



# Assistance in management of network-based school administration e-archives (cloud)

Pendampingan pengelolaan *e-archive* administrasi sekolah berbasis jaringan (*cloud*)

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## ABSTRACT

The development of science and technology has had a major impact on all aspects of work, one of which is the management of office administration. Office work that continues to change is how to manage office document archives carried out electronically for work efficiency. The conditions at the Satya Wacana Christian High School Salatiga in the initial interviews and observations showed that the process of data input and filing of report cards and diplomas was still carried out by being bundled and stored on office furniture. School administrative documents have not been backed up electronically to anticipate archive loss and data security. This resulted in the need for physical document archive storage space quite a lot, including filing cabinets and archive rooms. This activity has the aim of providing understanding and skills of electronic archives (e-archive) in managing school administration through the network (cloud). The program implementation method is carried out by providing training and assistance in managing school administration electronically based on a network (cloud). The results of the activity show that education personnel are able to manage school administrative documents electronically using the network (cloud) well. Education staff can group several archives into active and inactive archives and their management is directed at electronic documents through scanning or scanning for digital archive management.

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## 1. INTRODUCTION

Administrative management is carried out by an institution to provide an opportunity for the organization to achieve the desired goals. Administrative activities consist of providing information about every task that happens in the organization for all parties in need (Rahman, 2017). On the whole, this activity requires processes in planning, implementation and supervision to control the existing work.

Employee performance management is a system that is considered sustainable and future-oriented, this system includes setting required criteria in the beginning, monitoring evaluations, improvements and action plans to develop existing resources (Vosloban, 2012). Essentially, supervision has an impact in terms of employee work efficiency which includes behavior, attitudes, work passion and work performance (Sutrisno et al., 2017).

School office administration management is tasked with providing service work to all school units (Zulkarnain & Sumarsono, 2015). Several related documents such as curriculum and learning, students, educators and education staff, finance, facilities and infrastructure, schools and communities as well as culture and school environment are interconnected in school activities. This implies that the main function of the school office is to help and relieve every element of the office or unit so that they can carry out their work effectively and efficiently. Thus, the administrative management of the school office acts as a function that provides convenience through the services provided to all units in need. One of the school's administrative jobs is closely related to the process of managing and storing information regularly and systematically with certain provisions so that it can make it easier for managers to find files that are stored or often called archiving (Rahman, 2017).

Archives are records of activities in organizations through various forms and media according to the development of information technology created and accepted by educational institutions in the implementation of social, national and state life (Permendikbud RI Number 60 Year 2012 concerning Archive Management, Documentation and Public Information). Archives generally contain primary source documentary material or information records that have been retained because of the value of the information contained or as evidence of the functions and responsibilities of users towards their creators (Dietrich & Adelstein, 2015). The objectives of document management or archiving include authentic and reliable management of documentation that can be provided quickly, accurately and efficiently, providing quality information services and as evidence of accountability in the fields of education and culture as national identity. Thus, archive management has a comprehensive impact starting from receiving, collecting, arranging, maintaining and storing documents according to a certain system so the documents can be found easily and quickly when it is needed. Data information improvement and modernization of database management systems are the expectations of organizations related to their data management so the information can be manageable and accessible whenever they need it in the future (Belo & Marques, 2012).

The form of documents in administration which was originally based on paper media that can be used for correspondence and various other documents has shifted due to the development of technology and information systems. Some of the documents can be in the form of videos, sound recording documents, electronic files, photos, table images, graphic charts and so on that contain description, explanation and information related to office work. According to (Dong et al., 2021) at present, data information can be in the form of HTML, PDF and Spreadsheets which make it easy for users to exchange and view electronic documents reliably, especially PDF that has been adopted as the default format for document archives and certain publications.

Industry 4.0 nowadays provides an alternate option in current office work. This provides a goal so that works can be directed towards digitization, connecting individuals with companies and introducing technology in every work process (Kikhorn et al., 2020). The issue of digitizing documents is important because it allows organizations to store digital images from paper documents for a long time and can be used to work sustainably in the future (Abrosimova et al., 2021). Scanning is the most popular way to get electronic images from physical documents. Likewise with correspondence work, archives and other work, the organization should be able to direct in innovation in order to adapt existing technological developments to facilitate work. Thus, this is what underlies the importance of filing electronically.

Electronic archive management via the internet or the web as well as an automation system with a recording system through an application for an institution needs to be done because it makes information, share and archive managed safely and easily (Bayram et al., 2013). Technological developments provide an opportunity for an institution to be able to carry out office work such as correspondence and document archive management carried out through electronic media. The purpose of electronic records management is to actualize official document communication both internally and paperless (Demirtel & Bayram, 2014). In addition, information and description or explanation in an organization is a strategic tool in showing trust between the organization and the public who use educational services. Records management needs to be carried out professionally because it is in charge for the daily records management of an organization (Kautto & Henttonen, 2020).

Along with the increasing use of the application, the scope of electronic archive management has expanded to involve the management of electronic copies of archives both in print and digitally born archives. Digital archive is a new system consist of storing, transmitting and processing activities including digital files in the form of text, sound, and images to be accessed by local and remote users using digital technology networks (Ziyu & Haining, 2012). One of the ways to use digital archives is to use cloud storage. Cloud storage has practical benefits including sharing to users, transfer and synchronize data in a simple but powerful way to achieve faster and more effective results (Mocœcicki and Mascetti, 2018). In addition, the cloud has the ability to collaboratively share, edit, process and store large amounts of data (Ashtari and Eydgahi, 2016).

Electronic records management systems include the creation of electronic archives and files, email management, scanning and access, workflow integration, user interfaces, mobile working environment, remote access, and others (Kulcu & Cakmak, 2012). The management and preservation of information and records in digital systems has had an impact on traditional approaches to varying degrees. In addition, archives can be considered as storage places with some special requirements and limitations such as ensuring the longevity of the stored data. In this context, digital management becomes an important component in records management. The life cycle of the traditional approach describes a linear recording procedure in the process of creation, editing, and disposition, and hence, digital records can be identified simultaneously in different environments and under different conditions (Kulcu & Cakmak, 2012).

Seeing the importance of electronic archive management because of the demands of technological developments and their usefulness, attention is needed in office work at schools. Satya Wacana Christian High School Salatiga is an educational institution that serves the community to educate students in accordance with the curriculum and national education goals. One of the supporting jobs in achieving this vision is related to administration in order to meet the information needs needed by leaders in making policies and decisions. Some interesting conditions at Satya Wacana Christian High School related to archiving are: the process of data input and archiving is still done manually, marked by report cards and diplomas that are bundled physically and stored on office furniture. In addition, electronic data backup has not yet been carried out to anticipate the loss of necessary archives or important documents, physical data in the form of files stored in office furniture such as cupboards cannot be accessed anywhere and anytime if needed, especially during this Covid-19 pandemic which causes employees to work from home. The risk of data loss because of weak security as a result of using manual storage rooms such as cupboards without a safety lock, and the requirement of wider space caused by the addition of 4 pieces of office furniture as storage space for physical documents for report cards and student diplomas. If the data is lost, it requires several steps and procedures to recover data, such as printing of documents and re-signing and re-archiving in relation to lost student report cards. Some facts in administrative

management require adjustments and proper management to facilitate the retrieval of the required document files.

Most of the archives at the Satya Wacana Christian High School office are managed conventionally. Efforts to manage records electronically have begun but are still very limited. Some archives are received and scanned in the form of digital/electronic archives, but the management and storage process are still simple and tends to be conventional. On the other hand, this institution has a fairly good information system infrastructure and facilities. In the school office environment, there are adequate computer equipment and internet networks. Therefore, the utilization and management of cloud-based electronic archives has the potential to be carried out at the Satya Wacana Christian High School office. The limited competence of human resources/office employees in mastering information technology is a problem in managing cloud-based electronic records.

This community service program aims to provide the skills for education staff at Satya Wacana Christian High School in managing network-based electronic archives (cloud). Activities are carried out by providing assistance to administrative staff in managing and duplicating archive files electronically. Assistance and training for education staff using cloud storage has been prepared to store employee, student, and other school administration data electronically.

## **2. METHODS**

This community service program is carried out at the Satya Wacana Christian High School Salatiga. Partners in this service activity are educational staff at the Satya Wacana Christian High School. The approach to the training activities is carried out on a participatory and collaborative basis. The process of reciprocal communication, mutual response and motivation. Speak person act as facilitators, motivators in focusing the Satya Wacana Christian High School education staff in identifying and sorting the document files to be archived, converting physical document files into electrical files through the scanning process, followed by setting up the file storage using the network (cloud). The network facilities (cloud) used is Google Drive and a network that has been created with the web address <http://sekolahlab.sch.id/efiling>.

Education staff are expected to be active in conveying the issue of physical documents they have, sorting the documents and identifying which are then adjusted in electrical storage. Resource persons and assistants responded and motivated so that participants were more enthusiastic and creative in managing electronic archives creatively and according to archiving guidelines used in schools. Based on the pre-survey and identification of problems carried out by the service staff, it shows that educational staff lack an understanding of electronic archive management, use of furniture and space for archive storage, lack of uniformity in electronic filing management, and lack of understanding in archive retention schedules. In addition, school administrative documents have not been backed up electronically to anticipate archive loss and data security.

Collaboratively, the participants convey creative ideas to each other in making document files, inputting and scanning information, as well as electronic records management processes. Resource persons and assistants conveyed their experiences in creating and conducting electronic records management. The participants of the workshop collaboratively present the results of the electronic archive. Resource persons and assistants respond by analyzing the e-archive that has been done according to the needs of educational staff. Resource persons from electronic archive experts will reflect on the management of e-archives in administrative work to support office work. Facilitators from lecturers and assistants will facilitate in focusing on achieving community service targets and outcomes.

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**Figure 1.** Work plan

The work plan in school administration e-archive management training activities using a network application (cloud) at Satya Wacana Christian High School (figure 1) can be classified into three stages of work in this service activity, which are preparation steps, implementation steps, and results evaluation. The preparatory step is to conduct a survey and assess the extent of the management of school administrative documents. In addition, the service team collected data related to the number of education personnel in schools in training activities and finally conducted an intensive study to offer several alternatives in order to provide solutions to problems in school administration e-archive training. The second step, Service Implementation, contains providing insight and skills on: e-archive in administration using the network (cloud), practices in creating, identifying and sorting administrative documents, and managing network (cloud) and electronic archiving. The last stage is carried out through the evaluation stage, both evaluating the process and evaluating the results.

In addition, community service activities have been carried out based on the activity schedule in Table 1.

**Table 1.** Community service implementation schedule

Activity	Month									
	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Preparation	x	x	x	x	x	x	x			
Implementation								x	x	x
Evaluation									x	x

Based on Table 1, the schedule for the implementation of community service activities is carried out from February to November 2021. The activities include several stages such as preparation, implementation and evaluation. The first stage, preparation, will be carried out on February 26, 2021 until August 2021. The preparation stage aims to find out the problems faced by partners and some of the obstacles, as well as the preparation of facilities such as network-based electronic archive containers (cloud) and Google Drive. The second stage, implementation, will be held from September 20, 2021 to November 20, 2021. The second phase aims to provide understanding and skills through training and assistance in conducting network-based e-archives (cloud) consisting of Google Drive and web-based cloud via <http://sekolahlab.sch.id/efiling>. The final stage, evaluation, will be held on November 20-22, 2021. The evaluation activity aims to determine the success obtained from training and mentoring activities for cloud-based electronic archive management.

### 3. RESULTS AND DISCUSSION

#### Preparation, Problem Identification, and Needs Analysis

At this stage of progress, the team in service activities can identify problems faced by education personnel in administrative management which are handled including:

First, administrative handling such as incoming and outgoing letters in the general administration department is still experiencing problems in terms of management. In addition, the change of manager creates a different classification of coding systems in archiving. The remaining question is how to store documents both important and forever-stored documents, also the archive retention schedule that has not been determined yet.

Second, handling in student administration is carried out by education personnel such as the final report cards and student diplomas which are stored manually and physically. This increases the need for storage devices such as cupboards in physical documents. In addition, storing documents for too long will damage the paper. Some incidents such as archive loss due to lack of safe storage in which some cupboards do not have keys. This is a concern for managers because the existing conditions in document management are still limited. The department shift and try to send documents electronically via email and whatsapp during the pandemic.

Third, the management of personnel administration is still carried out manually, such as photocopies of files owned by employees. It also requires storage, while digital administration has not yet been implemented due to limited human resource skills. In addition, the archive retention schedule has not been determined by the school because of limited knowledge and administrative management efforts. The stored data is sometimes still needed by other units such as universities and foundations so that the data is stored until retirement.

Fourth, document management in the library section is also found to still use manual filling such as returns and borrowing forms. Incoming mail and others are not archived because they do not manage mail.

Fifth, the administration of the facilities and infrastructure division experienced problems in the filing classification system, such as providing codes for facilities and infrastructure. The manager has tried to make a report every semester and record and archive. Other problems such as reports on goods expenditures by other parties are not reported to the infrastructure manager.

Thus, the analysis of partner's needs from the study of the problems faced is how to manage archive documents properly and direct it to electronic-based documents. Electronic-based document management is planned to make it easier for employees to access anywhere and anytime using applications that support their work.

### **Human Resource Training on Network-Based (Cloud) School Administration E-Archives**

Training and mentoring for education staff at the Satya Wacana Christian High School are the core activities of the community service program. The activity consists of two parts, which are training on using Google Drive in managing inactive document archives and training on the use of network-based applications (cloud) in managing final electronic archives. These two activities are certainly the basis for managing office work documents to support administrative activities. Good management will certainly provide good use value in utilizing the information needed by other parties both internally and externally.

The first training is e-archive training in the use of the Google Drive application. This training is intended for approximately 10 educational staff from units at the Satya Wacana Christian High School. Education staff members consist of the staff handling of incoming and outgoing letters, student administration, personnel administration, libraries, facilities and infrastructure, and others. Some of them have implemented the management of document archives which are handled according to their field of work. However, based on the identification of problems and needs, it shows that they have very limited

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information in managing electronic records. The tendency in handling archives manually certainly makes them to manage archives physically so that it requires quite a lot of storage space. This has implications such as the need for file storage cabinets, desks and other places for storage space. This amount of storage space will also have an impact on the extent of a certain space to store the equipment. This training will be given on November 12, 2021, taking place online or in their respective workspaces using video conferencing such as zoom. However, some students who are members of the team also help in documenting the ongoing activities so that it can be said to be a hybrid. The training documentation using the Google Drive application can be seen in Figure 2.



**Figure 2.** E-Archive training using google drive via online meeting

In this training, explanations and understandings as well as simulations regarding electronic archives and their application using the Google Drive application in managing the work documents handled are given. The use of Google Drive plays an important role in studying message quality and digital literacy in learning new technologies, digital literacy in terms of technical skills and Information Technology (IT) (Prasertsith, Kanthawongs, and Limpachote, 2016). In addition, the use of Google Drive has several advantages as a storage medium, including easy to use as electronic file storage, very flexible to use and easy to understand while operating, does not require a memory card for storage and can reduce the possibility of losing files that have been stored (Setiyani, Effendy and Slamet, 2021). The community service team has also prepared supporting documents for operations in the form of training materials for education staff at the Satya Wacana Christian High School.

Figure 2 shows the atmosphere of the training and the enthusiasm of the participants via video conference while listening to socialization in electronic-based archiving. The enthusiasm of the training and mentoring participants was shown by the active participation of all participants to ask questions related to their respective divisions, such as student document management, staffing, general administration, library data and facilities and infrastructure. In accordance with the purpose of this training activity, participants take part in the training activities that have been given to increase knowledge about school archive management which needs to be managed properly. It was proven by the participants being able to group some of their archives into active and inactive archives and their management was directed at electronic documents through scanning or scanning for digital archive management. The training is not only carried out in one direction but is given the opportunity for participants to practice directly by following the directions of resource persons or instructors. Figures 3 and 4 are the illustration of the simulation and introduction of the Google Drive application for education personnel in managing school administration.

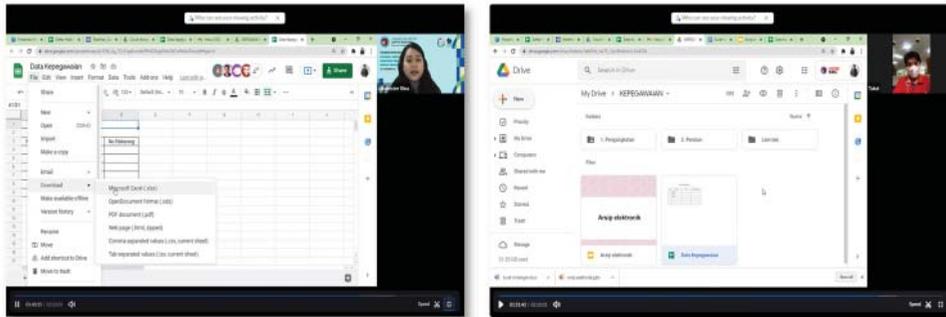


Figure 3. Google Drive application in e-archive administration

Based on Figure 3 shows the introduction of the Google Drive application which provides an introduction to save document files electronically. The simulations provided by the service team equip direction and opportunities for education personnel to save school administration files. The use of Google Drive grants convenience in file creation, editing, and file management so that they can be accessed easily in terms of sharing information anywhere and anytime quickly and efficiently. Through this facility, educational staff can also take advantage of the Google Drive feature to share information by adding and subtracting several things related to school administration work.

The second training, which was carried out back to the education staff by discussing net-based electronic archiving (cloud). The National Institute of Standards and Technology (NIST) describes the cloud as a model for enabling ubiquitous, convenient, on-demand network access to a configurable pool of computing resources (e.g., networks, servers, storage, applications, and services) which can be rapidly provisioned and released with minimal management effort or service provider interaction (Ashtari and Eydgahi, 2016). This training and mentoring were carried out on November 24, 2021, which was conducted online using video conference while the committee monitored offline at the Satya Wacana Christian High School Salatiga. Of course, the committee involved in offline activity implemented health protocols and documented the activities that took place in this training and mentoring session. The purpose of this second activity is to provide a comparison of different applications that previously developed by the resource persons for Satya Wacana Christian High School to be shared and practiced in storing the final document archive electronically. The following provides documentation on the implementation of training and assistance in using cloud storage for school administration management. Figure 5 shows evidence that the resource person accommodate understanding for the participants. In addition, they also practice managing school administration according to their respective fields of work such as student diploma data, student report cards, financial data, staffing data, student data and so on.

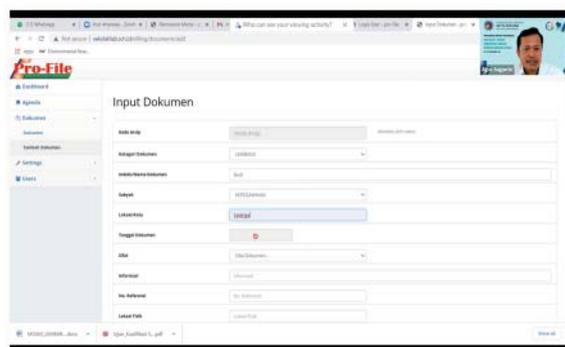
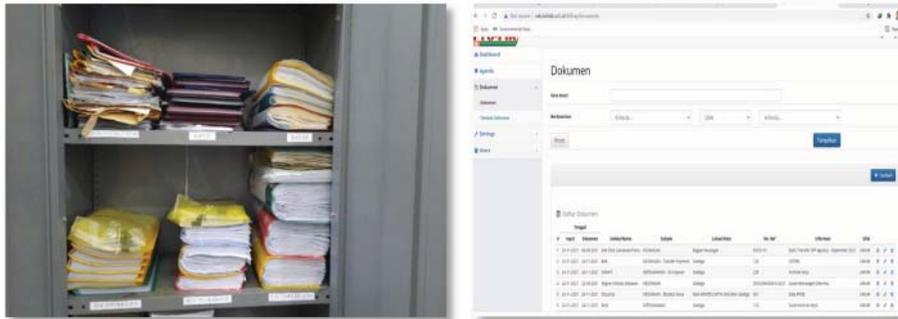


Figure 4. Network (cloud) based e-archive training and mentoring

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Figure 4 shows how the source person provide an overview of network-based applications (cloud) that can be used in electronic archiving. The difference is that this application is set in the form of a final file that is ready to be stored with a retention schedule according to the needs of employees or archive document managers. Participants in this training and mentoring activity are given the opportunity to try by logging in at <http://sekolahlab.sch.id/efiling>. The training and mentoring participants upload several documents they have to try to save and archive their respective files. But beforehand, of course, schools need to have an admin who will set up posts for categories that can be used so that they are easy to use. This application can be accessed and managed from anywhere and anytime according to the needs of the supervisor. Through this second activity, the objectives of training and mentoring can be achieved by providing evidence that participants are able to apply directly using school administration documents owned by each division to include them in the electronic archive system. Some of these activities shows that participants can apply their skills by practicing directly. If they experience problems, participants directly ask about the difficulties they are experiencing and immediately demonstrate their archiving skills using the system provided. Figures 5 and 6 present documentation before and after the training on e-archives in school administration at Satya Wacana Christian High School:



**Figure 5.** Manual archive stored in the filing cabinet

**Figure 6.** Deployment of network-based (cloud) archiving

Based on Figure 5 shows that the school administration file management before the electronic archiving activities. This requires efforts to handle important school document files so that they can be transferred to electronic documents. Electronic archive management will make it easier for employees to process information needed by the organization, in this case the Educational Institution. As for Figure 6. shows an overview of employees can implement electronic filing using cloud computing through the website <http://sekolahlab.sch.id/efiling>. Of course, implementation of archiving school administrative documents requires accuracy in moving files from scanning to storage and retrieval of files that have been archived. Thus, files that have been archived in a cloud can be easily and quickly accessed by education personnel in supporting school work and some parties who need the provided information.

### Evaluation

The last stage of activity in this community service program is a series that needs to be completed in achieving goals. Evaluation is performed to obtain suggestions and input from the implementation stage so it can be fixed and improved both technically and in other operations in the future. The results of the evaluation carried out along with the participants regarding the activities obtained through the provided google form stated that the training activities and e-archive assistance for network-based

school administration (cloud) went well. This can be seen from the participants' efforts to participate in and simulate the training provided through cloud-based applications or Google Drive. Some things still need to be improved, for example, limited assistance which can be done offline with health protocols implementation so that difficulties faced by students can be directed directly with training participants and mentoring.

#### **4. CONCLUSION AND RECOMMENDATIONS**

The training and mentoring activities for the Satya Wacana Christian High School Salatiga have been held. The completed stages include planning for problem identification and needs analysis, the implementation of training and mentoring and the last is evaluated both in process and in results. In accordance with the purpose of this training activity, participants that take part in the training activities that have been given to increase knowledge about school archive management which needs to be managed properly. It was proven by the participants being able to group some of their archives into active and inactive archives and their management was directed at electronic documents through scanning or scanning for digital archive management. In addition, participants were able to apply directly using school administrative documents owned by each division to include them in a network-based electronic archive system (cloud). Some of these activities show participants can apply their skills by practicing directly. If there are problems, participants can directly ask about the difficulties they are experiencing and immediately show archiving skills using the system that has been provided. Thus, the archive management provided can support the work efficiency of school administrative staff. This activity is expected to be a solution for managing archives and documents that need to be managed in such a way that it is not only an effort to store documents but managers can find files needed by other parties correctly and in a short time.

This activity needs support from various partners, in this case, the service community target is administrative staff. This is because some activities are only attended by a few participants and there are still not enough participants who should be able to participate. As time is limited in the given service program, more time is needed to monitor the practice of using cloud applications that have been provided so that the difficulties experienced by participants can be monitored and evaluated. Additional assistance needs to be provided to determine the effectiveness of implementing electronic archives using the network or cloud provided to partners. This activity also needs to be continued on other targets in units at the Satya Wacana Christian Higher Education Foundation Institute so that e-archive management can go hand in hand with a planned system. Partners can provide feedback and input related to the benefits obtained from the implementation of community service activities that have been carried out. Thus, this information can provide additional information and evaluation in order to increase other similar service activities.

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