Readiness of Libraries in Applying Information and Communication Technology in the Industrial Revolution Era 4.0

Andi Asari*, Taufiq Kurniawan, Sokhibul Ansor
Library Science Study Program, Literature Faculty
Malang State University
Malang, Indonesia
*andi.asari.fs@um.ac.id, taufiq.kurniawan.fs@um.ac.id, sokhibul.ansor@um.ac.id

Abstract—**Libraries in the modern era like today already cannot run away from information technology, for whatever reason dross library need even inseparable from information technology. So that the library can apply information and communication technology with the necessary readiness appropriate, to assess the readiness of libraries in implementing information technology readiness level it needs to be measured with the e-readiness method, to determine the level of readiness of libraries in applying information technology as a whole from all aspects. This study discusses the readiness of libraries in applying information technology, Harvard CID using a model that has been modified by Mutula and Brakel to measure e-readiness at a company that deals with access to information. Tools used in this study comes from the CID which has been developed by Mutula and Brakel, and which was adopted in this study is a model Mutula and Brakel consisting of five (5) segments that the readiness assessment is divided into 112 parts. And then the component library so adapted to the conditions of 112 parts to 83 parts corresponding to the state library. Furthermore, the results of this study are getting on the readiness of the institution is ready to Regional library and archive agency in Yogyakarta (BPAD DIY) implementing information technology. And to increase the level of well-prepared then needs improvements in all segments, ICT Readiness segment which is at a level sufficiently prepared which included the lowest level.**

Keywords—e-readiness; library; information technology; CID; Mutula; Brakel

I. INTRODUCTION

The development of information technology so rapidly leads to profound changes in various aspects of life. Among them, we can feel the speed of delivery of information technology is the information. Application of information technology continues to evolve allows a person to receive information more quickly. For an institution with the information distribution speeds utilization of information technology is an opportunity. In the current era of globalization, such information plays a very important in all aspects of. Persons always in need of information as part of the demands of life, supporting activities, and compliance needs. In the process, the information needs of users will also be changing both in terms of diversity of content and access to such information [1].

Information technology is a part of science and technology, in general, are all technologies related to the capture, collection, processing, storage, distribution, and presentation of information. This technology is the result of a combination of the two technologies previously developed separately, namely the computer for data (digital) and communications for voice (analog) [2]. Developments in the world of information technology have changed the way people work, learn, interact and communicate. The role of information technology becomes more substantial and real in today's modern era because people are now heading in the era of the information society. Included in the library field, the development of information technology provides opportunities for wider use in supporting the process of information services at the library.

The use of the Internet in the library world are increasingly widespread, a fact which indicates that the media is enabling the delivery of services process information effectively and efficiently in the library. The library as an institution that is directly related to the information, of course, do not miss the utilization of information technology [3]. Information technology has the ability to help the library improve the quality of services provided to users, expanding the performance and affordability provide faster service. In the context of the application of information technology in the development of the library, it is necessary to "readiness", which referred to the e-readiness [4]. Simply put, e-readiness can be interpreted as readiness in adopting information and communication technology in certain contexts [5].

The development of information systems such as today's fast demanding a library to improve the service system so as to serve community information quickly and accurately. With the development of information technology is motivated by the need to have a library service system in line with the development of information technology, in other words, the library should have an information system that can be accessed by public users anytime and anywhere. Libraries realize that the involvement of information technology has become a must have a requirement and used to improve the quality of library

performance. Although many development issues based library and information technology and digital communications, in the implementation in the library are not compensated the readiness of infrastructure, human resources and the user community the ability to use information technology. So do not go according to expectations will be addressed.

Issues library development is still a phenomenon that cannot be resolved. The movement toward library based information and digital technology is interesting because it forces the manager to accept the library in order to facilitate performance. However, the weight to be applied because the public has not been fully able to absorb the concept of the development of information technology library. Meanwhile on the other side of the librarians had to adjust to the culture of information technology. The development library is a necessity to enter the era of the digital library and it is not an easy thing to achieve. Have not completed the perception of librarians and information technology have not all librarians understand computers and the internet, are now required to understand information technology based library. Thinking ahead to the library based information technology is a supporting factor to be able to resolve the existing problems. Then the parameters for the development of the library can be seen from the readiness of the library itself so that the shifts or changes to the library is an information technology based development cannot be ruled out again [6].

For each organization, including library institutions, information technology is a valuable asset and play a major role in helping the library to perform the information retrieval process as a bridge between the library and the user community. Therefore, the library should be aware that the proper management of the application of information technology will be able to have an effect on the development of an advanced library. Because of the importance of the role of information technology at the library, then the library should have a readiness in the application of information technology. To determine the readiness of the library in the use and utilization of information technology, the application needs to be an assessment of the readiness of information technology (e readiness) in the library. Which of these assessment results to determine how prepared the library in the application of information technology.

II. FORMULATION PROBLEMS

This study has the following problem formulation: "The extent to which readiness (e readiness) of Regional library and archive agency in Yogyakarta (BPAD DIY) for the implementation of information technology and any factors that may have influenced the readiness".

III. AIMS AND OBJECTIVES RESEARCH

This study aims to quantify the level of preparedness of the BPAD DIY in the implementation of information technology and identify factors faced by the BPAD DIY in the implementation of information technology.

IV. USABILITY RESEARCH

This study has the advantage to describe the conditions that existed at the BPAD DIY related to readiness in the application of information technology and the reference to the head of the BPAD DIY in developing strategies and measures that need to be taken when implementing information technology.

V. FRAMEWORK

That this study based on the theoretical basis that has been built by Mutula and Brakel. Mutula and Brakel research begins by studying the concept of the study of the Computer Systems Policy Project (CSPP), Centre for International Development (CID) at Harvard University, the Economist Intelligence Unit (EIU) and IBM Programme, United Nations Development Programme, United Nations Conference on Trade and Development, McConnell International (MI) [7]. By studying these studies, Mutula and Brakel new form of e-readiness by incorporating multiple indicators of these studies and also create new components that can assess the readiness in terms of access to information in an enterprise or company. In research Mutula and Brakel there are 5 segments which are divided into 112 readiness assessment component [8].

Then segment the readiness assessment equated with the state library by removing some components of assessment is less relevant to the library. Of the 112 components of the assessment after once analyzed and equated with the conditions there were 83 finally library components used in this study. And the next step to compare these components with the fact that there is the library to find the results of an assessment of the readiness of the library in applying information technology.

VI. METHODS RESEARCH

This research was conducted at the BPAD DIY. This study used a qualitative descriptive approach and methods used in this study is a survey method. Qualitative methods used in this study because this method is considered as a research procedure that produces and description of the form of words written or spoken from the people and behaviors that can be observed and examined. Descriptive research method intended for careful measurement of certain social phenomena to develop concepts and gather facts without testing hypotheses [9]. Then the purpose of the survey is to determine the method of actual detailed information describing the existing symptoms, identify problems, make comparisons and evaluations, and to find out what others have done in dealing with the same problem or situation for the purpose of making plans and decisions in the future that will come [10].

The tools used in this study in the form of questionnaires and in-depth interviews. Then the collection of data obtained by observation, interviews, documents and literature studies, archival footage and also from a physical device to another. Key informants in this study are the BPAD DIY institutions including Head of BPAD, head of the service, head of human resources development, data processing and Head of IT, Head of cooperation. As well as the perception of the informant and keeping people in the library and some of the staff and librarians. Interviews were conducted directly on the informants, where informants are aware of the work unit and

understand the state of the library. And for data analysis in this study using triangulation of data sources.

VII. DISCUSSION

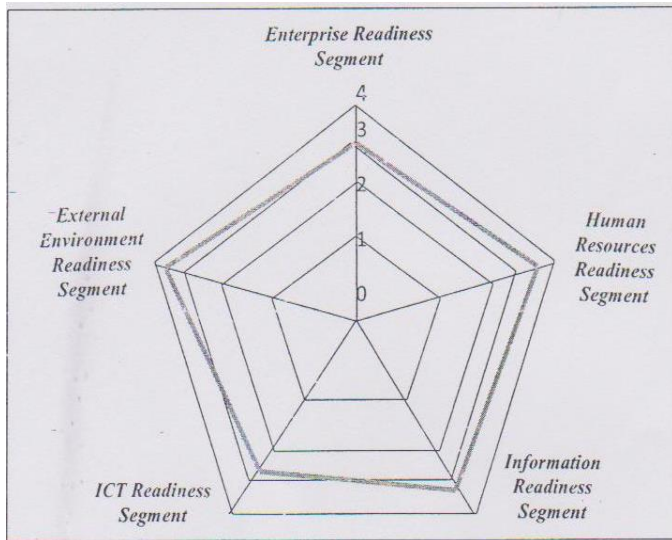Quickly this research results can be seen in the following graphic picture.

Fig. 1. Research results.

A. Enterprise Readiness Segment

Library institution readiness segment is in stage 3 position, which means that the organization in BPAD DIY is ready to implement information technology, although there are some components that are still lacking, there is still a lack of availability of functions and responsibilities of information management, qualification of the head of the library section in its field, the e-readiness of libraries in participating in the global internet era is still not optimal. So it needs to be developed again so that BPAD DIY becomes very ready in the application of information technology.

B. Human Resources Segment

The readiness of human resources at position 3.4, which means that staff at BPAD DIY are ready to implement the application of information, while the qualifications for professional staff at BPAD DIY are still less competent and experienced in their fields, information technology specialists.

C. Information Readiness Segment

Information readiness is at the position of stage 3.05, which means that the information owned by BPAD DIY is ready to be served to library users. Although BPAD DIY does not yet have provisions that regulate information access to various units in BPAD DIY, and tools or software for service availability tools to restore lost information are still not ready and must be repaired in the future. In this case, the Library has tried to make it easy for the community to get the information needed.

D. ICT Readiness Segment

The readiness of information and communication technology (ICT) is at stage 2.75, which means that the application of ICT is quite ready. Although the average speed of the internet connection is still lacking because it is affected by the bandwidth capacity that is still low. Access to staff and librarians still cannot share with the network system, and also the level of internet security is still not optimal. So that it needs a better and high-quality development so that the readiness of the library in applying information technology is not only limited to being prepared but hopes can be very prepared.

E. External Environment Readiness Segment

The assessment of the readiness of support for the external environment is at the stage 3.6 position, which is the highest stage among the other component segments. This means that BPAD DIY external environment support is ready to support the implementation of information technology in the library environment. Although there are still less than optimal, the provision of electricity for the library is still not optimal. So it needs repairs and additional voltage to support the work and information technology facilities in the library.

In this study matches that institution at the BPAD DIY ready to carry out the application of information technology, although there are some components that are lacking such, there is still a lack of availability functions and responsibilities of information management section, qualification is still the head of ICT library minimal science education ICT, e-readiness in the library participates in the global Internet era is still not optimal. So that needs to be developed further in order to be well prepared BPAD DIY in the application of information technology. Regarding in BPAD DIY ready to carry out the application of information technology, although the qualifications for professional staff in BPAD DIY still less competent and experienced in the field of ICT. While the information held BPAD DIY ready administered to the user library. Although BPAD DIY does not have provisions governing access to information to various units in BPAD DIY, Library has attempted to provide convenience to the public to get the information needed. Tool or software to service availability tool to restore the lost information is still not ready. As for the application of ICT is quite ready to be applied in the library, even though the average speed of the Internet connection is still lacking as influenced low bandwidth capacity. Access staff and librarians are still not able to share with each other with the network system, and also the level of Internet safety is still not optimal. So need better ICT development and high quality, so that the library readiness in applying information technology is not only limited but quite prepared hopes to be well prepared in all respects. Then in terms of the external environment support BPAD DIY ready to support the implementation of information technology in the library environment. Although there is still less than the maximum, the voltage supply of electricity to the library is still less than the maximum. So in need of repair and the addition of electrical voltage to support the work and the means of information technology in the library.

VIII. CONCLUSIONS

Overall views of the informant's perception of both the library staff and the user, it can be concluded that BPAD DIY has been on the stage ready for all categories, and there are some categories are quite ready, so it needs to be encouraged to be on stage so prepared, starting from the least readiness categories, namely ICT Readiness, then successively category Enterprise Readiness, Readiness Information, Human Resources Readiness, Readiness to categories that have the External Environment approaching the levels are very prepared. And the main factor affecting the readiness is a factor of human resources and infrastructure facilities factor.

Suggestions for BPAD DIY to consider are as follows:

- The first thing to do is to make a BPAD DIY specific strategic ICT plan that is consistent with the overall strategic plan for the library, followed by the manufacture of the ICT development master plan in BPAD DIY.

- Librarians and staff current ICT needs to be empowered by their participation in professional training and is involved in the development of ICT to be used in BPAD DIY so that in case the problem can be directly handled by existing ICT staff and no need to call in a consultant from outside.

- Leadership ranks of the library should have an educational qualification in library science and have a good willingness to continuously develop ICT in the library. So it does not stop the desire alone but can spawn policies and rules that can support the development of ICT in the library.

- Future studies are expected to design stage models or new models to improve readiness in applying information and communication technology in libraries in Indonesia.

- Future studies are expected to develop and assess the readiness of implementation of information and communication technology readiness study using the model of the other, more complete and effective.

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