MANAGEMENT OF ICT AND TELEGRAM BOTS: IMPLEMENTATION OF INFORMATION SERVICES FOR STUDENTS OF THE ISLAMIC SCHOOL DAAR EL HASANAH

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Abstract

This study describes the implementation of information technology system management and telegram bots in student services and information. The method used is descriptive qualitative. The study was conducted at the Daar El Hasanah Jawilan Civilization Islamic Boarding School, Serang Regency, Banten Province. The data is taken from primary and secondary data, which comes from documentation of Islamic boarding schools, relevant books, and reputable journals both internationally and nationally. Data collection techniques are through observation, in-depth interviews, document assessment, and focus group discussions. Data analysis is done through the process of editing, organizing, and interpretation. The results of the study show that the application of information technology system management and telegram bots is very effective in using services and information for Islamic boarding school students, which consists of academic, financial, library, staffing, reporting, computer-based exams, teacher info, student info, SMS gateway, and pavilion services. The study recommends that Islamic educational institutions such as Islamic boarding schools and madrasas take advantage of information technology's sophistication in providing services to users.

Keywords: *Management information technology systems, telegram bot, services, Islamic boarding schools*

A. Introduction

In the 21st century and the era of the industrial revolution 4.0, information systems are essential and the primary source in an Islamic educational institution to adapt and compete with others (Hafidzi, 2020; Supardi et al., 2021). Competition in educational institutions is a necessity to improve management systems, both human resource management and information system management (Zohriah, 2018). Information management is the initial parameter for the quality of an institution (Rusdiana & Irfan, 2014). In addition, according to Rohman (2016), the management of information technology systems can support educational activities, especially in Islamic educational institutions. However, according to Imelda and Erik (2012), there are various problems in the information system, such as difficulty finding data and making reports because the data is still stored in the form of archives that accumulate. In addition, the problem of human resources is also an inseparable part of the management of information technology systems.

The application of information technology systems in educational institutions refers to all forms of technology to process, store, and transmit information in electronic form. Citing Sandiwarno's (2017) opinion, information technology systems are implemented programmatically based on clear procedures and processing data to produce reports according to needs. According to Triwiyono and Meirawan (2013), the application of information technology systems has benefits if implemented according to an institution's goals, vision, and mission. However, some institutions (such as Islamic educational institutions) use information technology not optimally due to several factors such as available human resources. It is supported by the fact that parents do not get the information expected when they want to obtain information regarding their child's development in an educational institution.

Referring to the facts above, every educational institution should try to implement information technology systems to increase efficiency and effectiveness in managing educational institutions. Fadhli (2016) states that effective schools can produce a match between the expectations

to be achieved with the results obtained. This understanding illustrates that effective schools can achieve the vision, mission, and goals declared in contrast to Laila (2015), which states that effective schools focus on students and the school's character. Therefore, he defined an effective school as the school's materials, facilities, equipment, and physical environment that enhance the effect on the goals that have been set for its students. Even though they are different, they both find the same thing: the existence of plans to be achieved. That is, effective schools focus on goals that have been set together.

According to Günal and Demirtasli (2016), effective schools have the characteristics of instructional leadership, high academic expectations, monitoring of school learning, positive home-school relationships, and learning opportunities offered to all students. In simple terms, school effectiveness is closely related to school accountability. Edmonds (2020) describes an effective school as a place to acquire basic skills for academically strong students and weak students. In this case, an influential school can be defined as a continuously learning and improving organization where all students can learn, whose focus is on the elements of equality and quality, resources are equally available to all students, provides a safe environment for students and employees that is open for development, and are accountable to all stakeholders.

The research report by Lezotte and Snyder (2011) in their book states that there are seven things related to effective schools: instructional leadership, clarity of vision, mission, and goals, safe and orderly environment, high climate, and frequency of monitoring student development, homeschool relations positive, and opportunities for learning and student time to do assignments. The seven variables have also been carried out by Chrispeels (2002) and proven to develop effective schools. Referring to this, building an effective school requires some supporting variables. Concerning information, the development and application of information technology systems in Islamic educational institutions are significant because they can monitor students' development while studying.

Applying information technology systems in Islamic educational institutions can provide added value in the competition between institutions. Schools that implement academic services to users by optimizing the role of information technology systems will bring effectiveness in their institutional management. Triwiyono and Meirawan (2013) stated that if the information technology system is applied to schools following the vision and mission developed, it will be helpful. Therefore, reliable human resources are needed to adopt technology into the information provided by the school. Despite this, the application of information technology systems in Islamic educational institutions must be adapted to each internal and external condition. Because each institution has different characteristics, styles, and geographical locations, it will have an impact on the level of implementation. Therefore, the selection of the information technology system model must prioritize the needs of each institution.

Some schools receive benefits from the application of information technology systems. An overall review of the literature highlights the positive impacts of information technology systems on school administration and management, including better access to school information, higher utilization of school resources, more effective and efficient administration, reduced workload, better time management, and improving the quality of electronic-based reports (Negi et al., 2011; Shah, 2014; Benwari & Dambo, 2014; Schostak, 2020). Although schools feel many benefits, some schools have not implemented information technology systems in managing their institutions. Several factors are the cause, and the leading cause is the leadership factor. Following the opinion of Moore et al. (2010), leaders play an essential role in the effectiveness of the institutions they manage. Therefore, the figure of a leader is considered to have an indispensable role in managing the institution he leads.

Based on these problems, the use of information technology systems in the 21st century and the 4.0 industrial revolution is a necessity that must be developed by educational institutions, especially Islamic

educational institutions, so that they are not far behind other educational institutions. Islamic educational institutions have carried out several efforts to adapt to information systems. For example, the emergence of visual boarding schools via the internet where Kyai (Ulama) teach lessons through websites, Youtube, WhatsApp, and telegrams (Mukhibat & Ghafar, 2019). However, from several references, there have not been found Islamic boarding schools that use telegram bots in managing academic, financial, and activity information for their students.

Implementation of the management of information technology systems for Islamic educational institutions located in big cities may be familiar and not a problem because technology is considered normal for them. However, it isn't easy to implement an information technology system for some Islamic educational institutions, especially those on the outskirts, which are far from the reach of electricity and telephone networks, limited human resources, and an underdeveloped environment. In addition to the segment and mindset of the community around the institution, which the majority understand free schools and are less concerned about their obligations to finance their children in educational institutions, it is indeed cumbersome with elements of financing, maintenance, and development of information technology management applied in Islamic boarding schools.

However, all of the above obstacles are a series of journeys that serve as challenges; the fixed mindset principle must be changed to a grout mindset, meaning that all of the overhead obstacles are considered complex and will not be solved if they can become advantages when policymakers and practitioners of educational institutions Islam continues to learn, be creative, and strive to develop good learning system management and following the dialectic of their respective institutions.

Management of information technology systems includes all series related to functions and structures, domains, policies, and activities related to all community activities of Islamic boarding schools. In short, with the implementation of information technology systems, educational institutions have a metaphor from superman to a superteam. Institutions

that adhere to the supermen system bring out a person's strength, both figure, academic ability, and other skill abilities. Every institution's work, whether academic, financial, policy, is handled by itself so that when the person in question is sick or unable even to die, the public's trust and quality of the institution will decrease. Ironically many Islamic educational institutions (*Pondok Pesantren*) went out of business when influential people abandoned them as supermen there.

Based on observations, the Islamic educational institution Daar el-Hasanah Islamic Boarding School, in serving academic, financial, and activity information for students, applies information technology systems and telegram bots. Therefore, the purpose of this paper is to describe the implementation of information technology system management and telegram bots in service and information for the students of Daar El Hasanah Islamic Boarding School.

B. Method

The method used is descriptive qualitative. The study was conducted at the Daar El Hasanah Civilization Islamic Boarding School in Dukuh Sabrang Village, Jawilan Village, Jawilan District, Serang Regency, Banten Province. The data are taken from primary and secondary data from documentation of Islamic boarding schools, relevant books, and reputable journals both internationally and nationally. Data collection techniques are through observation, in-depth interviews, document assessment, and focus group discussions. Data analysis is done through editing, organizing, and interpretation processes.

C. Finding and Discussion
1. Finding

The research findings reveal that the implementation of ICT management and telegram bots at the Daar El Hasanah Islamic boarding school goes through three stages: (1) planning includes: preparations made to implement information technology systems, telegram bots, and BRI Bank smart billing; (2) implementation includes features of academic

services, finance, library, staffing, reporting, computer based exam, teacher info, student info, SMS gateway, and pavilion; and (3) evaluation, including: supervision carried out by the IT team of the Daar El Hasanah Islamic boarding school together with the mudir, secretary general, school principals and staff. The implementation can be presented in Table 1 below.

Table 1 Stages of ICT management implementation and telegram bot

Section	Note
Planning	Planning made to implement information technology systems, telegram bots, and Bank BRI smart billing
Implementation	Academic services, finance, library, staffing, reporting, computer based exam, teacher info, student info, SMS gateway, and pavilion
Evaluation	Evaluation is carried out by the IT team of the Daar El Hasanah Islamic boarding school together with the mudir, secretary general, school principals and staff.

The management of information technology systems at the Daar El Hasanah Civilization Islamic Boarding School can increase the trust value of the outside community or the parents of students towards the development of Islamic boarding schools. Because students' parents feel comfortable and easy in controlling or checking the development of their children at the Islamic boarding school, whether attendance, grades, finances, or anything else through the *daarelhasanah* care telegram with the *daarelhasanah* bot service domain. It is in line with research Negi et al. (2011) that information technology affects changes in methods, goals, and perceived potential of education. In addition, Omiunu (2014), Nwoji (2015), Webb et al. (2017), Mhlana and Krauss (2017), and Dumbiri and Permana (2021) also state the benefits of implementing information technology. Information technology is a mediating variable between leadership and organizational performance (Abdalla et al., 2021).

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The student payment billing system is also combined with the BRI Bank Smart billing system so that it is pretty great for the community or students' parents because they find it easy to pay for payment services during the Covid-19 pandemic like this. Each student will receive an SMS notification in the form of a comprehensive bill with 15 digits of their respective Briva number, and parents of students can come directly to a BRI teller or an ATM or can pay via electronic money such as DANA, BRIMO, internet banking, and electronic money services. Other students or parents of students can go directly to the boarding house by swiping the ATM at the EDC machine specifically for Daar El Hasanah Islamic Boarding School or direct cash at CS Daar El Hasanah Islamic Boarding School. This bill payment system makes it easier for people to control their children's finances.

2. Discussion

In implementing information technology systems, telegram bots, and Smart BRI for Bank BRI at the Daar El Hasanah Islamic Boarding School, planning is essential because it is related to what things will be done to achieve the desired output needed to be achieved effectively and efficiently. Information technology combines computer and telecommunications technology with other technologies such as hardware, software, databases, network technology, and other telecommunications equipment (Ewusi-Mensah, 2012; Chancerel et al., 2013; Carter, 2014; Hertati & Zarkasyi, 2015; Baller et al., 2016; Stover, 2019). Before implementing an information technology system, the institution must prepare the tools and materials needed. In addition, preparing human resources is also a part that must be considered and managed because human resources (HR) are among the most significant and essential capitals that every organization must appropriately manage (Humam & Ekowati, 2020). It is in line with the opinion of Okoye and Ezejiofor (2013) that human resources impact organizational productivity. The limited number and quality of human resources (HR) in information

technology systems will hinder the success of organizational innovation (Tayibnapis et al., 2018; Ariana et al., 2020).

The existence of human resources in Islamic educational institutions is very important because it has been proven to improve the quality of Islamic education, especially during this pandemic. Supriyanto et al.'s research. (2021) revealed the use of the google site to facilitate learning at Madrasah Ibtidaiyah Ma'arif Labschool Sintang. In addition to regulating learning strategies (Hasbullah et al., 2019), Islamic education must prioritize science and technology (Sudianto, 2021). ICT adaptation in learning has been shown to affect the quality of learning in an educational institution (Septantiningtyas et al., 2021; Supardi et al., 2021) by adjusting the current curriculum (Juhji et al., 2021). Based on this, the use of ICT and telegram Boot is very important as an effort to provide information to students in Islamic schools.

After the installation process is complete, then the settings are carried out and adjusted to the dialectics and needs of the Daar El Hasanah Civilization Islamic Boarding School. The following shows the main content display from implementing information technology at the Daar El Hasanah Islamic Boarding School. The main content includes academic, finance, library, staffing, reporting, teacher info, student info, SMS gateway, and pavilion. Displays need to be managed properly in order to attract user interest. In this case, the role of the principal as a leader in Islamic educational institutions is very important (Hutagaluh et al., 2020; Juhji, 2020; Royhatudin et al., 2020; Thaiyibi, 2020). Apart from being a supervisor, the principal also plays a role in the development of teacher pedagogic competencies (Suharyat & Danapriatna, 2021). Therefore, principals must encourage teacher work motivation so that job satisfaction and performance increase (Sukoyo & Juhji, 2021; Juhji et al., 2022).

In this section, several menus are displayed, such as academic, finance, library, staffing, reporting, teacher info, student info, SMS gateway, and pavilion. The menus displayed on the main menu are interrelated, related, and cannot be separated. In addition, the menus

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displayed are also integrated with the telegram bot system. A telegram bot is a telegram account explicitly created to handle messages independently (Soeroso et al., 2017).

Telegram bot application was chosen because it is free, lightweight, and multi-platform. Telegram also has a reasonably complete and growing Bot API, making it possible to create Smart bots that can respond to messages from the public (Chaniago & Junaidi, 2016). Bot Response is designed dynamically by utilizing the resources used on the Smart Campus. All messages from students will be recorded and classified for use in responding to subsequent messages (Idhom et al., 2018).

There are two ways to create Telegram Bot, using long poll and webhook method. With the long polling method, the server periodically checks the bot if there are incoming messages. If there is an incoming message, the server will execute based on the request message sent by the user. If there is no message, it means the server is idle. The Long Polling Bot method will run directly through the server, while in the Webhook bot method, it will be hosted and must use HTTPS (Setiaji & Paputungan, 2018).

The following is a picture of telegram bots at the Daar El Hasanah Civilization Islamic Boarding School using Daarelhasanah Care (daarelhasanahbot).

Figure 2. Telegram bot display at Daar El Hasanah Civilization Islamic Boarding School (daarelhasanahbot)

Based on Figure 2 above, the telegram bot display at the Daar el Hasanah Islamic Boarding School has ten menus, namely: (1) academic, (2) finance, (3) library, (4) staffing, (5) reporting, (6) computer-based exam, (7) teacher info, (8) student info, (9) SMS gateway, and (10) pavilion. The ten menus are described below.

Supervision of this system is directly carried out by the Daar El Hasanah Islamic Boarding School IT team, which has been formed, planned, strengthened, and implemented, besides that in terms of implementation, together with the secretary-general, school principals and staff continue to coordinate and communicate, in addition to being directly supervised by a structural management system. Also assisted by the communication control system described above, either through the reporting menu or the telegram gateway monitor. As well as to facilitate the socialization of all the above system information, Daar El Hasanah Islamic Boarding School has also shared information with a website with the domain www.daarelhasanah.com and an android application as shown in the visual below.

E. Conclusion

Information technology systems combined with various social media and one of the trusted banks complete with Smart billing and internet banking systems greatly facilitate practitioners engaged in educational institutions, especially in Islamic educational institutions Pondok Pesantren, in managing their institutions. The general public (users) will find it easier to find out and access information related to Islamic boarding school information, and they will easily surf to enjoy the menu of information related to the flagship program of Islamic boarding schools. With public services, a sound information technology system will lead to public trust in education so that they are interested in sending their children to Islamic boarding schools. The better the management of an institution, the higher the quality of the institution itself. Because, if educational institutions have been built and developed with sincerity and

supported by sophisticated information technology systems, there will be a distinct impression for students and parents of students who study there.

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