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Challenges of The Industrial Revolution Era 1.0 to 5.0 : University Digital Library In Indoensia

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ABSTRACT

This study explains the development of the world of libraries to establish a very close relationship with the world of information technology. For this reason, facilities and infrastructure are needed to facilitate data and information retrieval quickly and accurately. Facing the challenges of the Industrial Revolution 5.0 era by utilizing information technology, libraries must also adapt to the times. Because the library has an important role, among others, as a source of information and the development of knowledge. Used libraries are still conventional to be converted into digital libraries. In essence, this development represents the desire of library users for faster and more accurate information to facilitate their activities. Therefore, if the library does not want to be abandoned by its users, the library must be more innovative using information technology to provide excellent service. University libraries in Indonesia, in addition to facing very rapid technological developments, also need to be ready to face changes in user behavior that also change according to the times. Another challenge is the aspect of the university's mission, which is to develop and advance research. The open access movement is also one of the challenges that must be immediately answered by the university library. Then the challenge to accommodate the rapid changes in teaching which is also greatly influenced by the development of the use of information technology as it is today.

Keywords: Information Technology, Digital Libraries, Innovation, University and Revolution Era 5.0.

INTRODUCTION

The era of the technological revolution that is happening today will fundamentally change the way of life, the way of working, the way of thinking and the way of working with each other in the domestic and international sphere. There is one thing that stands out the most in this pace of change, namely that the world must respond to these changes in an integrated and comprehensive manner by involving all stakeholders, be it global political actors, from the government sector to the private sector, academics, companies, and of course the wider community. This integrated and comprehensive response is not without reason, because the current era of information technology is at the peak of major changes comparable to the emergence of the First, Second, and Third Industrial Revolutions. Now we have entered a stage of the industrial revolution called the Industrial Revolution 4.0 and 5.0. The presence of the industrial revolution 4.0 and 5.0 has affected all sectors of life, including institutions/institutions providing information services which are none other than university libraries. Recent developments show that the university library has also transformed from 3.0 to 4.0 and 5.0 following the current developments. A transition that is so fast considering that library 3.0 is slowly being implemented in libraries spread throughout Indonesia. This rapid change was also responded quickly and positively by the library, including in this case the library of universities.

In this 4.0 era, the challenges faced by university librarians and libraries in Indonesia are not much different from those faced by university librarians in general in Indonesia, as well as fellow librarians in other countries, especially in countries that have advanced in librarianship. The revitalization of the role and professionalism of librarians is a problem for librarianship in Indonesia, in addition to funding issues and standardized quality measurements (Siregar, 2008, Saleh, 2010, Suparmo 2012).

Libraries play an important role in the intellectual life of the nation and state, because the library is a storehouse of knowledge and is one of the important means to realize the quality of superior human resources. Over time, the library is now not only used as an information center or source of knowledge, but also for research, reproduction, preservation of the nation's cultural treasures and many other services. To optimize this role, information needs to be organized so that library users can find the information they need more easily and quickly. Therefore, the services provided are always aimed at people who use appropriate technology-based information. In the end, all of this causes users to demand that the library not only be a place to find books or read magazines, but become a kind of general store for them. The development of information and communication technology or Information and Communication Technology (ICT) has brought changes in various fields, including the world of libraries. In the past, library users were satisfied with reading services on the spot and only borrowed books from the library, now library services are not enough, there are only two types of services. Librarians are now asking which types of digital services, such as membership card services and online book viewing services, should be implemented. In addition to the increasing demand for services, the quality of service is also getting better.

To improve the quality and quantity of services, the role of information and communication technology is needed. Utilization of information technology can improve the image and performance of the library if the application is appropriate and appropriate. However, because computer systems change very quickly and require relatively large costs. So, if you want to adapt and use the system, the library must prepare everything, to be able to adapt and implement it properly, without any problems. In other words, the application of information technology has advantages and disadvantages. Currently the library is still managed manually, which is only suitable for small libraries in terms of collection, staff and users, while libraries with relatively large assets and operations, facilities, etc. that meet the requirements, it is time to start using this information technology. How to take advantage of strengths, while avoiding elements of weaknesses and weaknesses, requires experience and a process that is sometimes not simple. With the development of information technology, digital libraries, virtual libraries, online services and access to information via the internet have helped the community get many benefits. We must know how to use information technology for positive things.

Because if it is not managed properly, it is likely to be used with little or no effect, making it less effective. Thus, the application of information technology in the library must be accompanied by an urgent need, professional staff and optimal utilization. The world is currently facing the Industrial Revolution 4.0 with digitalization, "Intelligence", "Internet of Objects" and "big data" play an important role in various aspects of human life. Libraries must also react strongly and grow so that they are not destroyed by the changing times. Today, libraries can no longer be conventional. Libraries must be converted after technological developments meet the needs of the community. In this scientific paper, it will be explained that the use of information technology in digital libraries will be ready to face challenges in the Industrial Revolution 4.0 era if library management is carried out by various innovations. Innovation towards sustainable benefits. Based

on the explanation above, the authors are interested in writing about the challenges of university libraries in facing the 4.0 and 5.0 revolutions.

LITERATURE REVIEW

Information technology

Information technology is a new term, a translation of information technology. For most people, information technology is synonymous with information technology. "New technology", because of its close relationship with microprocessor-based machines. Such as computers, tools that operate automatically, such as word processing tools, etc. The definition of information technology is based on the British Advisory Council on Applied Research and Development (In Zorkoczy, (1990:12) which includes the fields of science, technology and engineering as well as engineering management used in the manipulation and processing of information, the application of these fields and techniques, computers and interaction with humans and machines, socio-economic and cultural problems Indeed there are many definitions of information technology, so that in the "Macmillan Dictionary of Computers and Personal Communications" there are four pages. is a technology used to store, process, produce and disseminate information.

The origins of information technology in the pre-digital computing era were telecommunications and audio-video systems. Then, with digital computers, several new branches were formed. With the advancement of technology, the current scope of information technology includes: 1. Telecommunication. Examples of its application are: the existence of a teleconference or what is now known as Trimitra; Telkom Note; Follow-up, etc. 2. Computer, including microform. Examples include data protection, expert systems, computer-assisted voice communication. versus Digital Networks, for example, including electronic mail, information systems, information networks. 3. Audio and video, including optical communication systems. For example, video conferencing, video text and more. Information technology applications included in the scope of an information system, both libraries and documentation and information centers, can generally be classified into 4 main areas, namely: Library housekeeping (library maintenance/management), Information retrieval (information retrieval/ Information Search), General purpose software (Software for various purposes), and Library networking (Library collaboration networks).

Library management or library management is a general term that refers to the various types of routine operations that need to be performed in order for a library to function as it should. With advances in information technology, this can be done using an integrated system that includes several subsystems, namely acquisition or provision, cataloging, circulation, listing, etc. public access directory otherwise known as OPAC (Online Public Access Directory) and inter-library lending. . The concept of integration has recently been widely applied to chip library systems. The term integrated library system is often used to refer to existing subsystems or modules that are integrated to form a single computer information system capable of exchanging information from modules from one module to another, simultaneously by several different modules to enable more efficient use and use of data. system. For example, author/title information will be shared by modules: Acquiring, Cataloging, Circulating, OPAC (Online Public Access Directory), and Information Management.

Of all these modules or subsystems, the most important to the user is the OPAC subsystem, which allows online access to the catalog. This integrated library system is then widely known as library automation. In general, there are three generations of library automation, namely: Generation I: Automation of processing operations, such as acquisition and cataloging plus

circulation control. Generation II : Development and installation of integrated systems including OPAC. Generation III: Integrated LAN with computing and communication capabilities on each workstation.

Electronic information retrieval systems were first used to search for local data using directories. Then with the advancement of information technology, the search for information which is also known as information search is also developing, namely the use of electronic means. There are three types of means to access or access electronic information, namely: a) using a local database, b) using a CD-ROM, and c) using a wide area network, or widely known on the Internet.

General purpose software. General purpose software that can be used in organizations dealing with documents and information is: Word processor: to process and print documents. Spreadsheet: for financial calculations. Graphics: for statistical presentations, Desktop Publishing: for professional publishing and printing, and Electronic .mail: for message distribution.

The term library network is broad, but often includes: collaboration between libraries or information networks between institutions engaged in similar or related information fields, or computer associations in libraries or information organizations (Pusdokino) with other organizations within the organization forming a LAN (area network). local). Connecting Pusdokino organization computers with other remote computers to form a wide area network or commonly referred to as being able to connect via the Internet. LAN and WAN are types of networks used for library automation in terms of geographic coverage. LAN is a network of computers with relatively small workspaces in one place; and WAN is a computer network whose working area covers a radius between cities, islands and even between continents. In fact, there is another type called the Metropolitan Area Network (MAN), with a working area of 30 to 50 km which is an alternative for building computer networks for city offices..

Digital Library

Digital libraries are often understood in a very narrow sense, namely libraries that use computing facilities as a tool to provide services. Libraries have been defined, among others, by Lesk (1997), Arms (2000) and the Federation of Digital Libraries. According to Lesk (1997): "A digital library is an organized collection of digital information. They combine the organization and collection of information, which libraries and archives always do, with computer-enabled digital representation. Meanwhile, according to Arms (2000), digital libraries are: "Digital libraries are collections of curated information with related services, where information is stored in digital form and accessed through networks."

According to the American Federation of Digital Libraries, a digital library is defined as follows: "A digital library is an organization that provides resources, including specialized staff, for the selection, structure, provision of intellectual access, interpretation, distribution, preservation of the integrity, and longevity of a collection of digital works so that easily and economically available for the community or certain community groups to use ". From the three definitions above it can be understood that digital libraries emphasize digital collections and that libraries can be accessed 24/7 both inside the library and remotely without having to visit the library. important is the network between libraries.

METHOD

This research is a type of literature review research by looking for theoretical references related to the case or problem at hand. Documentary research is a method used to collect data or sources related to the topic raised in a study. Literature studies can be obtained from various

sources, journals, books, documents, internet and libraries. Theoretical references obtained from the study of academic literature are used as the basis and main tool for research practice in the field. The type of data that the author uses in this study is primary data by means of observation and secondary data, namely data obtained from journals, library books and the internet.

Documentation is a method of searching for material or data that is considered important through articles/journals, journals, libraries, brochures, brochures and through electronic media, namely the internet that is relevant to the performance of this research. The literature review in this study is to dig up information about the challenges faced by academic libraries in Indonesia in facing the 4.0 era. While the data analysis using descriptive analysis method. The data obtained were then analyzed by descriptive analysis method. Descriptive analysis is done by describing events followed by analysis, which not only describes but also provides adequate understanding and explanation.

RESULTS AND DISCUSSION

In conventional libraries, users have to go to the library to get the required information sources. But in digital libraries, it is the libraries that come to the users via the Internet. Also, with the library network (almost), more libraries can be used. In the end, building a digital library can save you a lot of money. But keep in mind that building a digital library requires no small amount of money, especially the provision of digital library facilities and infrastructure. Can this be done? Of course the answer depends on the parties involved. Digital libraries deal with various invisible objects. Not all digital library collections can be read without tools (computers).

This can sometimes be a barrier to the transition from all paper to paperless. Digital libraries are completely changing the paradigm from providing visible collections to providing access. Like credit buyers where people never see credit but can use credit as a means of communication. Similarly, journal database subscriptions cannot be viewed and owned, but can be read online and the collection is not in the library. With the existence of a digital library, and at the same time only being able to read one source of information, there is no more “queuing to borrow a certain book at the library” scene, no more “waiting” scene. until the collection is returned to the library and can be loaned. Digital libraries have basically moved from print to digital, collections that were originally local (local library only) can now become international through library networks and partnerships with information sources in other cities or countries. Digital libraries have changed the library model, from being serviced by agents to empowering librarians to help users who need information quickly and with unlimited resources, coupled with a large amount of research by librarians (and users).

Stages Of Development Of The Global Industrial Revolution

Industrial Revolution 1.0

The industrial revolution began in the mid-18th century, precisely in the years 1750-1850. Around this time, a major revolution began in areas such as agriculture, manufacturing, mining and transportation. The emergence of machines seems to replace the limited role of humans or animals. Although at first they were a little constrained by the level of work, but they were more helped in terms of workload efficiency.

Industrial Revolution 2.0

Once these areas are deemed to have operated optimally, all industries will develop rapidly. It drives the energy processes that allow all machines to function properly. The problems of

electricity, gas, water and telegraph started after the early stages of the industry. This paradigm revolution occurred later in the early 20th century, to be exact between 1850 and 1940. Today we have found electricity, development of gas, water, and pipelines, contact information.

Industrial Revolution 3.0

After the second war, there was a new industrial revolution, commonly known as the technological revolution. Humans are starting to realize that a new era has emerged after machines, namely the age of technology. It all started with the invention of cell phones, consoles and of course computers. Signs become clearer to facilitate human work when exposed to data. In the past, people had to write on typewriters, now they can write on computers. Or if people used to have to use public phones to make calls, now it's enough from their personal cell phones. Its emergence began to be seen at the end of the 20th century, now there is a big shift towards digital

Industrial Revolution 4.0

We are now living in the fourth industrial era, which all started with the internet revolution where not only search engines, but more than that, everything can be connected intelligently. From cloud storage, smart connected devices, physical fiber optic systems, and robotics. All of this is the basis of the artificial intelligence that is all around us and is happening right now. There are three basic areas, namely: physical, digital and biological. Physics fields include vehicle automation, 3D printing, and robotics development. The digital field has moved from the Internet of Things (IoT) to the biological domain, specifically artificial genetic engineering processes. All these things have happened and there is progress all the time. By learning and being literate in today's digital industry, it allows us to be unaffected and adapt to the times.

Industrial revolution 4.0

In facing the industrial revolution 4.0 with the digital era, libraries must also adapt to the times. Because the library plays an important role as a source of information and the development of knowledge. The development of the industrial revolution 4.0 era brought positive and negative impacts for the library industry. The positive effects include: 1. Important information can be accessed more quickly and easily. 2. The growth of innovation in the field of technology-based library development greatly facilitates our work process. 3. Improving the quality of human resources through the development and utilization of information and communication technology. 4. The emergence of various learning resources such as online libraries, online service materials, online discussions can improve the quality of the library. While the negative impacts include:

One. The threat of infringement of intellectual property rights (IPR) due to the ease of data access and luring plagiarists to commit fraud. B. Threats in a nutshell where children appear to be trained to think concisely and without focus. compared to not using information technology as an effective media or service medium, for example, apart from downloading e-books but also printing them, not only visiting digital libraries but also visiting buildings, library buildings, etc. In the field of information technology itself, the real challenges of the digital era are increasingly complex because various fields of life have influences that can change many things from all sides. Information technology is a field of technology management and covers various fields (but is not limited to) such as processes, computer software, information systems, hardware, programming languages, and data, construction materials. Any data, information or knowledge perceived in any visual format, through any media delivery mechanism, is considered a part of information technology.

Those are the five industrial revolutions that have occurred to date, which can be concluded that an industrial revolution is being carried out when the development of a problem that occurs in society that affects various fields on a large scale (Azmar, 2019). The development of Library 4.0 is in line with the development of Web 4.0 and Industry 4.0 and Industry 5.0. The development of web 4.0 can be seen from the interface and features available on a web, namely the available features to read, write, and execute information simultaneously; intelligence-based information agents, inter-web interaction (interconnected), connection with intelligence, and web-based intelligence. The development of library information management in the era of library 1.0 to library 4.0 is further explained in Figure 1 below (Noh, 2015),

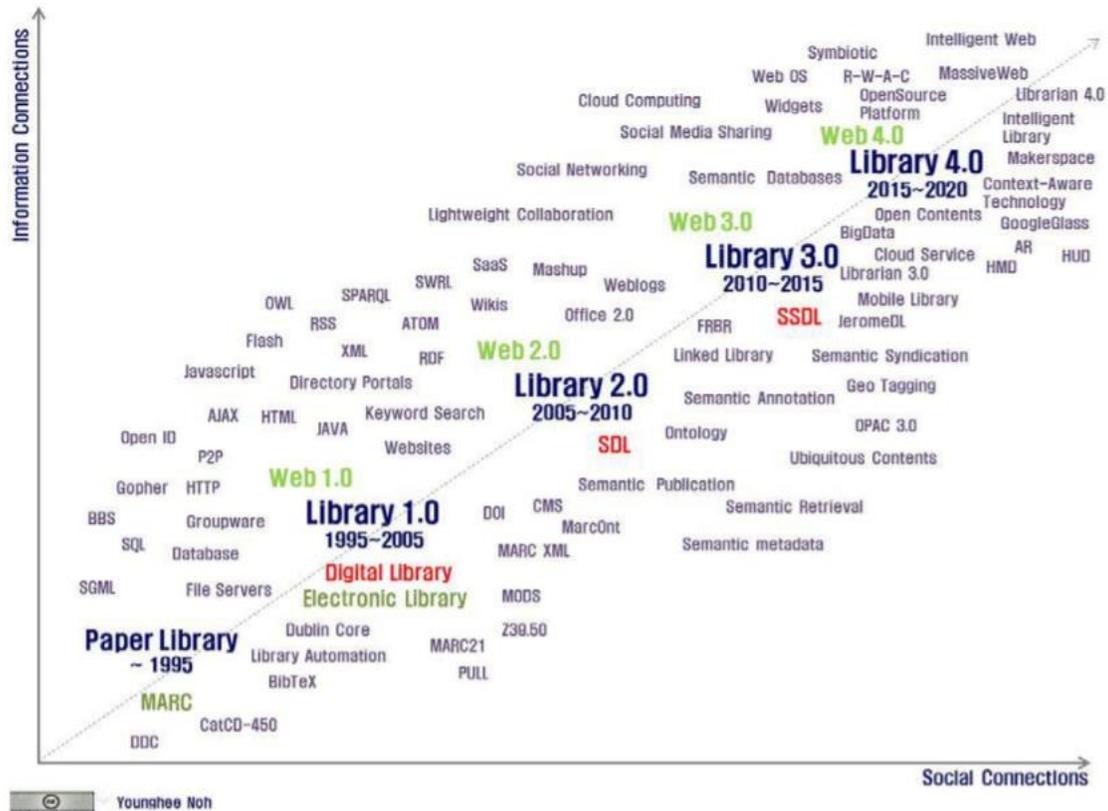


Figure 1. Development of Library 1.0 towards Library 4.0 (Noh, 2015)

The era of the global 4.0 industrial revolution needs to be attached, to firmly grasp and master the role of technology so that the digital era can bring benefits to life. Libraries should be the primary means of understanding, mastering, and handling technology properly and correctly. Children and teenagers need to understand this digital era, its advantages and disadvantages. Parents should also be informed so that they can control their child's attitude towards technology and its fair and appropriate treatment or use. The introduction of the use of various applications that can help people's work must be studied to find out the advantages, uses and can be used fairly and effectively, avoiding negative and excessive effects. Digital libraries have many innovations made in the use of information technology to answer the challenges of the 4.0 industrial revolution era.

The explosion of information due to advances in information technology has occurred and in the future the explosion in both quality and quantity will increase. Impact on most areas of life and

social class, including libraries. Changes in library organization due to the presence of information technology are not limited to changes in structure, mission and definition, even related to the Kardi model (2007:1016). The consequence of changing the library paradigm requires library managers to dare to innovate and be up-to-date in managing their libraries, in various activities and activities. Using information technology creatively and constructively, not only paying attention to the arrangement of books, but also providing increasingly open access to electronic and digital information. Siregar (2004:152), with the development of information technology, librarians can be left behind if they do not renew their librarianship vision and do not adapt librarianship practices to developments in information technology.

According to Qalyubi, et al. (2007:441) that the perception of the interior (inside) of the library must be reconstructed to show that the library is the main source for every information seeker. The library is the main building for the birth of the scientific community and the information society. Libraries are also a path to a modern and civilized society. However, to achieve all these dreams is not something easy. Innovations are continuously made to create libraries that meet the demands of the times. The current level of development in the field of information technology offers many new opportunities for libraries to develop them. Many tasks that were once difficult or even impossible for libraries in developing countries are now easier and more feasible. Expanding the reach of library automation systems and simultaneous management of electronic resources scattered throughout the world may be one of the determining factors in determining whether libraries are still in need or will be abandoned (Siregar, 2004: 1). Based on the above understanding, the description of the use of information technology in digital libraries must always include innovations or changes that are able to keep up with the times. The main activities carried out in libraries using information technology are: collecting (obtaining) collections, managing (processing) collections, providing access to service information resources. for library users.

Challenges faced in the Industrial Revolution 5.0

The concept of industrial revolution 5.0 is a concept that can fundamentally change the way we live, work and interact with one another. In the 5.0 era, the industry has begun to penetrate the virtual world, in the form of connecting humans, machines, and data, which are already everywhere, known as the Internet of Things (IoT). Industry 5.0 introduces flexible mass production technology, machines will work independently or coordinate with humans, control the production process by synchronizing time by unifying and adjusting production. . One of the unique features of Industry 5.0 is the application of artificial intelligence (AI). The development of the era of the industrial revolution 5.0 certainly has a strong impact on the world of libraries. The era of the Industrial Revolution 5.0 has changed the way we think about libraries. Changes were made not only in the way of teaching, but most importantly, in the perspective of the library concept itself.

Therefore, curriculum construction for the present and the future must complement the user's competence in the aspects of service, life skills, ability to live together (collaboration) and critical thinking, as well as creativity. Develop common and transferable skills, as well as intangible skills useful in many work situations such as interpersonal communication skills, cohabitation, ability to be an open-minded citizen with the world and understanding of information and communication. The Industrial Revolution 5.0 in the world of libraries emphasizes character libraries, ethics, and role models. Indeed, ownership of knowledge can be replaced by technology, while the application of soft skills and technical skills possessed by every user cannot be replaced by technology. This requires preparation for skills-based libraries, understanding and use of IoT (Internet of Things),

the use of virtual or augmented reality, and the use and use of AI (artificial intelligence). Program development is also one of the things that can direct and shape the user's personality to be ready to face the 5.0 industrial revolution. To ensure optimal service delivery, librarians must have competencies, namely teaching competence, technology commercialization, globalization, future strategic planning and consulting capacity. librarians must also be technology-friendly, collaborative, creative and risk-aware, have a sense of humor, and teach holistically.

Service-centric, collaborative services, and library services that are integrated with the community are things that libraries and users need to consider when going through the library process. Services have the ability to direct and shape the user's personality. Methods such as (1) reverse cluster space, (2) social media integration, (3) Khan Academy, (4) project-based services, (5) mood or other technology-based methods can be integrated into the service process so that users can access technology and can participate in learning and follow the 5.0 industrial revolution in technology.

In addition to the role of users and technology, skilled and qualified librarians will also have a huge influence on the future of the library world in the era of the Industrial Revolution 5.0. librarians in the era of society 5.0 must have good digital skills and creative thinking. A librarian must be more innovative and dynamic in library services. Therefore, there are 3 things that librarians need to use in the Social 5.0 era as described above, including the Internet of Things in the library world (IoT), Virtual/augmented reality in the library world, Using artificial intelligence (AI) can of course be used to help identify service needs needed by student staff and library service users.

In addition, librarians must also be skilled and have leadership, digital savvy, communication, entrepreneurship, and problem solving skills. Due to the increasingly advanced era, in the era of industrial revolution 5.0 all industries will be more advanced. If the world of libraries is not prepared and follows the rapid development of the times, libraries in Indonesia will be left behind. Librarians in Society 5.0 should be active librarians who put users first, proactively bring about change, especially for library members/users, act without being asked, continue to innovate and stand with users.

In the 5.0 era, the industry began to touch the virtual world in the form of human, machine, and data connections. All of this is widespread, known as the Internet of Things (IoT). Industry 5.0 introduces flexible mass production technologies. Machines operate independently or in cooperation with humans, control production processes by synchronizing time, and perform production integration and coordination. One of Industry 5.0's unique selling points is the use of artificial intelligence (AI). The development of the Industrial Revolution 5.0 era certainly affects the world of libraries. The era of the Industrial Revolution 5.0 changed the way we think about libraries.

The changes made not only affect the way of teaching, but especially the change in perspective on the concept of the library itself. Therefore, in the development of current and future curricula, aspects of education, life skills, the ability to live (cooperate) together, and the ability to think critically and creatively. Develop soft and cross-eyed skills, as well as invisible skills that are useful in many work situations, including: B. Interpersonal skills, coexistence, ability to be a global citizen, media and information literacy. But in reality, the 5.0 Industrial Revolution is nothing new. Because it is the antithesis of the Industrial Revolution 4.0, it is an era that returns to the industrial era. People, technology and digital collaboration are becoming a reality. Many robots are headed for collaboration and direct contact with humans.

In the field of libraries, humans and robots can collaborate in the service process both in real and virtual classrooms like today. Users may work with robots controlled by librarians. But in the new system of this era, the role of the librarian cannot be replaced by technology. This is where the role of the librarian cannot be replaced by technology, such as face-to-face interactions in the classroom, the emotional bond between librarians and service users, and the pervasiveness of the librarian's personality and role model. The era when the corona virus pandemic hit humanity, the era of the Industrial Revolution 5.0, and all the technology that existed in this era were considered very useful. It all depends on the technology that is already available. Technology is like an angel and is the only helper. Through this service, library members learn and understand concepts, and all materials and learning outcomes are obtained through technology.

Libraries that stand in the middle of such universities, whether at universities, institutes, high schools, or academics by jointly carrying out the mission of the Tri Dharma Perguruan, are specifically called college libraries. More broadly, what includes university libraries are all libraries located at universities, as well as their subordinate bodies or institutions affiliated with universities, such as: libraries at the level of faculties, departments, study programs, as well as libraries that are under the unit or center, such as: research centers, research centers studies, and so on.

If in general the university library has the duty and aims to facilitate the mission and duties of the university in implementing the Tri Dharma of Higher Education, then in detail the university library aims to: a. Meet the information needs of the higher education community, usually teachers and students; b. Provide reference library materials at all academic levels, meaning from first year students to postgraduate students and their teachers; c. Provide study space for library users; d. Providing appropriate lending services for various types of users; e. Providing active information services that are not only limited to universities but also local industrial institutions (Sulistyo Basuki: 1991, p. 52).

If librarians and university library managers have been able to lay the foundations for revitalizing the role of their institutions, then there are actually many solutions and initiatives that can be taken. One of them is an information literacy initiative that is linked to the research capacity of the academic community. Considering this research capacity is one of the important issues in determining the quality of a university, it is very strategic if the librarian offers programs that can help increase this capacity. An example can be seen in the form of what Loughborough University (UK) is doing in African countries.

In their report, Hepwort & Duvigneau (2012) stated that there is a close relationship between information literacy, learning ability, and critical thinking. To achieve ideal conditions, information literacy programs in universities must be carried out by librarians who are not only skilled at being tutors and facilitators, but also have a kind of trust mandate from the participants. In the Indonesian context, this is the last thing that might be an obstacle. Lecturers/researchers may think that they do not need help, let alone advice and training from librarians. Although this can be overcome by asking for the help of experts or opinion leaders among the lecturers/researchers themselves, in the long run, this misaligned relationship requires a more definite mutual understanding from each party. This of course should be a concern for university libraries in Indonesia.

British libraries themselves (Pendit, 2015), as one of the countries that have an advanced system of higher education and libraries, admit that their institutions still need to "contribute directly to the institution's academic mission...". The sizeable funds, which amounted to £682 million for the 2010-11 budget, must be accounted for to fully serve the needs of academics and

students, particularly in the form of information technology-based services. Librarians in this country are fortunate to have such great support, but they still feel the need to improve their professionalism so that they can be more involved in research missions at the universities in which they are located.

In addition to facing very rapid technological developments, university libraries also need to be ready to face changes in user behavior that also change according to the times. This has actually been anticipated since the early 2000s through various behavioral studies (information behavior) which is indeed one of the traditional studies of higher education librarians. These studies consistently show that the information behavior of scientists in various fields has undergone a transformation thanks to the availability of digital resources, although the main steps in seeking, locating, and using their information have not undergone much change. From the librarian's point of view, the biggest change is precisely in the pattern of communication and trust relationships between scientists and librarians, as well as changes in researchers' attitudes towards libraries as information and knowledge resources. Free access to the internet and the availability of various digital resources outside the library have greatly influenced the role and position of libraries in serving the research community. In some universities, the role of libraries has actually increased, while in other libraries it has decreased (see Bradley et al, 2007; Haines, Light, & O'Malley, 2010; Xuemei, G., 2010).

Meanwhile, the research results of Creaser et al (2010) stated that scientists did accept the idea of open access, although they still did not know in detail. They understand the potential of this openness for scientific communication, but are also unable to detail what the real role of open access is for their activities. Only a few respondents did not know this role at all, but more than half of the respondents only thought that open access would be a challenge to classical communication that has been done through paid journals. Some scientists still care about the function of journals (open access or not) for the dissemination of their work, to build their reputation which is linked to the reputation of the journal itself.

They also still highly value the peer review process and only a few think that open access will threaten the process. The two research results above can be used as examples that in the reality of everyday life and behavior of scientists, it seems that open access will continue to develop along with "traditional" habits that have been built in the tradition of journal-based scientific communication. The Jingfeng study (2011) seems to confirm this. He concluded that after all, open access as a new model in scientific communication still needs to coexist with the old, traditional system. As a new communication model, open access can only be accepted if the behavior of "insiders" (scientists, the scientific community) has been fully understood by "outsiders" (decision makers, librarians) so that the strategy for developing this new model can be developed more precisely.

Collection procurement

Collection (Acquisition) Also known as collection or acquisition. That is, all activities related to the acquisition of library materials, such as purchases, exchanges, internal press, and donations. This activity also includes bibliographic verification activities carried out prior to ordering and receiving library materials, processing invoices, and maintaining records related to procurement. Without ignoring the manual procurement of collections that are still common, we will try to describe the procurement of information technology collections using various information technology acquisitions, including:

a. Collection (procurement) with the purchase process

You can purchase library materials using information technology by calling your e-mail box or by cell phone, telephone, fax, e-mail, and of course the Internet. Publishers/job seekers, distributors, agencies, dealers, even local to world-class bookstores now have their own homepage by placing it on their homepage. They make publisher catalogs available in electronic format (ecatalog), which includes information about publications and rich collections in both print and electronic formats such as ebooks, electronic journals, etc. Complete price, order, delivery and payment. In the case of this information and accounting agreement, including the account number for the remittance of a certain amount. In this way, the procurement of books can be done faster, more effectively and more efficiently. In the semi-electronic procurement process, ecatalog can be used in the selection process or in the selection of shares owned. Browse the titles you have in the electronic catalog, download and register them as collection materials.

b. Shopping through Sponsors / Subsidies

Slightly different from shopping through shopping, shopping through sponsorships/gifts using information technology, from the simplest to the internet can be easier, more efficient and effective. Personal contacts, between organizations, between organizations, contacts with booksellers, distributors/agents, distributors and publishers/workers from local to global levels, can be provided in order to seek donations/grants, either voluntarily or upon request. Simpler, more efficient and more useful, now there are many collections, both in the form of scientific articles, books, and journals in electronic form for free, which can be downloaded for free (download), which can then be printed or packaged in digital or electronic form, and can then be served to the users of our library. Here it can be interpreted as a gift or indirect gift in the form of creativity, because to obtain it requires the creativity of a librarian. versus Collection (purchase) via internal production/editing

Offered through the production/editing of local (in-house) collections, especially those related to theses, theses and thesis collections, in addition to scientific research works of teachers/researchers, including conference proceedings, seminars, and others. This anthology, commonly known as gray literature, is an anthology that is not published in bulk, but is published only in its own scope or in a circle of publicity and limited volume. The technology used is a scanner, which is then inserted into the CDROM. Apart from being in the form of a CD-ROM, this collection can also be stored on a high-capacity server in the library which is connected to the library's home page as an electronic collection.

Organizing and Processing Collections

Organizing (processing) collections are all activities to manage/process existing library materials, which include activities of verifying bibliographic data, cataloging, classifying, determining keywords, determining subject headings, transferring bibliographic data, managing bibliographic data entry (card alignment/filing).), making annotations, extracts/abstracts, compiling additional lists of collections, bibliographies, indexes and the like, as well as making bibliographical editing. In addition, processing activities also include inventory, stamping and providing other equipment through the finishing process. Collections organizing (processing) activities that utilize information technology, for example, can be accommodated in the Processing Module, which is part of the Integrated Library System which was built to unify all functions (procurement, processing and service), where all modules can interact with each other. interact with each other. As part of an automation system, the processing module can be said to be the kitchen or the chef who provides library content.

The proper functioning of processing activities, which are technical services as a library kitchen, will ultimately provide good quality user services. The smooth circulation of library materials and the ease of obtaining the desired information depend a lot on the activities of procuring library materials and processing activities in this technical section. What is library automation? Library automation is the computerization of routine activities and operation of the library housekeeping system which includes procurement, cataloging, including the provision of on-line catalogs (OPAC), circulation and serial monitoring. In other words, an automated library is a library that uses an automated system to handle part or all of its routine activities. In the sub-system or processing module, the following activities are carried out: 1. input to newly acquired collections, either through purchases, exchanges, internal production, as well as gifts or grants. 2. addition of copies of existing titles. 3. necessary edits or corrections to a record or listing. 4. deletion of records or listings that are no longer needed, such as because the book has been lost, damaged, weeded, or for other reasons.

What is done in the processing module, will be directly related to the service module, such as in terms of: readiness of collections to be borrowed, OPAC as a search medium and information on the state or number of collections, and so on. Processing also carries out collection digitization activities, especially for internal collections that are not published in bulk and in very limited numbers, such as: research results from lecturers, theses, dissertations, seminar papers, either individually or in the form of proceedings, collections. -local rare collections, as well as articles or other important collections downloaded from the internet. Utilization of information technology used in this process includes a scanner machine, then a computer with all its supporting software, CDs or other media. Furthermore, to be accessible by library users, this digital or electronic data can be placed on the WEB or library homepage, along with other electronic data, such as e-catalogs, e-journals, and others.

In other words, librarians can carry out electronic publications, namely activities to publish various information about and by libraries. In this case, the library owns and maintains its own WEB site. Web publishing aims to publish various information about the library and its activities. This activity is basically the same as the publication of various leaflets, brochures, pamphlets, library guides, additional bibliography lists, catalogs of various types, and other publication activities. However, publications that are more useful for users are those that involve the main content of the library, including collections from internal publications classified as gray literature as described above, for which the digitization process also needs to be carried out.

Provision of Access to Information Resources (Services) Users

Provision of access to information resources (services) for users is the part of the library that deals directly with the user community to provide information services and library materials that they need according to a predetermined system or rule. One of the most important things in library services is to minimize user discomfort in using library collections. Improving service quality is an effort that should be carried out on an ongoing basis, among others, by expanding access not only limited to print collections, but also connecting users to the wilderness of information that is widely available on the WEB or the internet. The provision of internet services is a service that is commonly carried out by libraries.

In this case the library provides a number of computers as terminals connected to the internet. The provision of this internet service aims to enable users to obtain information sourced from the WEB. This activity is basically the same as providing printed library materials which is a routine activity in traditional libraries.

In addition to providing internet services by providing computers that are directly connected to the internet, now what is becoming a trend and is mostly being done by libraries is to provide hotspot areas. What is meant by hotspot area here is a special room or area provided for library users, where library users can access the internet by bringing their own laptop.

Users can do the search themselves, or by ordering the materials they need from the librarian. In this case, the librarian's knowledge and experience in searching is very important because it can increase the efficiency of librarians and users. The librarian according to his basic role, in providing internet access can act as a mentor? especially for new users, in the form of user guidance activities or user libraries?

Regarding the issue of providing access to user services, there is one more thing to remember and to serve as a guide, namely the provision model: ownership or access. This is mainly related to the state of the library which has recently been influenced by two main changes, namely economics and technology. Economic changes involve the form of traditional-based library services, namely print collections whose prices are increasing. In comparison is the enormous potential currently offered by information technology in digital libraries. These two factors require libraries to be able to carefully assess the model of library provision whether in the form of holdings or access.

Besides that, there is still a perception about the size of the library from the physical dimension that can make librarians glorify ownership of library materials. In today's digital library era, having your own sources of information is not necessarily more profitable than having access to information sources. Having your own sources of information can be more expensive than providing online access. In other words, to some extent owning an information resource can be more expensive than providing access. In this case, perhaps the combination of the two is the best choice at this time, where books are more in the form of own (print), and journals are more dominant in the form of access (electronic).

CONCLUSION

College libraries have an opportunity to play a role in this challenging situation. The key lies in the ability of librarians and library managers to systematically and scientifically prove that their roles are relevant and needed by all stakeholders. It is in this aspect that the professionalism of university librarians is tested, not in the aspect of mastering their technical skills. The use of information technology in the library is a must, so that the library remains in demand and becomes an important need. The use of information and communication technology in a positive, creative and constructive way makes library activities and operations run more synergistically, the expectations of library users or users are met and the effectiveness of library services can be achieved. The development of information technology has indeed provided a very broad opportunity for libraries to innovate and make updates in various library activities. The values on which the librarian profession is based remain the same, but the way these values are translated into activities has fundamentally changed. The library's mission to collect, organize and provide access to information resources remains relevant, but the technology and ways to do so are changing.

The provision of print-based information resources is no longer sufficient, but must be complemented by digital-based resources whose number and speed of distribution continues to increase. Therefore, efforts to collect, process/organize and provide services or provide access to digital-based information resources whose number and speed of distribution continue to increase to complete print collections must continue to be carried out by utilizing information technology,

including through the implementation of automation. , digitizing collections, providing and servicing electronic collections, such as: e-books, e-journals for on-line searches equipped with search facilities, namely e-catalogs.

In addition, it is now time for the library to provide a hotspot area, to accompany internet services with limited computer terminals. However, because of the use of information technology in various activities or operations in the library, the value of efficiency and effectiveness is the goal, so careful consideration, thought, and calculation must be carried out before deciding on the use of information technology. By looking at the changes that have occurred from a conventional library to a digital library, the authors conclude that: Libraries that originally acted as Housing resources became Connecting resources: This means that in the library there are various facilities where people can interact with each other in the library. Print centric becomes user centric: it means that in the past when technology was not as advanced as today, the existence of printed collections or books was very dominant in the library, nowadays its existence is one part of the library collection that must be provided for the needs of users. Solitary and silence has become solitary and collaborative: it means that previously the library was known as a room where the occupants had to be silent and should not create any noise, but now it has turned into a place where the users are fun to work collaboratively with other users. Monotask becomes multitask: the existence of a library which in the previous era was only a place for storing collections has now become very complex with various information management that is increasingly varied and providing facilities as well as establishing affective communication with users. Introvert to extrovert: the author argues that the library is expected to be able to position itself as an open institution and establish warm communication with its users. Fixed to be adaptable: the opinion of library writers is expected to be able to adapt to various technological developments and the behavior of their users. librarians are expected to be able to develop their competence in various multidisciplinary abilities. Self service becomes a concierge: the author means that the library is a provider of information sources and a place for various service facilities. No food and drink becomes cafes: the author's opinion that the library provides a room that is used as a place to rest to eat and drink

We all hope that libraries are ready to face the era of the industrial revolution 4.0 by utilizing information technology in digital libraries. Users can get data and information quickly and accurately, so the library can provide excellent service.

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