The Strategic Role of ICT in Islamic Higher Education
A Case Study of The Implementation ICT at Sekolah Tinggi Agama Islam Nurul Ilmi Tanjungbalai

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Abstrak

Zaman terus berubah, pergeseran budaya terus terjadi secara terus menerus. Tak terkecuali dunia pendidikan. Tidak dapat dipungkiri bahwa tergerusnya teknologi informasi dan komunikasi akan terus merambah dunia pendidikan. Dari sisi manajemen, pembelajaran dan keuangan, pemanfaatan teknologi informasi dan komunikasi dapat dimaksimalkan. Metode penelitian ini adalah metode penelitian kualitatif dengan pendekatan studi kasus. Studi kasus merupakan suatu model yang berfokus pada eksplorasi "sistem terbatas" terhadap satu kasus atau beberapa kasus secara rinci dengan cara mengekstraksi data secara mendalam. Berbagai sumber informasi yang kaya akan konteks digunakan untuk data mining.. Konsep Dasar Teknologi Informasi dan Komunikasi, Peran TIK dalam Proses Pembelajaran di Perguruan Tinggi dan Penunjang Administrasi Kelembagaan, Stai Nurul Ilmi Tanjungbalai perlahan mulai melengkapi infrastrukturnya untuk mengelola kampus dan menyelenggarakan pembelajaran. Ruangan tersebut dilengkapi dengan peralatan multimedia dan WiFi yang dapat digunakan sebagai sumber materi pembelajaran. Pada akhirnya, berdasarkan pengalaman perguruan tinggi yang berhasil memanfaatkan ICT untuk meningkatkan kinerja, dapat dikatakan bahwa "invasi" ICT di dunia pendidikan tinggi tidak akan berhasil. Sumber daya manusia kampus harus siap mengubah paradigma, cara berpikir, dan kebiasaan sehari-hari

Kata Kunci: *Teknologi Informasi dan Komunikasi, Pendidikan Tinggi, Mutu Pendidikan*

Abstract

Times continue to change, cultural shifts continue to occur continuously. The world of education is no exception. It is inevitable that the erosion of information and communication

technology will continue to touch the world of education. From management, learning and finances, the use of information and communication technology can be maximized.This research method is a qualitative research method with a case study approach. A case study is a model that focuses on "bounded system" exploration of one case or several cases in detail by extracting data in depth. Various sources of information that are rich in context are used for data mining.. Basic Concepts of Information and Communication Technology, The Role of ICT in the Learning Process in Higher Education and Supporting Institutional Administration, Stai Nurul Ilmi Tanjungbalai slowly began to complete the infrastructure for managing the campus and conducting learning. The room is provided with multimedia equipment and WiFi which can be used as a source of learning material.In the end, based on the experience of universities that have successfully used ICT to improve performance, it can be said that the ICT "invasion" in the world of higher education will not be successful. Campus human resources must be ready to change their paradigm, way of thinking and daily habits..

Introduction

Times continue to change, cultural shifts continue to occur continuously. The world of education is no exception. It is inevitable that the erosion of information and communication technology will continue to touch the world of education. From management, learning and finances, the use of information and communication technology can be maximized.

Information and Communication Technology, which is developing so rapidly in the current era of globalization, cannot be stopped. Especially its implementation in higher education institutions. Universities today must be aware of the use of information and communication technology. Information and Communication Technology is of course used in public and private universities.

The difference between the conventional era of higher education and the current era of digitalization is drastically different. In terms of efficiency, distance, time and work system efficiency are really very different. There are many points of view that can be taken as an example, namely when you want to register at a university, either PTN or PTS. In conventional times, applicants directly paid the registration fee to their campus using cash to the administrative staff of their destination campus. Shifting to the era of digitalization, registrants go to the bank appointed by the campus to pay for registration at the destination campus without having to queue at the destination campus. Furthermore, shifting slightly in this era, by using a smartphone / mobile banking we can register without having to queue at the bank. It is getting easier and more efficient in everything in terms of managing higher education.

One of the events above is an example of the era of digitalization that is now unstoppable in the world of education, especially in higher education. The conventional era is changing to digitalization in the current era of globalization. Furthermore, how the campus responds to this shift in learning culture will be studied in this paper.

Furthermore, now we have entered the age of Information and Communication Technology (ICT) and its role regarding the importance and need for the quality of

learning can be improved and increased. We can improve the quality of human resources and HDI by using ICT, namely by increasing access to knowledge and providing high-quality education. Especially using the approach*high tech* and*high touch*. Information and communication technology develops together with communication theory and technology that supports learning practices. This enables broad, fast, effective and efficient dissemination of information throughout the world.

The world of education is experiencing shifts and innovations in the 21st century. These changes include making the learning process easier and providing more choices. to use and utilize ICT, the role of media increases and the use of media in learning activities, flexibility of study time, use of computer-based learning (CBI), computer-supported learning (CAI), use of television and video media, teaching via cellphone, online teaching, teaching management system, online curriculum, e-library, learning model using an individual learning system, competency references, especially not from higher education institutions that have diplomas, but which are further developed through standardization, accreditation and certification carried out by professional groups.

Globalization influences the world of education today, especially in higher education, with the use of information and communication technology (ICT) in every aspect of management, even in the learning process. The development of information systems in higher education institutions along with human civilization has reached the point where the term Information Technology (IT/IT) is known. Starting with the form of irrelevant photos on walls, inscriptions, or information which later became the internet. Information is manipulated and distributed constantly, from simple information such as simply outlining the situation, to strategic information such as battle strategies.

In the current era of globalization, information and communication technology, also known as information and communication technology, has become an important component to support the learning process to improve the quality of education. education issues such as quality and relevance of education, access and equality of education, geographical reach of education management, efficiency and productivity, autonomy and accountability, ICT will be very important for budgets and sustainability. Information technology-based education is a method of interaction between management and administration. Education, which can be used by teachers and school employees and students to improve the quality, productivity, effectiveness and access to education.

The importance of Information and Communication Technology in higher education management is proof of how seriously higher education institutions should accept the erosion of digitalization in higher education management. To be able to compete in this 21st century learning era. This paper will discuss the strategic role of ICT in higher education.

Method

This research method is a qualitative research method with a case study approach. A case study is a model that focuses on "bounded system" exploration of one case or several cases in detail by extracting data in depth. Various sources of information that are rich in context are used for data mining (Creswell, 2015). Research participants were selected using purposive techniques with the help of a key person. Through purposive techniques, researchers select research participants

and research locations with the aim of studying or understanding the main problem to be researched. The research participants and research locations selected using this technique are adjusted to the research objectives (Herdiansyah, 2012). The data collection method uses interviews, observation and documents.

Results and Discussion

Basic Concepts of Information and Communication Technology

In the current era of globalization, information and communication technology (ICT) has become very important to support an effective and quality education process. Education problems in Indonesia such as access and quality of education and the relevance of educational equity, geographical space, management, autonomy and budget, sustainability, accountability and productivity would not be possible without ICT (Anih, 2016). ICT-based education is a means of interaction between educational administration and management, which can be useful for teachers, education staff and students in increasing access, quality, effectiveness and productivity of education.

Indrajit further said that the purpose of information technology in education is "to fulfill unmet educational needs" or "to fulfill unmet educational needs." so it has not been fulfilled (Indrajit, 2011). Rusman stated that Information and Communication Technology is a scientific discipline that investigates optimizing communication processes using technological advances (Rusman, 2013). Next, Rusman. states that information and communication technology consists of two components: information technology and communication technology (Rusman, 2013). Information Technology is a term used broadly to cover all aspects of

processes, and can be used as a tool for assisting, manipulating and managing data. Communication engineering includes everything about the tools used to transmit and process data and devices. New Technology Communication and information are each other having a broad understanding of everything related to data processing, management, and transfer and transfer between media using several technologies.

Basically, there are two broad categories of benefits or roles of ICT for higher education, according to the results of a number of studies, observations, research and comparisons between national universities and other higher education institutions in the regional and international environment. The first category is known as "core values", and includes the benefits that universities obtain through the application of ICT that are directly related to learning and education. In this context, the main stakeholders are students, teachers, researchers and public servants. However, the second category, referred to as "supporting value", relates to the benefits that universities obtain from the application of ICT that are directly related to the management of higher education. Leaders and management of educational institutions, staff, parents of students, work partners, owners (foundations or BHPs), surrounding communities, government and regulators, cooperatives/kopertais, and other related parties (Indrajit, 2011).

The Role of ICT in the Learning Process in Higher Education and Supporting Institutional Administration

Basically, there are five (5) roles of ICT related to education on campus: (i) supporting learning activities; (ii) empower teachers and students; (iii) managing intellectual assets; (iv) support research;

and (v) making various educational products.

1. ICT as a Supporter of Learning Activities

Learning is a process in which students and teachers interact with each other. Interactions are usually monotonous and one-way. In this situation, the lecturer explains and the students listen. Often, students are expected to understand what their teacher says throughout the process. For example, when a chemistry teacher teaches acid-base mixtures, students are asked to imagine how acid-base mixtures are formed; or when a history teacher teaches about the seven wonders of the world, students are expected to be able to imagine what is explained in class; or when a physics teacher explains how atomic bombs are formed, which must be able to be absorbed or digested. This is clearly very difficult to do considering the limitations of students as individuals. By using various ICT applications, it is hoped that what the lecturer wants to convey can be depicted or simulated through multimedia exposure, helping students absorb relevant knowledge.

This visualization aid consisting of text, audio and video not only helps students absorb the information presented, but also helps teachers explain things that are difficult to describe. Lecturers indirectly help students "learn" by understanding phenomena that occur due to the situational and contextual nature of this environment. The paradigm shift that is often associated with lecturers as a source of knowledge to the role of facilitator is very possible and easy to implement in this environment. If every student has a notebook with an application installed in it, a teacher- or lecturer-focused learning model will be directly applied to them. It is only the lecturer's responsibility to organize and assist the class by providing instructions, challenges, questions, and statements that can be directly answered by students through interaction with various information technology applications (Kolderie, Ted, 2009).

Innovative use of various applications will make the learning process fun—read: edutainment—as well as making it easier for students to learn and become facilitators. Because it is fun, the material often becomes addictive for students and teachers to investigate. This is because of its dynamic and mysterious nature. In other words, the phenomenon of "lifelong learning" has begun to be attached to lecturers as individual learners indirectly. To support this teaching and learning process, campuses must have various applications that have features and capabilities such as scenario simulation, "what-if" analysis, expert system interaction, environmental exploration, and so on.

Because of the many combinations of content and context that can be tested and simulated with this capability, apart from allowing teachers and students to learn independently, this capability also allows them to explore the material studied widely.

2. ICT as an Empowerer for Lecturers and Students

The world of science is developing rapidly, which makes it difficult for educators and learners to understand and master it. It will be very difficult for teachers and students to maintain a competitive edge if they do not know how to overcome this speed phenomenon. ICT, in this case the internet, can help students and teachers to stay "updated" and arm themselves with the latest knowledge effectively and efficiently (Lehman, 2010).

For example, a lecturer who always prepares good, modern and innovative

teaching materials. To obtain the content in question, the party concerned can use the "search engine" facility on search tools such as Google, YouTube, chat gpt (AI), Canva, and many other tools that can help lecturers in providing learning material.

Students and lecturers have access to the same website, so both have "equality" in access to learning resources and knowledge. With this phenomenon, the principles outlined in the implementation of KKNI or Merdeka Belajar Kampus Merdeka become easier to apply, such as: teaching reference materials can come from various sources, and teachers or lecturers, sources of knowledge can come from various places, locations, even country. To ensure that there is equality between lecturers and students in this learning process, the role of lecturer facilitator must be carried out.

3. ICT as a Tool for Managing Intellectual Assets

Capital or intellectual assets collectively accumulated during teaching, research, and community service are the most valuable assets of a university. The campus has various types of intellectual property assets, including diktat documents prepared by lecturers, scientific journals written by researchers, scientific papers written by students, patents created by individuals or groups of "academics", case studies created with industry, and collections libraries in various forms. With a history of more than two centuries, intellectual property is the key to campus sustainability.

Even the world's oldest campuses, such as Harvard, Yale, MIT, Cambridge, and Oxford, make more money from the "sale" and utilization of their intellectual assets— both "tangible" and "intangible." "Tangible" assets include items that can be seen physically, such as campus facilities, laboratories, lecturer teams, research groups, library collections, reference and teaching material documents, money, and so on. On the other hand, "intangible" assets include the collective knowledge that exists in the heads of professors and researchers, which will ultimately produce work (Jonassen, 2000).

Almost all of these intellectual assets can be presented and stored in digital form (read: files), as has been discussed extensively above. Almost all documents and references created by teachers, researchers and students today are in the form of digital files based on text, images, recordings and/or videos. Thus, a campus must have a "place" to store all these valuable assets, usually in a special "database warehouse". In general, what is stored in this data warehouse is: (a) A series of lecture materials and materials offered and organized by the university; (b) Various research articles and journals written by professors, lecturers and researchers, both published and unpublished; (c) Many scientific works are created by students in the various courses they take; (d) A number of audio recordings of interviews with leading figures in the academic world; (e) A number of photos or images of various works of art and engineering created by the campus (f) a number of sound recordings of lecturers' lessons in classes and seminars with speakers of national and international reputation; (g) A number of URL links to academic reference centers or other digital libraries that have been given access to the campus in question through various agreements and collaborations; etc.

Please note that at this time, there are a variety of methods that can be used to gain access to these intellectual asset collections. All e-books, journals, libraries, labs, etc. can be easily accessed via computers, notebooks, PDAs (Personal Digital Assistants), smartphones, web TV, and various other digital technology tools.

4. ICT as Support for the Research Process

Carrying out a number of researches in various fields of science is one of the main responsibilities of higher education in addition to carrying out the teaching process. Everyone knows that the research process requires a lot of resources and sometimes requires a lot of money. However, with many of today's ICT applications and software, several types of research can be carried out effectively and efficiently.

First, a researcher usually requires many reference resources, which are sometimes expensive. These resources include the results of independent studies, international journals, and various studies and research from leading institutions. However, now with books, journals and libraries accessible via the internet, researchers do not need to spend money to visit libraries around the world.

Second, it is very important for a researcher to interact, communicate, think, and collaborate with other researchers from various institutions. With the help of email facilities, mailing lists, newsgroups, chats, and teleconferences, zoom, Google Meet, and using Google Forms, researchers can now collaborate virtually 24 hours a day, 7 days a week. This is different from the past, when "ground meetings" had to be carried out periodically, which of course required transportation and accommodation costs.

Third, a researcher needs various laboratories to conduct their research. Most laboratories in question today are computing devices (or digital devices) with a variety of expensive and complex applications. For example, a supercomputer owned by a certain institution can be "shared" by researchers who are outside the geographical area of that institution because of internet and network technology. As far as getting the necessary access is concerned, a researcher can freely access various technological devices used by various laboratories throughout the world through this remote control technology. Contemporary researchers have greatly benefited from the use of these electronic labs.

Fourth, a researcher must convey their research findings in the form of academic writing or a journal. If previously they had to wait months to "publish" it due to the limited number of journals and rare conferences being held, now they can "publish" it immediately. For example, a researcher can directly "publish" or disseminate their research findings throughout the world via applications such as webcasts or teleconferences. In addition, researchers can work together to publish their research results through the world's leading websites that publish e-journals and e-books. In some cases, they can earn money from everyone who downloads their work.

Fifth, researchers must receive criticism from colleagues or fellow researchers around the world who have read the results of their research. Again, by using various ICT facilities, the person concerned can obtain this information quickly and efficiently.

5. ICT as an Educational Product Developer

Because universities are connected to cyberspace via the internet, people from all over the world can interact directly with the campus. There are many new breakthroughs that campus management can make to change the world of education. One of the things most leading universities in the world do is offer "continuous education" programs through e-learning mechanisms, or carrying out the learning process via the internet.

Furthermore, if the previous five benefits are closely related to the use of information and communication technology (ICT) in the learning process, the next five (five) roles of ICT are closely related to the management of higher education institutions. All five roles are related to the management and administration of higher education institutions, respectively: (1) ICT to assist operational and administrative activities, (2) assist the decision-making process, (3) assist communication and interaction between stakeholders, and (4) enables optimization of processes and resources; and (5) ICT to build strategic collaboration with external parties.

1. ICT to assist Operational and Administrative Activities

An independent agency study found that universities are a complex type of organization. This is largely due to the fact that many types of stakeholders with different goals come together in a college environment, but they are all united under one vision and mission. Among these stakeholders are students, lecturers, researchers, management, employees, foundations, communities, government, partners, etc. Therefore, technological assistance is needed to handle various administrative and operational tasks which are quite complex. In general, there are two types of applications needed to meet "front office" and "back office" needs. The "front office" application is an ICT tool needed to assist the management and governance of teaching and learning activities, starting from when students enter through the PMB (New Student Admission) process until when they graduate.

For universities in developed countries, ICT assistance in administrative and operational processes is considered normal. This is clearly necessary to improve the efficiency and effectiveness of higher education management operations. It would be difficult to organize the many interactions and transactions that occur in campus environments around the world without ICT.

2. ICT to Assist the Decision Making Process

Every day, many decision-making processes occur on campus. Higher education leaders such as chancellors, directors, deans, or unit heads must face various complex problems that require quick and precise decision making. Of course, the right and sufficient amount of data and information is needed for a fast and quality decision-making process. However, considering the amount of data and information available and how the data and information is processed sufficiently, appropriate ICT is needed. The next strategic ICT function that universities must have is to assist management in the decision-making process.

The three main components of this system are as follows: (I) a system that stores various types of data and information owned by universities; (II) a system that processes data and information into "knowledge" needed by its various users; and (III) a system that presents the results of such processing in a format that facilitates decision making in studying data and information.

3. ICT to Support Communication Activities between Stakeholders

Every day, in a good campus academic environment, many people communicate with each other very frequently. Smartphones, cell phones, blackberries, PDAs (Personal Digital Assistants), notebooks, and other "portable digital" devices have become an important part of the modern lifestyle. Both directly and indirectly, its existence has served as the "backbone" of campus communication technology. In other words, all stakeholders expect the availability of

information technology infrastructure and ICT applications on campus related to virtual interaction, collaboration, collaboration and coordination. It has many important aspects.

First, there is data, voice, image and video (read: broadband) transmission infrastructure that covers the entire campus area. This communication mechanism can be realized through backbones such as fiber optic and wireless (read: hot spots). Reliable infrastructure, which is measured based on the type of technology, transmission quality, bandwidth size, and operator performance, is needed so that communication activities on campus can run efficiently and effectively.

Second, there is collaboration with various service providers—or providers—who provide various communication services through this infrastructure backbone. In a college environment, three main networks must be available and usable: intranet (on campus), internet (off campus), and extranet (off campus). In a higher education environment, an intranet is a network that connects all stakeholders so that they can communicate, collaborate, coordinate and cooperate. Although the internet serves as a link between campus and cyberspace, it is also a location where entire large networks serve as a place where people from all over the world interact with each other. Furthermore, extranets, which connect campuses with their partners, including government agencies, research centers, library networks, and others.

Third, various communication tools have been installed on the network owned. One of the most commonly used communication applications is e-mail (also known as email), mailing lists, chat, newsgroups, discussions, push mail, etc. Even though things are somewhat

"modern" such as teleconferences, webcasts, social media, virtual classrooms, second life, etc. Of course, universities require a number of server computer infrastructure that is not simple to be able to run these various applications.

Fourth, the content that wants to be created, exchanged and enriched within the relevant higher education environment. This content can be tangible and formal material (for example, diktats, references, scientific works, etc.) or tacit material (for example, knowledge, ideas, initiatives, thoughts, etc.). This material usually flows and is exchanged in every communication process.

Fifth, there is a context that encourages everyone to communicate. Examples of the context in question are as follows: collecting assignments via email; use of the portal to download study materials; taking courses virtually; use of opinion polls, or polls, on the internet; discussion between researchers; implementation of e-seminars via webcast; and so on (Indrajit, 2011).

4. Tik as a Guarantee for Process and Resource Optimization

The world of education is greatly influenced by the rapid pace of environmental change. Nearly all large campuses around the world are seeking to redefine their functions and the way they are run in response to the new problems they face. To remain relevant and "sustainable" in the face of such enormous global challenges, the success of various world universities depends on the idea of radical and fundamental change to improve performance. From various examples of successful BPR implementation, it is clear that ICT is one of the "central figures" or keys to the success of the changes made. In this situation, there are at least two (two) ICT roles that are actually carried out.

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The first and most important is the use of information and communication technology (ICT) to ensure optimal process implementation. All work activities or "tasks" that occur in the campus environment are referred to here, whether they are "core" or core processes or "non-core" or supporting activities. Because of the many ICT capabilities offered, which previously were not conventionally possible, many new campuses are rethinking their management design. In contrast, long-established universities see many opportunities to properly utilize ICT to improve performance.

Second, the additional benefits of information technology (ICT) provided to universities in terms of optimizing resources. The principles offered in this context derive from the ability of information technology to digitize physical entities, such as text, images, sound, and video, as well as digitize physical processes and activities, such as communication, interaction, and transactions.

5. Establishing Strategic Partnerships with External Parties

Universities work with many people to do their work. This includes people for the "front office" and "back office". In this case, the role of ICT is very important. One example is managing the payment system. Universities usually work closely with the banking industry to help students. This allows them to use ATMs and internet banking, or even direct debits to their parents' savings accounts. By using the same system, lecturer and employee salaries can be paid automatically and periodically in accordance with applicable regulations and policies. Obviously, the university concerned must have an appropriate ICT system to integrate the payment process into the delivery of lectures.

In this case, the university concerned must build an adequate system to benefit from collaboration with parties who are proficient and actively use ICT. Thus, this benefit can be felt by all students. In this case, experience has shown that universities do not always need to allocate significant amounts of funds for the investment in the system in question. This is because most collaboration mechanisms can be carried out "for free"—because of the mutual benefits felt by both parties—or through an operational expenditure approach, which means universities only pay per use or per transaction (where the investment is made in stages) (Indrajit, 2011).

Negative Phenomena of the Existence of ICT

Although ICT has many of the benefits and strategic roles mentioned above, there are also several problems it causes. In his book "Philosophy of Technology", an educational practitioner reminds that technology is basically neutral and it is humans who give it a "positive" or "negative" color. Not only is the new generation in developing countries like Indonesia experiencing negative impacts,

but also in developed countries such as the United States, Australia, Canada, China, Japan and Singapore.

1. Shallowness in the Process of Thinking and Experimenting

Because it is so fast and easy to gain knowledge, the "flying hours" of the thinking and experimentation process become shorter for students and lecturers. This universal and instantaneous phenomenon results in almost all the cognitive "variables" or "parameters" that are usually only obtained after in-depth research into the scientific discipline being studied to be available for free and at no cost because they have been "shared" by those who first discovered them. If this habit is carried out continuously, it will cause students or lecturers to be "lazy" in exploring the science they are studying. In the end, this will reduce the ability to think and experiment, which is very important for students and teachers in everyday life. These signs or symptoms have emerged as a result of increased "copy and paste" activities carried out by various educational practitioners.

2. Use of Low Quality Information and Knowledge

Not all information available on the internet or cyberspace has the same quality as books or other reference journals in the library which have previously gone through a strict assessment process. A lot of various data, information and knowledge were discovered whose origins were unclear, and whose validity was questionable. For example, there are articles whose authorship is unclear and the content is very subjective or tendentious, tables and graphs of research results on a phenomenon whose methodology and population "sample" are not explained, raw data about observing objects whose method of collection and party who carried it out is unclear. or missing "powerpoint" presentation materials. Today's young generation has unique behavior because they tend to really believe in various data and information available on the internet. If these negative things become a habit for students, it will have a negative impact on the quality of the teaching and learning process because bad information will produce bad knowledge.

3. Tendency to Just Become a Consumer of Information

The Internet is essentially a "marketplace" where producers and consumers of information come together. Information producers in the world of education are those who actively and intensely disseminate scientific work via the internet, while information consumers are those who actively and intensely take and utilize the results of scientific work. In this case, the facts show that there are not many students, teachers or researchers in Indonesia who act as information producers. Most of them use search engines, or "search engines", such as www.google.com to find the information and data they need. The level of human productivity of students is greatly influenced by the phenomenon of taking rather than making. This impacts their ability to generate new ideas and innovations. As a result, there are very few innovative and valuable ideas that can be relied upon for human welfare. Not many "academics" have truly "switched" from their role as an individual thinker, learner, and researcher to that of an "information broker." Their job is to collect "clippings" of information from the internet to be "repackaged" and used as a tool to make money through activities such as seminars, training and book publishing.

4. Protection of information and knowledge

Older generation lecturers often experience trauma or excessive fear due to the openness of the internet, especially those who have produced many scientific works. Because they fear that their work will be pirated, that their students will know all the material they teach prematurely, or that their discovered formulas will be used by irresponsible people, or that their writing will be subject to harsh criticism from society, they are more likely to protect their work by maintaining it and Although it is clearly very profitable for them, the world of science is quite "harmful" to this. The process of developing new innovations related to the topic in question will be hampered if their work is stored in an inaccessible "protective drawer".

5. Tensions in Interaction between Lecturers and Students

It is common knowledge that the amount of time students spend using the internet and information technology far exceeds the amount of time spent by their teachers. If not managed well, unnecessary tension often occurs during the teaching and learning process. This happens due to lack of cyber access. Look at the example where a student "protests" his teacher in front of the class for providing information that tends to be irrelevant because the person concerned first accessed the latest information via the internet.

Another example is a student who "sues" his lecturer to the Senate or Head of Department because he is deemed to have "lack of mastery" of the material he is teaching. This happened simply because the teacher had provided inaccurate information or answered "don't know" when asked critical questions by many of his students. or when a researcher "questions" his teacher who usually gives advice using ancient formulas and approaches, at a time when researchers from all over the world have developed new methodologies that are discussed online. When lecturers, instructors, or supervisors do not have sufficient "wisdom" or maturity to handle this phenomenon, learning activities will become counterproductive because unnecessary tension arises.

6. Unpreparedness for Facing Performance Evaluation Culture

Through the use of information and communication technology to support higher education operational governance, management can evaluate performance in all related lines or work units. Are lecturers, staff, leaders, researchers, students and all other stakeholders ready to have their performance evaluated or assessed? There are many ways to measure the performance of higher education management systems and academic information, such as: (i) lecturers' attendance and punctuality in lectures; (ii) student satisfaction index towards lecturer performance; (iii) list of courses with unfair grade distribution; (iv) student graduation on average on time; (v) efficiency and space utilization; (vi) progress in increasing the cum grades of permanent lecturers; (vii) number of student complaints and grievances per month; (viii) profile of lecturer satisfaction and dissatisfaction. If the information system creates all these measures or indicators to be used by campus management to evaluate the performance of its human resources and used as a basis in their efforts to gradually improve the quality of campus administration, then the people involved must be mentally and physically ready to accept it. If not, it will be detrimental to the university concerned.

7. Challenges of Implementing "Good Governance" Aspects

Both the existence and use of ICT in educational institutions directly or indirectly "promote" the application of the principles of "good governance" in

organizations. If data and information are managed well, the principles of transparency, accountability, responsibility, independence and fairness can all be easily implemented into the system (read: "from the start"). However, the fact is that many stakeholders at management and top management levels are not yet ready to implement these "good governance" principles. There are many reasons for this. Therefore, it is not surprising that many policy makers and decision makers are still reluctant to implement ICT comprehensively and comprehensively in higher education.

Information and Communication Technology Implementation Strategy in Higher Education

What attitude should be taken when facing obstacles and obstacles in the use of ICT? So that ICT can be used well and provide significant benefits for universities that implement it, several steps must be taken.

1. Socialization of Paradigm Changes in the Implementation of Higher Education by Institutional Leaders

Because the college community is a group of rationally thinking people, initiatives designed to engage them must be communicated as programs that have a logical basis and empirical data to support them. Due to the presence of information and communications technology (ICT), higher education across the world has undergone a major shift to keep up with new trends. Anyone who wants to maintain the relevance of the higher education institution they manage must consider the role of ICT as an "enabler", "supporter", "driver", even "transformer" in the context of the needs of modern higher education. As a result, the highest leaders of higher education institutions, such as chancellors or high school directors, must act using a "top down"

approach to convey and socialize their new "vision and mission" caused by the global information technology phenomenon. Socialization basically means raising awareness, concern, and the desire to change immediately to adapt to environmental dynamics. This means that higher education practitioners must change the way they think and behave. This "visionary" leader must speak convincingly so that all academic members and stakeholders in the organizational environment support him. It must be understood that the choice to use ICT must be fully supported—it is a non-negotiable decision.

2. Assembling a Solid Work Team: Road Map for Development of Information and Communication Technology in Higher Education

An "invisible hand" will be responsible for ICT development on campus. The planning, procurement, design, construction, implementation and development of the ICT in question must be carried out by a solid work team. This team must consist of people who not only have an interest in implementing ICT in higher education but also have a sufficient track record of experience and ability to build information systems in the higher education industry. This team must be diverse and multidisciplinary. They should consist of people who not only have knowledge and skills in the fields of higher education management and technology, but also people who are adept in processes, HR, and change management. To be objective, the team must be hired as "full timers"—or full-time workers not tied to other organizational responsibilities—and given enough authority to make important decisions. This focus and full time commitment will guarantee the quality and targets of ICT development. After the team is formed, the first and

most important task is to create an ICT Strategic Master Plan and ICT Development Blueprint which is published at the university concerned. This official document is very strategic because it will function as a common guide for ICT development on campus. Among the contents of this document are (i) campus ICT vision, mission, roles, goals and targets; (ii) definition of ICT needs and benefits; (iii) the required holistic ICT architecture and development plans; (iv) list of current ICT assets and inventory of the campus and evaluation of their performance. (v) analysis of program portfolios that need to be developed based on differences in availability and need; (vi) "roadmap", or phasing of program implementation for the short, medium and long term in the form of work on a portfolio of ICT projects; and (vii) an agreed governance model to be used in ICT development management.

3. Develop Infrastructure and Superstructure that supports ICT Implementation

Whether you like it or not, want it or don't want it, agree or disagree, the essence of implementing ICT in campus organizations is basically a challenge for change management initiatives. This is clearly visible from the significant use of ICT in the educational process, management and operations of higher education, something that had previously "never" been done in a comprehensive and integrated manner. There are three types of transformation that can be carried out based on the model of approach and the significance of the desired results: evolutionary—slowly but surely; revolutionary—quick results with high risk; and tiered phasing—tiered and controlled. This is based on the experience of several universities that have carried it out. Every organization has a transformation strategy to succeed according to its goals,

objectives and culture. Whatever type is chosen, the most important thing to do is prepare the various infrastructure and superstructure, both physical and non-physical, that are needed to support and accelerate the change process in question. For example, infrastructure must begin to provide various facilities, such as adequate local network and internet connections, computing access centers for teachers and students, adequate server space and data centers, relevant teaching and learning content, interesting media-based classes, academic information centers and reliable non-academic, and various software and programs or applications for the education system. The bottom line is that there must be examples of "quick win" programs that can immediately benefit stakeholders. This will enable all socialization and "promises" of leadership in transforming ICT to improve the performance of higher education institutions to be immediately felt by the entire academic community without waiting long. As part of a short-term ICT application and implementation program, the construction of a number of physical infrastructures that can provide fast results and real benefits is very important. Furthermore, to accelerate the adoption and development of ICT in the medium and long term, it is necessary to think about a number of supporting "superstructures" - a level of policy, management and "governance" that stands apart from the ICT infrastructure. (i) provide a sufficient number of ICT training programs for lecturers, researchers, employees, staff and students who wish to learn; (ii) create an appropriate model to provide incentives to lecturers, researchers, employees and staff who successfully use ICT to improve the performance of their daily activities; and (iii) establishing a quality management policy that regulates the use of ICT, iv) establishing a "help desk" team and a

supporting organizational structure to help students who are just learning to use ICT and need special assistance; (v) application of the concept of efficient resource management and mutual sharing between work units of various higher education institutions; and (vi) allocation of investment and operational funds in the annual development budget, vii) increasing local "promotion and marketing" tasks in connection with the objectives of utilizing ICT in the relevant higher education institution; and so forth.

Implementation of ICT at STAI NURUL ILMI TANJUNGBALAI

STAI Nurul Ilmi Tanjungbalai is a tertiary institution founded in 2020 in the city of Tanjungbalai, North Sumatra. Furthermore, in organizing the campus, Stai Nurul Ilmi Tanjungbalai slowly began to complete the infrastructure for managing the campus and conducting learning. The room is provided with multimedia equipment and WiFi which can be used as a source of learning material.

However, there are still things that are still conventional in campus management, such as. Payment of tuition fees is still manual if it can be transferred or via digital wallet, there is no campus e-learning yet, study plan cards and study result cards are still manual and cannot be made via the campus website. For this reason, many improvements still need to be made so that ICT-based campus management ensures that the quality of education at STAI NURUL ILMI TANJUNGBALAI can be maintained and able to compete with other Islamic universities in North Sumatra.

Conclusion

In the end, based on the experience of universities that have successfully used ICT to improve performance, it can be said that the ICT "invasion" in the world of higher education will not be successful. Campus human resources must be ready to change their paradigm, way of thinking and daily habits. A wise man said, "An old campus, plus information technology, equals an old and expensive campus!" If campuses implement ICT without changing ways of thinking and behavior, the campus will only become an old-fashioned campus that is increasingly expensive. "Change" is the key to the successful use of ICT in higher education institutions. STAI NURUL ILMI TANJUNGBALAI has supported and made as much effort as possible for ICT-based learning and management by completing facilities and infrastructure, but on the other hand there are still many shortcomings in supporting higher education institutions using ICT. As a suggestion from the speaker, information and communication technology has an important role for higher education. Therefore, higher education managers should not ignore ICT. Because it is one of the factors to improve the quality of education in higher education.

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