Review Synthesis in Small and Medium Enterprises," Procedia Technol., vol. 16, pp. 206–211, 2014.

[20] M. T. Riccardi, "The power of crowdsourcing in disaster response operations," Int. J. Disaster Risk Reduct., vol. 20, no. October, pp. 123–128, 2016.

[21] B. Morschheuser, J. Hamari, J. Koivisto, and A. Maedche, "Gamified Crowdsourcing: Conceptualization, Literature

Review, and Future Agenda," Int. J. Hum. Comput. Stud., vol. forthcomin, 2017.

[22] K. Guo, Y. Tang, and P. Zhang, "CSF: Crowdsourcing semantic fusion for heterogeneous media big data in the internet of things," Inf. Fusion, vol. 37, pp. 77–85, 2017.