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Information System for Batik Profession Certification Institution

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Abstract

Professional Certification Institution (LSP) as an organ or body that organizes professional trials. Implementation of web-based information systems (online) Professional certification institutions assist management in organizing data, scheduling, detecting assessors' expiration, and providing information to LSP assessors. The purpose of this study is to build an information system for Professional Certification Institutions to facilitate the Batik LSP process also helps in getting faster and more accurate data from the process. The method used in this research is research and development (research and development) with the 4D model, namely Define, Design, Develop, and Dissemination. In the initial stage "Define", analysis and analysis of needs at the batik certification body. In the "Design" stage, an application design is carried out, including database design, interface, and system flow. The "Development" stage is carried out from the development application which consists of: (1) Pre-Alpha; (2) Alpha; (3) Beta; (4) Releasese Candidate; and (5) Release. Whereas the "Dissemination" is a development where the product is tested to the user to find out the usefulness in assisting the testing process in the Batik Certification Institute. From the results of the questionnaire and the blackbox test, it was found that the information system had fulfilled the requirements and was suitable for use by the blackbox users that had been done.

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INTRODUCTION

Information systems aim to provide information from data processed into a form that is useful for information users (Jogiyanto, 2008:34-36). Competency certification process expertise in Indonesia is carried out by the Profession Certification Institution (known as LSP in Indonesia) in accordance to their respective fields. LSP is an institution which implementing work competency certification activities that get a license from BNSP. (BNSP RI, 2014:9) In Batik competency, the institution that has the authority in the certification process of competence in the field of batik expertise in Indonesia is performed by LSP Batik whose amount are still limited. According to the BNSP database at www.bnsp.go.id, there are still 2 registered LSPs of Batik in Indonesia, and only one institution has been licensed. The number of Batik LSP's is not comparable to the number of competent workers in the batik field who need to be certified in order to increase the competitiveness of global batik field workforce. The number of assessors owned by LSP Batik in Indonesia is still very limited. Certainly, the process of certification of competence in the field of batik expertise will be longer. The support of the assessment instruments for batik assessors is still closed and controlled, which is very depend on the number of assessors. The large number of participants who are not comparable with the number of assessors amounting to 44 people, need the support of qualified facilities. With the implementation of an information system that supports the administrative process, it is necessary to be able to overcome these problems.

According to Busharmaidi, Secretary General of Small and Medium Industries, the number of batik craftsmen in Indonesia is around 136 thousand businesses or 20% of the total national textile of Small and Medium Industries. On another occasion, the Secretary General of the Ministry of Industry, Haris Munandar at the 2017 National Batik Day (Hari Batik Nasional) Exhibition, revealed that the Ministry of Industry noted that the number of batik entrepreneurs in Indonesia was dominated by the Small and Medium Industries sector spread across 101 locations. Small and Medium Industries in West Java, Central Java, DI Yogyakarta and East Java, with the number of workers absorbed reached 15 thousand people in 2016. Most of the batik makers in Indonesia are over 40 years old, so regeneration is needed. While the export value of batik products in 2016 reached 149.9 million US dollars. (Julianto, 2017)

The identified problems include the number of assessments that are more than 5000 batik workers who will be certified, with only 40 assessors, so that a large number of assessment schedules need to be regulated, so that there is a need for faster and more accurate administrative processes to replace conventional processes. Besides that, LSP was held 10 certification schemes which has total 46 competency units, based on the Indonesian National Work Competency Standards Industrial Processing Categories of the Main Industry of Textile Industry Group of Spinning, Weaving and Finishing of Textile Industry Sub-group of Textiles Finishing of Textile Batik Industry Group. (Kementerian Tenaga Kerja dan Transmigrasi RI, 2013)

This system is also intended to replace several administrative processes which done by writing, so that they will be faster and more accurate. According to Bouzidi and Jailet, online-based assessments can be trusted when applied to examinations that contain questions referring to the appropriate fields of science (calculation, mathematical reasoning, short algorithms and short text compilation) and when examination papers are assessed by at least four people. Their results also showed that a combination of peer assessment and self-assessment provided better validity for this assessment method. However, one must take several precautions (the quality of the assessment scheme, clarity of questions, gradation of quality assessment, technical assistance and assessment examples). (Bouzidi & Jailet, 2009) Jawaid's research, et al. At graduate students in Dow University Health Sciences, Pakistan, revealed that people's perception of Computer Based Assessment (CBA) was good and they recommended to using it in future assessments. However, to make the most of

this technology, faculty must be trained to develop questions not only with text and images but also with audio and video support. (Jawaid, et al, 2014)

In line with Piaw's study which believes that computer-based assessments can replace written assessments, his research showed that assessment participants who were assessing Computer Based Test (CBT) and Paper Based Test (PBT) were likely to produce the same pretest and posttest scores . Both CBT tests were valid in terms of test performance and could be used as a substitute for their PBT. (Piaw, 2012) This was reinforced by Boevé, et al (2015) in his research stated that from computer-based examinations and written paper examinations taken from samples of psychology students at the University of Groningen, there was no difference between the two models of examinations. Scores obtained from computer-based exams and written exams have in common, but students must first practice and familiarize themselves with the computer-based test model.

Looking at the development of a pre-assessment information system, research conducted by Muthia, Djuniadi and I Made Sudana (2017), was in line with what was planned to be built. The Pre Vocational Information System that is built and researched for junior high school students who will choose the majors to be addressed in Vocational High Schools states that web-based information media is very effective and efficient in providing information to inform prospective vocational students.

The purpose of this study is to produce a proper, effective and efficient information system for Professional Certification Institutions to assist the administrative process of competency testing and provide information needed by the management of Batik Professional Certification Institutions.

METHODS

The research method used in this study is Research and Development, with 4D Model. Where 4D models according to Irawan, Palmadewi and Artini (2018) include Define, Design, Develop, and Dissemination. The "Define" stage consists of observation, interviews, literature studies, and needs analysis of the Batik Professional Certification Institution. This is done to find out facts, data, and procedures in the competency test of a professional certification institution. Observations were made at the Batik Professional Certification Institute located at Jalan Tambak Aji Raya No. 1, Tambak Aji, Ngaliyan, Semarang City, Central Java, Indonesia. Interviews were carried out on administrative staff, assessors, and management of Batik professional certification institutions, to obtain facts that support the research. Literature studies on procedures, standards, and other matters related to competency testing, Professional Certification Institutions, information system development, and supporting theories are carried out to obtain theoretical information that supports the research. So that's what will be needed and what will be generated from this research and development will be defined.

In the "Design" stage, system design is carried out which includes application flow design, database design, application interface design, based on the previous stages. This design is to facilitate the "Develop" process so that the product will be produced in accordance with the expectations of researchers and professional certification bodies of Batik.

In the "Develop" process is done by making applications through programming to produce products, where the product development process uses application cycle theory which consists of several stages of the application version, namely: (1) Alpha; (2) Beta; (3) Release Candidate; and (4) Release. Where at each stage of application development there are changes and improvements after going through testing (black-box testing). Where this testing involves experts and practitioners in the field of information technology and testing with AppPerfect Web Test testing software.

In the "Dissemination" phase a trial is used for participants, assessors, and administrators of professional certification bodies. The instrument used in user testing is a questionnaire that measures the functionality and effectiveness of applications in assisting users in competency test activities.

The research subject is the object, thing or person where the data for the research variable is attached, and the problem. (Arikunto, 2010:88) Before determining the sample, the population must be divided into sections called sampling units or units. This unit must represent the entire population and not overlap, in the sense that each element in the population belongs to one and only one. (Cochran, 1977:6) Subjects in this study are applications, participants, assessors and administrators of LSP Batik in Semarang.

In the needs analysis, the determination of the hardware will be used such as client and server devices for applications. Client devices are used by several types of devices including desktop computers, smartphones and laptops. These to accommodate the possibility of using various types of client devices used by users. Meanwhile, in Yamato's server selection, there are four stages in choosing a server, namely: (1) Identification of functional needs and performance of users; (2) choose and propose a server where computational resources (systems) will be built, whether oriented to computing, graphics or performance; (3) The user confirms the proposal and knows with certainty the function of the server selected according to needs, if it is not appropriate the user can choose another proposal; and (4) Server Options require an Infrastructure as a service (IaaS) controller or infrastructure controller as a service in building computing resources on specific hardware and methods of supply, which is possible not only as a server but with other supporting devices. (Yamato, 2018) Research "Information Systems Competency Test for Profession Certification Bodies (LSP) Batik" uses Client-Server infrastructure in the operation of its software. Where in the server selection is determined based on the needs and affordability of the costs owned by researchers and the Institute for Professional Certification of Batik.

The process of data collection is carried out by observation, observation is divided into observations participating (participant observation) and non-participant observation, while in terms of instrumentation used, it is divided into structured and unstructured observations. (Sugiyono, 2013:142) Observation activities are carried out after the product has been designed and built. This is intended to obtain data about user response and behaviour of information system applications. To simplify the process, an observation sheet / guide that is relevant to needs will be prepared. The samples used in this study were: two participants, three assessors, three LSP Batik administrators, and two IT and multimedia experts. The instrument used was an observation sheet which was carried out by participant, assessors, administrator, experts and a non-participant observation sheet, which was carried out by researchers. For non-participant data retrieval for functional testing the application used desktop software AppPerfect Web Test version 15.0.0.

In functional analysis, a sample of users based on criteria is selected as follows: (1) having knowledge of information technology; (2) having knowledge of web-based software; (3) having knowledge about information / multimedia; (4) have a minimum level of education (magister). The sample selection is based on Sampling Judgment, where according to Sutopo and Slamet (2017) the sampling is known as sampling on the basis of expertise (Expert sampling) and purposive sampling. The testing method used is the Blackbox-Testing functionality test. This test method can be applied to almost every level of software testing such as Unit, integration, system and reception. Meanwhile, according to Pressman (2001:459), black-box testing, also called behaviour testing, focuses on the functional requirements of software. That is, black-box testing allows software programmers to provide input conditions that will fully implement all functional requirements for a program. In line with these two opinions, Williams (2010:36) states that testing Blackbox or also called functional test is a test that ignores the internal mechanism of the system or component and only focuses on the output produced in response to the selected input and execution conditions. testing is a functionality-oriented test that is the behaviour of the software on the input provided by the user so that it gets / produces the desired output without seeing the internal processes executed by the software.

RESULT AND DISCUSSION

Define Stage

Based on observation, literature study, and interviews, the definition of the product to be built is an information system that accommodates the needs of participant registration, assessment schedules, plotting assessors, management of competency test sites, participant management, assessor management, and reminder services. An information system that supports online assessment processes, and information services for management, registrants, and assessors. System requirements consist of virtual server devices (Virtual Private Servers) including web servers, database servers, and SMS Gateway Servers. System requirements in application design are defined based on functional applications to meet the process needs that occur in the management of professional certification bodies. The analysis was carried out by observation, and interviews with managers of the Batik Professional Certification Institution. The system requirements are as follows:

Table 1. Need Analysis of System

Process	Software	Hardware
Participants, Assessor, and Administrator data entry	*Web Server*, *Database Server*, Form Pendaftaran Asesi, Form Pendaftaran Asesor, Form Pendaftaran Administrator, Data Wilayah	Server, Dekstop PC, Smartphone, Internet Networking Peripheral
Scheduling	*Web Server*, *Database Server*, Form Skema, Form Jadwal, Form TUK, Data Asesor, Data Asesi, Data Wilayah, Data TUK, Data Skema, Data SKKNI, Data Elemen Kompetensi	Server, Dekstop PC, Smartphone, Internet Networking Peripheral
System Notification	*Web Server*, *Database Server*, *SMS Gateway Gammu*, Data Asesi, Data Asesor, Data Administrator	Server, Dekstop PC, Smartphone, Internet Networking Peripheral, *Modem SMS*
Reporting	*Web Server*, *Database Server*, Antarmuka Grafik, Generator PDF, SMS Gateway Gammu, Data Jadwal, Data Asesi, Data Asesor, Data Administrator, Data Wilayah, Data Skema, Data SKKNI, Data Elemen Kompetensi	Server, Dekstop PC, Smartphone, Internet Networking Peripheral, *Modem SMS*, *Printer*
Certificate Administration	*Web Server*, *Database Server*, Form Input Setifikat, Data Asesmen, Data Asesi, Data Asesor, Data Jadwal, Data TUK, Data Sertifikat	Server, Dekstop PC, Smartphone, Internet Networking Peripheral, *Printer*, *Scanner*

Design Stage

This information system is built with a Web Server and Database Server that is in a Virtual Server (Virtual Private Server) that hosts the physical server with the following specifications.

Table 2. VPS Host Server Specification

Specification	Value
Processor	Intel(R) Xeon(R) CPU E3-1225 v6 @ 3.30GHz
Model (Form Factor)	Tower
Brand & Type	Lenovo ThinkServer TS150
Memory Capacity	16 Gigabytes
Storage	1 Terabytes

While the Web Server specifications on the Virtual Private Server used are as follows.

Table 3. Virtual Private Server Specification

Specification	Value
Operating System	Ubuntu Linux 14.04.4
Web Server	Apache version 2.4.7
PHP Version	PHP Version 5.5.9-1ubuntu4.26
MySQL Database	MySQL version 5.5.62
Memory Capacity	1,91 Gigabytes
Virtual Storage	49,09 Gigabytes

This Information System uses Cloud Computing technology where data management services are carried out with fewer resources. According to Wilianto and Fitri (2015), it was found that the use of cloud computing (Cloud Computing) can reduce network delay, delay, and CPU usage, but increase network throughput.

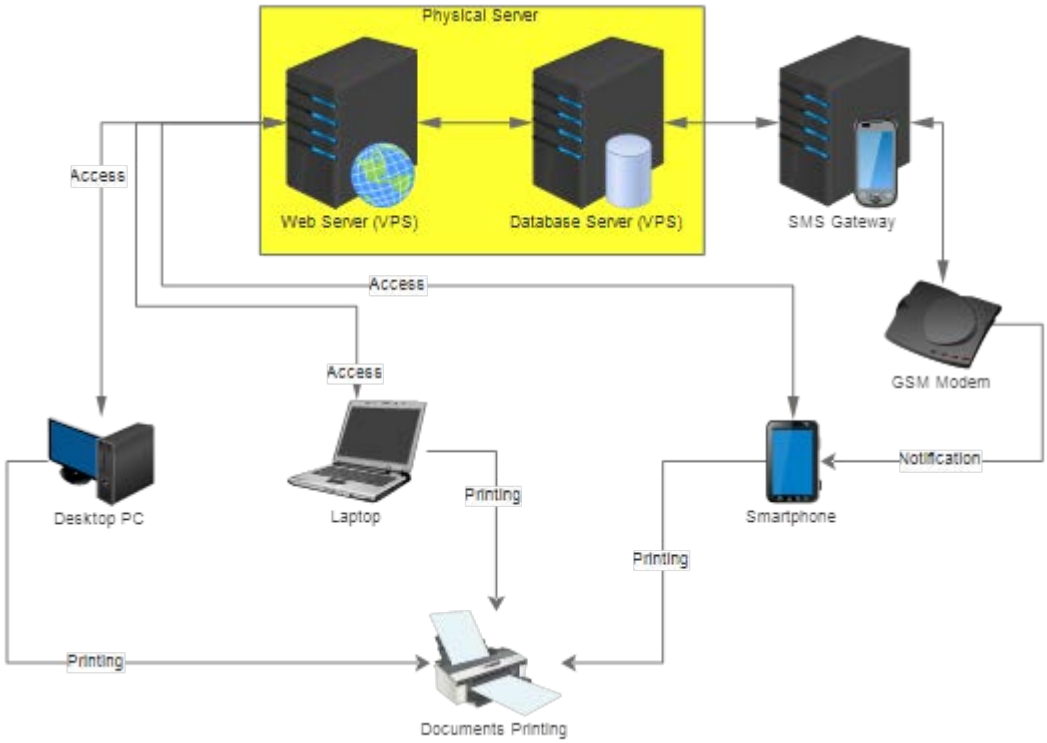

Figure 1. Hardware Infrastructures

The interface design of the information system of this Professional Certification Institute is divided into two, namely frontend and backend. In the frontend interface design application uses the Bridal Dress template, which according to w3layout.com (2018), this template is responsive, has a modern and elegant design, uses Font Awesome icon, supports HTML5 & CSS3, uses Google Fonts, uses Framework Bootstrap, and so on. While the design of this information system backend interface uses AdminLTE templates that have compatibility with mobile devices such as smartphones, Tablet PCs, or Desktop Computers. Where according to Kurniawan (2018), this template has several features supported by HTML 5 and CSS 3, responsive design, supported with more than 1000 icons, 6 views, optimized for printing, browser compatibility, and so on.

Development Stage

The development of this information system was developed by referring to 12 principles of multimedia-based learning by Mayer (2009:89), namely: (1) Coherence Principle, where user understands better when foreign words, images, and sounds are not included, than included; (2) Signalling Principle, user understands better when cues that highlight important things / material are added; (3) Redundancy Principle, user understands better than pictures and narratives compared to pictures, narratives and texts on the screen; (4) Spatial Contiguity Principle, user understands better when the related pictures and writing / explanatory information are placed closer than the location that is far apart from each other in the presentation on the screen; (5) Temporal Contiguity Principle, user understands better when the related images and writings are presented simultaneously compared to presented in sequence; (6) Segmenting Principle, user is better understands that learning using multimedia is presented in segments compared to continuous; (7) Pre-training Principle, user understands better than learning to use multimedia when they know the name and characteristics of the main concept; (8) Modality Principle, user understands better than pictures and narratives than from animations and text on the screen; (9) Multimedia Principle, user understands better than words and images than just words; (10) Personalization Principle, user understands better than learning to use multimedia when words use a communicative character model rather than a formal character form; (11) Voice Principle, user understands better when the narrative in learning uses human voice multimedia rather than sound like a machine; (12) Image Principle, user does not always learn better from multimedia lessons when a speaker image is added to the screen.

The initial product design for this system information was Pre-Alpha version. This Pre-Alpha version of the information system product has the following features: (1) The Administrator Page, consists of: (a) Input of the Professional Certification Institute; (b) Input of Competency Test Sites (TUK); (c) Indonesian National Work Competency Standards (SKKNI) input; (d) Input Competency Schemes; (e) Input of the Competency Unit; (f) Input Assessor; (g) Input Assessment Schedule; (i) Input of LSP Bank Account; (j) Input of Certification Fees; (k) Data on Total Assets; (l) Data on the Number of Assessor; (m) Charts of Registered and Verified Assets; (n) Certification Progress Graph by Institution (LSP); (o) Frontpage Content Management; and (p) Generate Form in PDF; (2) Homepage page, which consists of features: (a) General Information; (b) Assessor Info; (c) Service Info; (d) Portfolio Info; (e) Online registration of aspiring candidates; (f) Asses login; (3) The Asset Page, which consists of: (a) Select a Scheme; (b) Update of the Asset Profile; (c) Input Registration Data (Upload Document); (d) Input Requirements Documents; (e) Payment Confirmation; (f) Assessment Schedule; (g) Registration of Assessment Competency Scheme; (h) SMS Notification; and (i) Generate Forms in PDF. The design of this version is based on an analysis of the needs of the Batik Professional Certification Institution. In this version, justification is provided to the institution's administrative personnel, then changes and improvements are made based on input from the institution's administrative personnel. In this version, the application is verified by the LSP administrator to get input, and justification of whether the application matches the needs. The verification and validation process are done by checking the software that has been

developed, so that it will meet the specifications and provides the functions expected by the software user. Checking processes can begin immediately after the requirements or system requirements are available and through all stages of the design process. Validity is used to ensure that the product which had produced is the right product. (Sommervile, 2011:110)

Preparation of questions and choice of answers to the information system form for profession certification bodies refers to Scalise and Gifford's online assessment taxonomy. The taxonomy represents the forms of questions in assessment in general. Multiple choice has a higher level of thinking limitation compared to a presentation that maximizes the ability to improvise in thinking. Likewise, the level of compatibility is explained quite clearly, multiple choices with more choices have higher complexity than True or False question. (Scalise & Gifford, 2006)

The next version of the application is the Alpha version. The improvement and addition of features in this version design refers to the activities and administrative needs of the Batik LSP. In this Alpha version, it requires several clarification processes related to the technical implementation of the Competency Test, as well as the maximum number of participants for one assessor, the forms needed in the competency test process that can be facilitated by SILSP software, and some things like graphic presentation needed by Batik LSP. In the development of this version, there were significant changes to the forms used by LSP from the provisions of the Profession Certification National Institution (BNSP), which resulted in revisions to the forms and forms generated by the application, as stated in the Alpha version changes that explained earlier. The Alpha version of the application is validated and justified again by the LSP administration personnel and made some changes and improvements, then after that it becomes a Beta version of application. In developing the Beta version of the application, further tests will be carried out based on what has been described in the Research Methodology.

Functional testing (Black-box testing) in the Release Candidate (RC) version is done with the help of AppPerfect Web Test software version 15.0.0, which is done with 10 iterations or repetitions with three conditions, namely: (1) Successful; (2) Failed; (3) Timed Out or connection time runs out; and (4) Not Played or not executed / played. Based on the data above, the functionality with a successful value is 99% or in other words the menus, buttons, forms and links on the Information System of the Professional Certification Institution (LSP) page can run very well. So technically, it can be said that this page is suitable for use. On the assessor's page, the functionality with the successful value was 96%, failure was only 2%, and timed out was 2%. This happens because of an internet connection or browser that does not respond to the AppPerfect Web Test application command. With this 96% success value, it can be said that the menus, buttons, forms and links on the Information System of Profession Certification Institution (LSP) page can function properly. So technically, it can be said that this page is suitable for use. While on the administrator page, the functionality with a successful (Successful) value was 99.06%, the failure was only 0.43%, and the timed out was 0.51%. This happens because of an internet connection or browser that does not respond to the AppPerfect Web Test application command. Where with a 99.06% success value, it can be said that the menus, buttons, forms (links) and links (links) on the Information Systems of Profession Certification Institution (LSP) administrator page can function properly. So that it can be said that this page is worth using.

Table 4. Functionality Test of Participant Dashboard with AppPerfect Web Test

Result	Ordinal	Frequency	Percent
Successful	1	1.371	99,35%
Failed	2	9	0,65%
Timed Out	3	0	0%
Not Played	4	0	0%
TOTAL		1.380	100,00%

Table 5. Functionality Test of Assessor Dashboard with AppPerfect Web Test

Result	Ordinal	Frequency	Percent
Successful	1	814	95,76%
Failed	2	14	1,88%
Timed Out	3	14	1,88%
Not Played	4	4	0,47%
TOTAL		850	100,00%

Table 6. Functionality Test of Administrator Dashboard with AppPerfect Web Test

Result	Ordinal	Frequency	Percent
Successful	1	4.626	99,06%
Failed	2	20	0,43%
Timed Out	3	24	0,51%
Not Played	4	0	0,00%
TOTAL		4.670	100,00%

Dissemination Stage

In the "Dissemination" phase includes user testing or implementation, product revisions, and product effectiveness tests. Testing of the functionality of the Assessor Dashboard page by the user, namely 3 people (Rater) from the information technology field, which is carried out with the user blackbox test instrument with 49 items of questions about the components or parts of the assessor's page. Rater 1 states that 57.14% of the Assessor Dashboard page components are appropriate, and 42.86% is very appropriate. Rater 2 states that 2.04% of page components are not appropriate, 18.37% of page components are quite appropriate, 46.94% of page components are appropriate, and 32.65% of page components are very appropriate. Whereas Rater 3 stated that 4.08% of assessor page components were not appropriate, 10.20% of assessor page components were appropriate, and 85.71% of assessor page components were appropriate. The average test score from Rater 1 is 4.43, the average Rater 2 rating is 4.10, and the Rater 3 rating is 4.73. Where based on the assessment Interpretation Criteria determined, if the value between 1.00 - 3.00 is Not Decent, and the value between 3.01 - 5.00 is Decent. When it is related to the predetermined interpretation criteria, it can be concluded that the Assessor Dashboard page "Information System for Competency Test for Batik Profession Certification Institutions (LSP)" has been feasible and can be used, because it has an average rating score above 3.01.

Application testing is also carried out referring to the ISO / IEC / IEEE 29119-4 Standard, which consists of aspects: (1) Accessibility; (2) Backup / Recovery; (3) Compatibility; (4) Conversion; (5) Disaster Recovery; (6) Functional; (7) Easy Installation; (8) Interoperability; (9) Localization; (10) Maintainability; (11) Performance-Related; (12) Portability; (13) Procedure; (14) Reliability; (15) Security; (16) Stability; and (17) Usability [19]. This test, carried out by 2 experts, namely: (1) multimedia experts from the Multimedia Education and Culture Development Center (BPMPK) of the Ministry of Education and Culture of the Republic of Indonesia, Ms. Manikowati,

M.Pd., and (2) information technology experts, Lecturer in Information and Computer Engineering Semarang State University, Dr. Hari Wibawanto, M.T., and made a decision that all aspects met the requirements. With average score from expert (1) was 4,26, and average score from expert (2) was 4,29.

Table 7. Standar ISO/ IEC/ IEEE 29119-4 Achievement Test Results

No	Aspect	Expert 1	Expert 2	Max. Score
1.	Accessibility	4,00	5,00	5,00
2.	Backup/ Recovery	5,00	4,00	5,00
3.	Compatibility	5,00	4,50	5,00
4.	Conversion	4,00	4,50	5,00
5.	Disaster Recovery	4,00	4,00	5,00
6.	Functional	4,00	5,00	5,00
7.	Installability	5,00	4,00	5,00
8.	Interoperability	4,00	4,00	5,00
9.	Localization	4,00	4,00	5,00
10.	Maintainability	4,00	4,00	5,00
11.	Performace-Related	4,00	4,00	5,00
12.	Portability	4,00	5,00	5,00
13.	Procedure	4,00	4,00	5,00
14.	Realibility	5,00	4,00	5,00
15.	Security	4,50	4,00	5,00
16.	Stability	4,00	4,00	5,00
17.	Usability	4,00	5,00	5,00
Average Score		4,26	4,29	5,00

In the results of the effectiveness testing of the application for assessors, the results obtained that the application is quite easy to use, this is evidenced by 62.5% of assessors stated strongly agree that the system is easy to use, and 37.5% said they agreed that the system was easy to use. Information System Application for Professional Certification Institutions (LSP) Batik is quite effective in assisting the verification process of the asses file, competency test schedule, filling in assessment results by assessors and competency test documents. This is evidenced by 62.5% of respondents stated strongly agreed, 25% of respondents said they agreed, and 12.5% said they were quite agreed that the LSP Batik information system helps in the verification process of the file asses, competency test schedule, filling in assessment results by assessors and devices competency test document. Features of SMS / Email Notification (Notification) and Assessment Agenda / Schedule are quite effective in helping to know / remind the assessment schedule for LSP Batik assessors. This is evidenced by 75% of assessors stated strongly agree, and 25% said they agreed that the application could help to know / remind the assessment schedule. The Information System for Professional Certification Institutions (LSP) Batik is quite effective in assisting the process of implementing the competency test for batik held by LSP Batik. This is evidenced by 75% of assessors stated strongly agree, and 25% said they agreed that this information system generally helped in the batik competency test held.

Based on the tests in the previous stage, the researchers obtained suggestion from the respondent or user, including about the loading time of the participants data that takes too long, the need for the user feature of the assessment coordinator, given the choice of individual registrants or

group / group registrars in the use of information systems, because not all participants have good computer literacy, and some other minor suggestion about editorial.

These inputs form the basis of product improvements or revisions that are accommodated in the next version, Release Candidate (RC). In this version of the product, the test page in the Administrator dashboard has been separated between new and existing assets, so that the load or appearance of the page becomes significantly faster. In this RC version, the Asset Coordinator user was added to facilitate the process of registering an owner who does not have computer literacy.

Based on the tests in the previous stage, the researchers obtained input from the instrument given to the respondent or user, including about the load or the appearance of the participants data for a long time, the need for the user feature of the assessment coordinator, the choice of individual registrants or group / group registrars in the use of information systems, because not all participants have good computer literacy, and some other minor input about writing system. These inputs form the basis of product improvements or revisions that are accommodated in the next version, Release Candidate (RC). In this version of the product, the test page in the Administrator dashboard has been separated between new and existing assets, so that the load or appearance of the page becomes significantly faster. In this RC version, the Asset Coordinator user was added to facilitate the process of registering an owner who does not have computer literacy.

Effectiveness defined as doing the right thing, or completing activities so that organizational goals are achieved. (Robbins & Coulter, 2012:9) The effectiveness of the application "Information System Competency Test of Profession Certification Institution (LSP) Batik" in this study was measured by the level of achievement of the objectives of the application implementation on the Batik Expertise Competency Test. The effectiveness test is carried out to find out how effective the designed application is to help in the Batik skill competency test. In the results of the analysis of the effectiveness of the Information System of Professional Certification Institutions (LSP) Batik, for its ease of use, it resulted that the application was quite easy to use, this was evidenced by 62.5% of assessor respondents who strongly agreed that the system was easy to use, and 37.5% said they agreed that the system is easy to use. The Information System for Profession Certification Institutions (LSP) Batik is quite effective in assisting the verification process of the asses file, competency test schedule, filling in assessment results by assessors and competency test documents. This is evidenced by 62.5% of respondents stated strongly agree, 25% of respondents said they agreed, and 12.5% said they were quite agreed that the LSP Batik information system helps in the verification process of the file asses, competency test schedule, filling in assessment results by assessors and devices competency test document. The SMS / Email Notification (Notification) and Assessment Agenda / Schedule feature is quite effective in helping to know / remind the assessment schedule for LSP Batik assessors. This is evidenced by 75% of assessors stated strongly agree, and 25% said they agreed that Information Systems for Professional Certification Institutions (LSP) Batik can help to know / remind the assessment schedule.

The assessors revealed that the Information System of Professional Certification Institutions (LSP) Batik was quite effective in assisting the process of conducting the competency test for batik held by LSP Batik. This is evidenced by 75% of assessors stated strongly agree, and 25% said they agreed that this information system generally helped in the batik competency test.

Meanwhile, based on the results of the questionnaire to the LSP administrator, the LSP administrator stated that the application of the information system for the profession certification institution was easy to use. Applications can be used on a variety of devices such as smartphones, desktop computers, tablet PCs, or laptops, this is approved and justified by LSP administrators. The administrator states that the application is effective in assisting the administrative process, namely the registration process, verification of the file asses, scheduling competency tests, plotting assessors and collection of LSP statistical data. It was also stated that the SMS and e-mail notification features were effective in assisting / reminding the assessment schedule. The application is effective in

helping the pre-test of batik competency, this is evidenced by the respondent's administrator agreeing that "Information System of Profession Certification Institutions (LSP) Batik" assists in the preparation and after the batik competency test held. The LSP administrator stated that he agreed that "Information Systems for Professional Certification Institutions (LSP) Batik" assisted in the management of LSP data (Assets, Assessor, Schedule / Certification History and Competency Certificate). The LSP Administrator respondents stated that they agreed that the data presented " Information System of Profession Certification Institutions (LSP) Batik" helped LSP management in making future policy / decisions / strategies.

CONCLUSION

Application design "Professional Certification Institute Competency Test Information System (LSP) Batik" has produced applications that are suitable for use by users (aces, assessors and administrators) Batik Professional Certification Institution, after going through various tests and improvements from the Pre-Alpha, Alpha version , Beta, Release Candidate until the Release version with the first version is version 1.0.0. Application "Professional Certification Institute Competency Test Information System (LSP) Batik" and its supporting devices are able to support the activities of the administrative registration process, assessment schedules, provide information and remind the assessor's expiration date. The implementation of web based information system in managing assessors in Batik Professional Certification Institution, has effective to reminding the assessor's license expiration, plotting the assessors for the assignment of assessment, get real-time data of assessment progress and reporting the assessment progress, dan managing the schedule of assessors. Use of information system has improve managerial performance in managing certification test process.

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