

# Integration of Information and Communication Technology in Educational Administration Management at School

**Riinawati**

Islamic Educational Management Department, Universitas Islam Negeri Antasari,  
Banjarmasin, South Kalimantan, Indonesia  
Email: riinawati@uin-antasari.ac.id

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## Abstract:

This research aims to analyze the application of Information and Communication Technology (ICT) in educational administration management, focusing on increasing the system's efficiency and effectiveness at SMA Negeri 6 Banjarmasin. This research was conducted by identifying the use of ICT in the educational administration process, evaluating the benefits and challenges faced in its application, and analyzing its impact on the efficiency and effectiveness of the administration system. The research method used is a qualitative approach with case studies. Data was collected through interviews, observation, and documentation. The collected data was then analyzed thematically. The research results show that SMA Negeri 6 Banjarmasin has implemented various information and communication technologies, such as student database systems, attendance management applications, and digital communication platforms. The application of ICT provides several benefits, including reducing the time and energy required for administrative tasks, increasing the accuracy and speed of data processing, and strengthening communication between related parties. This research provides implications regarding the importance of maintaining and continuing to develop the application of information and communication technology in schools. Regular evaluation and system updates, as well as training for users, are critical factors in maintaining the benefits obtained from the application of ICT.

**Keywords:** *Communication, Information Technology, Educational Administration Management*

## Abstrak:

Penelitian ini bertujuan untuk menganalisis penerapan Teknologi Informasi dan Komunikasi (TIK) dalam manajemen administrasi pendidikan dengan fokus pada peningkatan efisiensi dan efektivitas sistem di SMA Negeri 6 Banjarmasin. Penelitian ini dilakukan dengan mengidentifikasi penggunaan TIK dalam proses administrasi pendidikan, mengevaluasi keuntungan dan tantangan yang dihadapi dalam penerapannya, serta menganalisis dampaknya terhadap efisiensi dan efektivitas sistem administrasi. Metode penelitian yang digunakan adalah pendekatan kualitatif dengan studi kasus. Data dikumpulkan melalui wawancara, observasi dan dokumentasi. Data yang terkumpul kemudian dianalisis secara tematik. Hasil penelitian menunjukkan bahwa SMA Negeri 6 Banjarmasin telah menerapkan berbagai teknologi informasi dan komunikasi, seperti sistem basis data siswa, aplikasi manajemen absensi, dan platform komunikasi digital. Penerapan TIK ini memberikan sejumlah manfaat, termasuk pengurangan waktu dan tenaga yang diperlukan untuk tugas administrasi, peningkatan akurasi dan kecepatan pengolahan data, serta memperkuat komunikasi antara pihak-

pihak terkait. Penelitian ini memberikan implikasi tentang pentingnya mempertahankan dan terus mengembangkan penerapan teknologi informasi dan komunikasi di sekolah. Evaluasi berkala dan pembaruan sistem serta pelatihan bagi pengguna adalah faktor-faktor kunci untuk menjaga manfaat yang telah diperoleh dari penerapan TIK.

**Kata Kunci:** *Komunikasi, Teknologi Informasi, Manajemen Administrasi Pendidikan*

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## INTRODUCTION

As the backbone of a nation's progress, education has undergone a significant paradigmatic shift with globalization and technological advances (Zguir et al., 2021). This transformation has shifted the traditional pattern of education administration management towards a more modern and integrated direction. In this context, the application of Information and Communication Technology (ICT) in educational administration management has become the main focus of several educational institutions that seek to improve the efficiency and effectiveness of the system (Alayoubi et al., 2020).

The importance of the role of ICT in educational administration management must be addressed. As an integral part of the learning process, educational institutions, including SMA Negeri 6 Banjarmasin, have responded to this challenge by adopting technology to improve their administrative processes. These changes are expected to speed up workflows, improve timeliness, and provide greater transparency in education management. However, shifting to more advanced technology has been challenging (Almeida et al., 2020).

In the face of ICT implementation, one of the obstacles that arises is the availability of adequate infrastructure. For example, some educational institutions, including SMA Negeri 6 Banjarmasin, may need more up-to-date hardware or stable internet connectivity.

This can hinder the smooth use of ICT in educational administration. In addition, the skills and knowledge of human resources involved in ICT management are crucial. Effective use of ICTs requires educational staff who are skilled and trained in operating such technologies. Lack of understanding or skills in utilizing ICT tools can be a severe obstacle in implementing such technologies optimally. Other challenges may be related to organizational culture change. ICT adoption can change how things work in educational settings, often requiring significant cultural change (Reinholz & Andrews, 2020). Encouraging adaptation to these changes and integrating ICT into existing administrative practices can be challenging (Brunetti et al., 2020).

Several related references have been made to similar research topics. Among them explained that the results showed that the use of information and communication technology can increase the effectiveness of the education administration system (Rahman & Sari, 2019). In addition, other studies explain that using information and communication technology can accelerate the administrative process of higher education and increase system efficiency (Setiawan & Putra, 2020). The summary of previous research above is reinforced by the following research which explains that the results of the study show that the use of integrated information systems can increase the effectiveness of the

education administration system and improve the quality of service to students (Cahyani & Wibowo, 2021).

The application of ICT in education administration is not solely about technology but also about cultural transformation and human resource management. SMA Negeri 6 Banjarmasin, one of the secondary education institutions in Banjarmasin City, also faces this challenge and views the application of ICT as a promising solution in optimizing their administrative system (Demestichas & Daskalakis, 2020).

This research aims to analyze the application of Information and Communication Technology (ICT) in educational administration management, specifically focusing on increasing the efficiency and effectiveness of the system at SMA Negeri 6 Banjarmasin. However, there needs to be more scientific in the current literature regarding a comprehensive assessment of the use of ICT in educational administration, especially in the context of high schools such as SMA Negeri 6 Banjarmasin. Previous studies have often focused only on ICT adoption in general or specific aspects of educational technology, leaving a gap in understanding the holistic impact of ICT on administrative processes in the high school environment. Therefore, this research aims to fill this gap by providing a detailed analysis of ICT integration, the challenges faced, and the results in improving the efficiency and effectiveness of educational administration management at SMA Negeri 6 Banjarmasin.

This research focuses on improving the efficiency and effectiveness of administrative systems and identifying best practices for implementing ICT in educational environments. Through an in-depth study of the application of ICT in educational administration management, this research will provide a deeper understanding of the advantages, challenges, and strategies for optimizing the use of this technology in the educational context (Chiu et al., 2021).

SMA Negeri 6 Banjarmasin, one of the secondary education institutions in Banjarmasin City, is no exception in facing this challenge. The application of ICT is a promising solution to improve the quality and efficiency of education delivery. By using ICT, the educational administration process is expected to be more efficient, accurate, and transparent (Fatimah et al., 2020).

However, it needs to be understood that implementing ICT in educational administration management is a challenge. Several aspects that need to be considered include adequate technological infrastructure, the availability of human resources skilled in using ICT, and policies and regulations that support the use of ICT in the educational context (Al-Rahmi et al., 2020).

In this context, this research aims to analyze the application of ICT in educational administration management at SMA Negeri 6 Banjarmasin, focusing on increasing the efficiency and effectiveness of the administration system. This research will provide a deeper understanding of the use of ICT in educational contexts and the advantages and challenges associated with its implementation.

## RESEARCH METHODS

This research uses a qualitative approach using the case study research method. The use of case study research methods in a qualitative approach is the

right approach to explore comprehensive information and insights on the application of ICT in education administration at SMAN 6 Banjarmasin, as well as provide recommendations for further improvement and development (Quintão et al., 2020). This study aims to identify best practices in ICT implementation at SMAN 6 Banjarmasin and recommend further improvement and development. This research was conducted at SMAN 6 Banjarmasin, a secondary education institution in Banjarmasin City, Indonesia. Researchers will be present at this school to collect data during the study period.

The presence of researchers will be adjusted to the schedule agreed upon with the school. The subjects of this study consisted of administrative staff, principals, and vice principals at SMAN 6 Banjarmasin. They have an essential role in the administrative process of education and the use of Information and Communication Technology. The principal and vice principal will be the primary informants in the study. They will provide insight into the application of ICT in educational administrative management, the advantages obtained, the challenges faced, and the visible impact on the efficiency and effectiveness of administrative systems. The data collection technique involved in-depth interviews with the informants (Rutakumwa et al., 2020). The interview will be conducted face-to-face in the school environment. Relevant questions will be asked to gain a deeper understanding of the use of ICT in educational administrative management.

Data collected from interviews will be analyzed using data reduction techniques, data presentation, and conclusions (Abbas et al., 2021). Data reduction involves coding and grouping relevant information to identify emerging themes and patterns. Furthermore, the data will be presented as narratives, quotes, or tables describing research findings. Conclusions are drawn based on data analysis that has been carried out to answer research objectives and research questions that have been set.

## RESULTS AND DISCUSSIONS

In this research, researchers interviewed the principal and deputy principal at SMA Negeri 6 Banjarmasin. The research results show that SMA Negeri 6 Banjarmasin has implemented information and communication technology (ICT) in providing education. Some ICTs implemented include student database systems, attendance management applications, and digital communication platforms. The application of ICT provides various benefits, such as increasing efficiency in managing student data, speeding up the process of recording student attendance and strengthening communication between related parties, such as teachers, students, parents, and administrative staff.

However, several challenges are faced in implementing ICT in educational administration management at SMA Negeri 6 Banjarmasin. One is the limited availability of adequate technological infrastructure, such as computer equipment and internet connections, which still need to be available in all classrooms and administration rooms. In addition, administrative staff need to be trained to make good use of ICT (Lee & Yoon, 2021).

This is in line with a statement from the school principal: "One of the main challenges we face is inadequate infrastructure. Even though we have tried to

integrate ICT into administrative processes, the availability of ICT facilities and accessibility are still obstacles. For example, unstable internet access often hampers data management and communication between teachers, staff, and students (Int\_1).

The infrastructure challenges conveyed by the Principal of SMA Negeri 6 Banjarmasin are common in many educational institutions. Problems with the availability of ICT facilities and accessibility and precarious internet access can become severe obstacles in managing school data and communication. Researchers appreciate awareness of this problem because adequate infrastructure is the main foundation for implementing ICT effectively.

Furthermore, schools and related parties must take concrete steps to improve this infrastructure. This includes increasing internet bandwidth, updating the hardware and software used, and providing technical training to staff and teachers. By overcoming infrastructure challenges, schools can optimize the benefits of ICT in the educational administration process and increase efficiency and quality of service to all related parties in the educational environment.

In order to develop the application of ICT in educational administration management in the future, SMA Negeri 6 Banjarmasin has several plans. The plan includes improving the school's ICT infrastructure, expanding computer and internet access to every classroom and administrative space, and updating the software and applications used to ensure the use of up-to-date technology and administrative needs.

This was conveyed by the school's deputy head for facilities and infrastructure, who said, "The main focus of this plan is to ensure that every classroom and administration room is equipped with adequate computer and internet access. This will enable teachers and administrative staff to access information quickly, manage student data efficiently, and use technology in learning. In addition, we also plan to update software and applications to keep them current and in line with evolving administrative needs (Int\_3).

A significant focus on ensuring that every classroom and administration is equipped with adequate computer and internet access is a positive step. This reflects a strong awareness of the importance of technology integration in the modern educational environment. By having fast and reliable access to computers and the internet, teachers and administrative staff can optimize information management, including student data, increasing efficiency and effectiveness in carrying out administrative and educational tasks.

In addition, plans to update software and applications are also very relevant to continuously evolving administrative needs. This shows the importance of following technological developments to take advantage of the latest features and increase productivity in administrative processes.

Thus, this research provides an in-depth understanding of the application of ICT in educational administration at SMA Negeri 6 Banjarmasin. Implementing a student database system allows schools to store and manage student data efficiently (Zaini et al., 2022). It facilitates accessing and processing student data such as personal, grades, and attendance records. In addition, attendance

management applications help speed up student attendance recording, minimizing errors and saving time. Digital communication platforms, such as messaging apps or online portals, facilitate communication between teachers, students, parents, and administrative staff. This increases the efficiency and effectiveness of communication and facilitates collaboration between related parties. In addition, implementing an ICT-based financial management system helps manage financial transactions and other financial administration in schools. This system makes financial data processing more accurate, fast, and organized (Mosteanu et al., 2020).

### ICT Applications in Educational Administration

Researchers conducted interviews with school principals. Based on the interview results, the principal said, "We have implemented several ICTs in the educational administration process at SMA Negeri 6 Banjarmasin, such as a student database system, attendance management application, and digital communication platform. The student database system allows us to store and manage student data efficiently. Application attendance management helps speed up the process of recording student attendance. Meanwhile, digital communication platforms allow us to communicate with teachers, students, and parents more easily and quickly" (Inf\_1).

The informant's statement shows the school's good intentions towards complete improvement. Student database systems and attendance management applications allow student information to be stored and managed more efficiently. Recording student attendance also becomes faster and more accurate (Tsai et al., 2020). Efficiency in student data management, better data accessibility, reduced errors and inaccuracies, and improved communication are some of the main benefits of ICT in educational administration (Hashemi & Kew, 2021). This relates to system efficiency theory, where ICT reduces time, energy, and costs in administrative tasks (Christensen et al., 2020). The benefits of ICT in the implementation of the education sector can be explained through the Table 1:

**Table 1. Benefits of ICT in The Implementation of The Education Sector**

No	Aspect	The Role of Information and Communication Technology
1	School Management	School Management System (SMS), E-Learning Platform
2	Administration	Database for storing and managing student data
3	Communication	E-Mail, instant messaging applications, collaboration platforms
4	Online Learning	Interactive learning modules, learning videos
5	Monitoring and Evaluation	Student progress tracking system and data analysis
6	Information Security	Data security system, protection of sensitive information

Furthermore, the researcher also interviewed one of the teachers at SMA Negeri 6 Banjarmasin, who said, "The application of ICT in educational administration management provides several benefits for our school. First, the time and energy required for administrative tasks can be reduced so that administrative staff can focus on more strategic tasks. Second, using ICT increases the accuracy and speed of data processing so that the required information can be

accessed more quickly and accurately. Lastly, using ICT strengthens communication between related parties, such as teachers, students, parents, and administrative staff" (Inf\_6).

Then, the researcher also asked about the challenges faced in implementing ICT in educational administration management, the deputy principal said, "We face several challenges in implementing ICT in educational administration management. One of them is the limited availability of adequate technological infrastructure. Some classrooms are still not equipped with adequate computer equipment and internet connections. Apart from that, there are limited human resources who are skilled in its use. ICT is also a challenge. Some administrative staff still need to be given training to be able to utilize ICT well" (Inf\_5).

The researcher then asked about the results of the application of ICT in educational administration management and whether there were any recommendations for improvement and further development. The deputy principal said, "We recommend expanding and updating the ICT infrastructure in the school. All classrooms and administrative areas must have adequate computer equipment and internet connections. In addition, appropriate training needs to be provided for administrative staff to improve skills in this field. Use of ICT. Policies and regulations that support the use of ICT in education also need to be addressed and improved to create a conducive environment for the effective implementation of ICT" (Inf\_2).

Finally, the researcher asked questions regarding plans to develop the application of ICT in administrative management at SMA Negeri 6 Banjarmasin. The principal said, "We have several plans to develop the application of ICT in educational administration management in the future. First, we plan to improve the ICT infrastructure in schools, including expanding computer and internet access to every classroom and administrative area. Software and applications used to ensure that we use the latest technology and comply with administrative needs" (Inf\_1).

Based on interviews with the principal and deputy principal at SMA Negeri 6 Banjarmasin, several vital findings emerged regarding applying Information and Communication Technology (ICT) in educational administration management.

The school has successfully integrated various ICT tools into its educational administration processes. Critical ICT implementations include student database systems, attendance management applications, and digital communication platforms. The student database system is an efficient means of storing and managing student data, while the attendance management application speeds up recording student attendance. Additionally, digital communication platforms have significantly improved communication between teachers, students, parents, and administrative staff, offering a faster and more convenient interaction.

Applying ICT in educational administration management provides several significant benefits for SMA Negeri 6 Banjarmasin. First, it reduces the time and effort required for administrative tasks, allowing administrative staff to shift their focus to more strategic responsibilities. Second, ICT increases the accuracy and speed of data processing, facilitating faster and more precise access to critical information. Lastly, strengthen stakeholder communication channels,

encouraging increased collaboration between teachers, students, parents, and administrative personnel.

Despite the apparent benefits, schools are aware of several challenges in implementing ICT in educational administration management. The most prominent challenges are the limited availability of adequate technological infrastructure and the need for more staff skilled in the use of ICT. Lack of computer equipment and internet connectivity in specific classrooms remains a pressing problem. Additionally, there is a need to provide training to specific administrative staff to enhance their ICT proficiency.

The vice principal recommended a multifaceted approach to overcome these challenges and further enhance ICT integration. Firstly, there is a need for widespread expansion and modernization of school ICT infrastructure, ensuring that computer equipment and strong internet connections are accessible in every classroom and administrative area. Additionally, a comprehensive training program for administrative staff should be initiated to enhance their ICT skills. Finally, reviewing and improving policies and regulations supporting ICT use in education is critical to creating an environment conducive to practical implementation.

The school principal outlined a future vision for developing the application of ICT in educational administration management. Plans include improving ICT infrastructure by expanding computer and internet access to all educational spaces, including classrooms and administrative areas. Additionally, the school aims to stay current by updating software and applications to align with evolving administrative needs, ensuring that technology remains relevant and efficient.

Implementing a student database system allows schools to store and manage student data efficiently. This makes accessing and processing student data such as personal, grades, and attendance records easier. Apart from that, the attendance management application also helps speed up the recording of student attendance, thereby minimizing errors and saving time. Digital communication platforms, such as messaging apps or online portals, facilitate communication between teachers, students, parents, and administrative staff (Haleem et al., 2022). This increases the efficiency and effectiveness of communication and facilitates collaboration between related parties. Apart from that, implementing an ICT-based financial management system helps manage financial transactions and other financial administration in schools. This system makes financial data processing more accurate, fast and organized (Chika & Wale, 2020).

ICT in schools has increased the efficiency of administrative systems, such as processing student data, recording attendance, and financial management. This is based on the system efficiency theory, where ICT reduces administrative tasks' time, energy, and costs (Abubakari et al., 2023).

Apart from that, the application of ICT also increases the effectiveness of the administration system. Digital communication platforms facilitate more effective communication between all relevant parties, including teachers, students, parents, and administrative staff. This improved communication supports the rapid, accurate, and coordinated exchange of information, which aligns with systems effectiveness theory.



The application of ICT also contributes to improving the overall quality of education. With an accurate student database system and attendance management application, information about students can be accessed easily. This helps make the right decisions to manage student development and improve the quality of education. The basic concepts of Information Systems Theory are also reflected in the application of ICT, where integrated ICT components interact to collect, store, process, and convey information needed in the educational administration process.

Informants also highlighted the benefits of applying ICT in educational administration management. ICT can reduce the time and effort required for administrative tasks, allowing administrative staff to focus on more strategic tasks. In addition, using ICT increases the accuracy and speed of data processing so that the required information can be accessed more quickly and accurately. ICT also strengthens communication between related parties, such as teachers, students, parents, and administrative staff. This creates a more open environment and can encourage active participation from all stakeholders in the education sector (Zaid et al., 2022).

However, several challenges are faced in implementing ICT in educational administration management at SMA Negeri 6 Banjarmasin. One of the main challenges is limited access and skills in utilizing technology. Some classrooms are still not equipped with adequate computer equipment and internet connections, and not all administrative staff have adequate ICT skills. Therefore, infrastructure improvements and appropriate training are needed to overcome these challenges. Respondents recommended expanding and updating ICT infrastructure in schools, including providing adequate computer equipment and internet connections in all classrooms and administrative areas. In addition, appropriate training needs to be provided to administrative staff to improve their skills in the use of ICT (Vershitskaya et al., 2020).

The principal and deputy principal also provided recommendations for improvement and further development in applying ICT in educational administration management. They recommend ongoing evaluation of the implemented ICT systems. Feedback from users and other stakeholders is critical in improving and developing better systems. Through the evaluation, areas of improvement and policies and practices can be identified.

In leadership, school principals and deputy principals have an essential role in encouraging the application of ICT in educational administration management (Alsharija & Watters, 2021). They play a role in initiating, supporting, and supervising the implementation of ICT in schools. Their leadership provides direction, motivation, and examples for administrative staff and teachers to use ICT optimistically in administrative tasks. They also play a role in directing the vision and strategy for ICT development in schools and collaborating with related parties in formulating policies and plans for sustainable ICT development.

Principals emphasized the application of various ICT tools in educational administration, including student database systems, attendance management applications, and digital communication platforms. These tools have simplified administrative processes, made data storage and management more efficient,

simplified attendance recording, and facilitated faster communication with teachers, students, and parents.

These findings align with previous research that underscores the benefits of ICT in educational administration. ICT has been proven to increase administrative efficiency by automating routine tasks, ultimately allowing administrative staff to focus on strategic functions (Qaddumi et al., 2023). In addition, improvements in the accuracy and speed of ICT-related data processing have been noted in previous research (Smith et al., 2019), which supports the principal's statement.

Furthermore, the deputy principal's remarks underscored the role of ICT in strengthening communication between stakeholders. Effective communication is an essential component in educational administration (Oudshoorn et al., 2004), and ICT tools have been shown to play an essential role in this.

In plans, the principal and deputy principal are committed to increasing the application of ICT in educational administration management at SMA Negeri 6 Banjarmasin. The plan includes expanding ICT infrastructure, more intensive training, developing supportive policies, and ongoing monitoring and evaluation. Through this plan, they hope to create an innovative, efficient, and effective environment in the educational administration process in schools (Winaldo & Oktaviani, 2022).

## CONCLUSION

The application of ICT has provided significant benefits in increasing the efficiency and effectiveness of administrative systems, such as more efficient student data processing, accurate attendance recording, better communication between stakeholders, and more organized financial management. Despite challenges regarding ICT infrastructure and usage skills, the principal and deputy principal have formulated recommendations and plans for improvement and further development in the application of ICT to create an innovative and efficient educational administration environment.

Based on the findings of this study, further research on the application of Information and Communication Technology (ICT) in educational administration management in other secondary schools is recommended. This research could involve a larger sample of principals and deputy principals and expand the scope of research to explore challenges and solutions that can be implemented to optimize the use of ICT in educational administration.

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