E-Goverment Optimasion through SIRADI and SIKD Synchronization: A Step to Administrative Digitilisation

Agung Kuswantoro[1], Ahmad Saeroji[2], Muhamad Nukha Murtadlo[3], Arif Wahyu Wirawan[4],Dedi Kurniawan[5]*

[12345]*Universitas Negeri Semarang*
email: agungbinmadik@mail.unnes.ac.id

abstract

Optimizing e-government can be done through synchronizing the electronic correspondence system. This step is one form of administrative digitalization. SIRADI is an electronic correspondence system used in the UNNES administrative environment. The use of SIRADI supports the paperless policy, improving the mail management process, minimizing mail forgery, and enhancing human resource capabilities and productivity. However, its use still has weaknesses such as unclear workflows and confusing users; in addition, it is limited to managing correspondence only, so it needs to be synchronized with SIKD so that the implementation of administrative tasks runs effectively until the archiving process. This research is R&D research that aims to investigate how to synchronize SIRADI and SIKD and what are the requirements for synchronizing SIRADI and SIKD. The results show that there are five stages for synchronizing SIRADI and SIKD, namely holding workshops and FGDs with ANRI, identifying needs and components that can be synchronized with SIKD, and identifying archive identities. Four requirements must be met to synchronize: existence of manuscripts, JRA, archive access rights, and archive classification patterns.

1. Introduction

Universitas Negeri Semarang (UNNES), one of the educational institutions, demands effective administrative management due to its complex correspondence system. One issue that arises is the mail management process at the faculty or department level. The lengthy procedure of managing letters requires the students to wait a long time when they wish to write a letter. It happens because the letters are processed manually. UNNES designed SIRADI (Sistem Informasi Surat Dinas), a website-based digital correspondence system, to address this issue. This system is useful for organizing official correspondence inside the UNNES area. The employment of information technology in administrative administration will improve efficiency and provide numerous benefits to the institution [1]–[3]. SIRADI has the following advantages: 1) Supporting the paperless policy [4], [5]. SIRADI supports UNNES's policy as a conservation campus by reducing paper use [6]; 2) Improving the mail management process [7], [8]; 3) Minimising mail forgery [9], [10]. The manual letter numbering procedure takes longer since it involves numerous steps, including filling out the letter submission form, creating a draft letter, copying the letter twice to affix the number, signature, and stamp, and minimizing the act of sending letters. SIRADI can record all letters and letter agenda numbers automatically, and only authorized staff can access the system. 4) Boost human resource capabilities and productivity [11], [12]. Mail administrators will work hard to increase their knowledge and expertise in administering the digital mailing system [13], [14].

However, SIRADI has the problem of being a new system, which means that the SIRADI process is still not properly defined, leading to confusion. People who are used to manual systems and do not read find it more difficult to use the system. Whereas information systems can be regarded to be successful and efficient if they are easy to use [15], [16], have clear procedures [17], [18], and have understandable designs [19], [20]. To address this gap, researchers attempted to synchronize SIRADI and SIKD to clarify the workflow. SIKD (Sistem Informasi Kearsipan Dinamis/Dynamic Archive Information System) is electronic archive management system software that helps governments establish organized archives [21]–[23]. This SIKD application was made based on the regulations of the head of the National Archives of the Republic of Indonesia (ANRI) number 15 year 2015 concerning

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SIKD and SIKS applications, which are in line with government programs that require the correspondence process within the ministry or institution to be carried out electronically so that it is faster, safer, and in accordance with procedure. The menus in SIKD are designed in accordance with the conventional dynamic archive management so that it is very easy to use for new users [24]–[26]. Synchronization between SIRADI and SIKD aims to make the mail management process more efficient, starting from the request to create a letter to the archiving process. Another goal is to provide an easy-to-use information system with a menu display that is easily understood by anyone.

SIRADI is being implemented as part of the e-government optimization process. E-government is the use of technology, specifically the internet, information technology, and the website that becomes one of electronic goverment services provided to the public, businesses, organisations and others [27]–[29]. E-government is an innovation for improving public services through the use of information and communication technology, making them more visible, responsible, effective, and efficient. There are four indicators of e-government success. First, the availability of data and information in the data center [30]. Second, the availability of data and information for regional promotion needs [31]. Third, the availability of e-government applications that support office work and public services [32]. Fourth, the availability of public dialogue applications to improve communication between governments, between governments and the private sector, and between the public through applications [33].

The implementation of e-government through electronic correspondence information systems has an important role in supporting administrative digitalization. These roles are: 1) Document management is more efficient because physical letters that have been converted into digital formats make it easier to search, manage, store, and archive, saving time; 2) Supporting transparency and accountability policies in the institutional environment because every letter can be tracked on a real-time basis and can be accessed by the public so as to increase transparency and public trust; 3) Ensuring data security and integrity because electronic documents are protected by encryption; 4) Providing easy access because the electronic correspondence information system is interoperable, meaning that the system can be integrated with other information systems.

Considering the importance of electronic correspondence systems in optimizing e-government, the purpose of this study is to investigate how to synchronise SIRADI and SIKD and what are the requirements for synchronising SIRADI and SIKD.

Methods

1.1. Methods

This research uses the R&D research model. According to Borg and Gall, there are ten steps in implementing research and development strategies: 1) collecting information, which includes its needs, a literature study, small-scale research, and considerations in terms of value; 2) planning, which includes the capabilities to conduct the research, formulating objectives to be achieved in the research, designing the steps of the research, and the possibility of testing in a limited scope; 3) creating the preliminary form of the product, specifically the learning materials, learning methods, and evaluation tools; 4) Preliminary field testing. This study included 1 to 3 work units and 6 to 12 trial participants (SIRADI operators). During the trial, researchers conducted observations, interviews, and issued questionnaires; 5) Main product revision, specifically enhancing trial outcomes; 6) Main field testing consisted of a broader trial on 5 to 10 work units, as well as 10 to 20 operator trials. During the field trials, researchers collected quantitative data from operators before and after utilizing the tested model, and the data collection findings were assessed and, if possible, compared to the comparison group. Operators include FIP, FBS, FIS, FE, FH, FMIPA, and LP3. The operator's responsibility is to insert letters or documents into the system. Each item must be completed appropriately in accordance with archival guidelines, such as active, inactive, and information (stored, destroyed, and reviewed). Operators must be familiar with archive materials. Because the items in the system are intimately tied to scientific archiving. Not all UNNES operators are trained in archiving or office administration. Thus, it is vital to provide operators with archive expertise; 7) Operational product revision, namely perfecting items resulting from field tests; 8) Operational field testing. Testing was conducted on 10 to 15 work units

with 20 to 25 operators. Testing was carried out using questionnaires, interviews, and observations, and the results were assessed; 9) Final product revision. Improvement was carried out based on feedback from field implementation tests; 10) dissemination and implementation, which included reporting the results at professional events, submitting them to journals, and establishing collaboration with publishers to publish and monitor quality control.

2. Results and Discussion

The UNNES Archives Centre, together with BUHK (Sub Division of Administration) and IT technicians from the ICT Unit, held a workshop on the application of SIKD by inviting speakers from ANRI (Arsip Nasional Republik Indonesia). ANRI has also implemented various IT initiatives to realize authentic and reliable archives as legal evidence and improve the quality of public services through archive management and utilization. Several information systems related to the eArchives initiative have been implemented since 2003. These information systems only cover part of the business processes in the organization, thus failing to provide satisfactory results. The event was held on Thursday, 19 April 2018. The results showed that UNNES is committed to optimizing its archival system rather than creating a completely new system. Optimization of the current system was redeemed as a better solution. However, the current system still lacks instruments such as a dynamic archive security system and access rights.

Fig. 1. SIKD Implementation Workshop
Source: Administrative Affairs Documentation (2018)

The workshop was attended by the representatives from the Archives Centre, Administrative Subdivision, Head of BUHK, and technicians from the UNNES ICT Unit. The meeting held on October 2, 2018 concluded that SIRADI is the new dynamic archiving system. Furthermore, another FGD (Forum Group Discussion) was held on Wednesday, 10 October 2018. The discussion focused on the interface menu contained in SIMADI. The discussion was attended by BUHK (General Bureau of Law and Personnel from Subdivision of Administration), ICT technicians, and Archives Unit

Fig.2. FGDs related to the menu in siradi
Source: Administrative Affairs Documentation (2018)

The discussion confirmed that a new link was needed for new records that were excluded from SIRADI. In the SIRADI archive system, there are outgoing official letters for which there are no records of incoming letters. Furthermore, the team was required to consult with ANRI regarding the synchronization of SIRA DI to SIKD. The flow of synchronized versions is shown in the following chart.

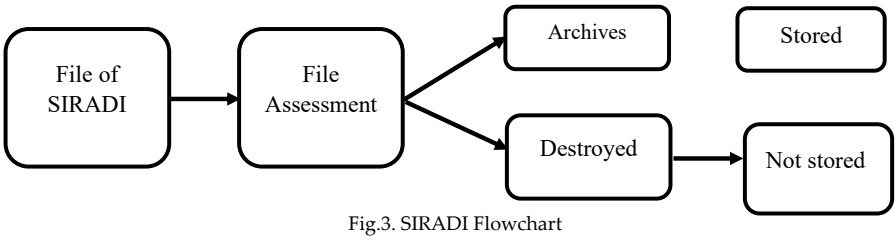

Fig.3. SIRADI Flowchart

The Sub-menus are displayed on the table below:

Table 1. of Sub-menu for Stored Records

No.	Description	Option
1.	Active Archives Retention	1 / 2 year
2.	Inactive Archives Retention	3 / 4 / 5 year
3.	Depreciation	Discarded / Permanent
4.	Archive Media	Paper/CD
5.	Public Access Rights	Open/Closed
6.	Types of Archives	Vital / non-vital
7.	Number of Archives	In Sheets/Pieces
8.	Retention Code	PK. 1.1 / PK. 1.2
9.	Archives Location	C2 / Depo / Filing Cabinet A, shelve 1
10.	Summary	Archives content summary

Source: Guide of SIKD by ANRI, summarized (2018)

SIRADI consists of the arrangement of official manuscripts, Archive Retention Schedule (JRA), access permits (rights to access), and archive classification patterns. The requirements are in accordance with what should be in SIKD. UNNES already has all four instruments. While archives that are excluded from SIRADI will be included in an additional interface menu.

Table 2. Menu for Additional Archives

No.	Name	Description
1.	Add Archives	Add new archives excluded from SIRADI
2.	Edit Data	Edit the uploaded draft of archives
3.	Delete Data	Delete the uploaded draft of archives

Once the login process is complete, a dialog box will appear with the options of 'Destroyed Archive' or 'Retained Archive'. If 'Destroyed Archive' is selected, the draft will be recorded in a separate form. Whereas when selecting 'Saved Archive', another dialogue box will appear, as shown in Figure 3 and Figure 4.

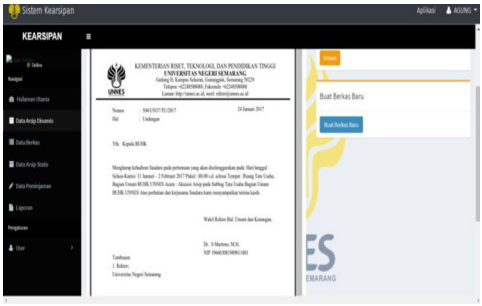

Fig.4. List of Dynamic Archives
Source: http://apps.unnes.ac.id/50

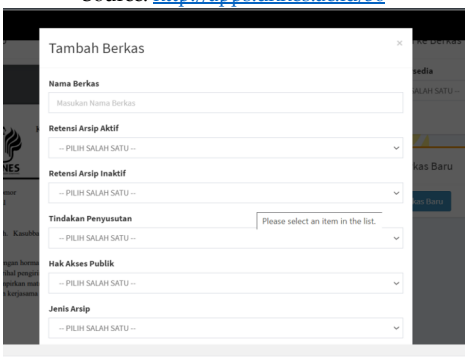

Fig.5. Archives Identity
Source: http://apps.unnes.ac.id/50

Users must fill in the identity of the archive and then save it. SIRADI is an official correspondence system that acts as a gateway to the creation of a dynamic archive system. The archives stored in SIRADI are dynamic archives. Every document and data stored in SIRADI has information benefits. Therefore, it is important to maintain it for further utilization. Records that are destroyed will not be stored in SIRADI and are not included in the dynamic archive category. Records that do not originate from SIRADI must be recorded. An archival system that is in accordance with the rules of archival management is required. ANRI has created a system called the Dynamic Archival Information System (Sistem Informasi Kearsipan Dinamis; SIKD).

E-archive as an electronic archiving program can be optimized as long as it is supported by other instruments. One of them is a computer that fulfills the minimum specifications as listed in the requirements. The minimum specifications are listed in Table 3.

Table 3. Required Specifications on e-archives Sofware (Excluding SIRADI)

Specification	Description
Minimum Specification	
1. CPU	Min Processor Celeron or Core 2 Duo
2. RAM	1GB
3. LCD resolution	1024x768
4. HDD	40 GB
5. OS (operating system)	Win XP
Recommended Specification	
1. CPU	Min Processor Dual Core
2. RAM	2GB

3.	LCD resolution	1386x768
4.	HDD	100 GB
5.	OS (operating system)	Win 7, Win 8/8.1, Win 10

The required software must be installed on the computer before launching e-archive. The E-Archive installation package includes the following programs:

Table 4. Programs E-Archive Installation Package

No.	program/component Name	Need	Action
1.	Notepad++	Optional	Install
2.	XAMPP	Necessary	Install
3.	Mozilla Firefox	Necessary	Install/Update
4.	E-Archive Folder	Necessary	Copy Paste
5.	Archives Sample Folder	Necessary	
6.	Manual Book	Necessary	-

The operationalization of e-Archive requires a PHP Web Server and MySQL Database. The software used to operate it needs to be installed on a web server first as an offline server. The web server package program to be installed is called XAMPP. As for how to install XAMPP: (1) Double-click XAMPP (xampp-win32-5.6.21-0-VC11-installer) in the e-archives folder. (2) Wait for a while after the display below appears, then click the 'OK' button. The synchronized system trial obtained the following results:

Table 5. Data of Unit Operators

No.	Unit using the trial	Easy	Difficult
1	Faculty of Science Education	V	X
2	Faculty of Language and Literature	V	X
3	Faculty of Social Science	V	X
4	Faculty of Math and Science	V	X
5	Faculty of Engineering	X	V
6	Faculty of Sport Science	V	X
7	Faculty of Economics	V	X
8	Faculty of Law	X	V

Based on Table 5, the synchronization results showed that six work unit operators stated that it was easy to use and 2 work unit operators stated that it was difficult to use. According to the operators of the Faculty of Education and the Faculty of Language and Literature, the ease of synchronization of SIRADI is more flexible and efficient. In terms of system requirements, there is only one for correspondence and archiving. Most systems are individualized, which means they are not in one system. But in SIRADI, letters and files are interconnected. Operators from the Faculty of Engineering and Faculty of Law admitted to having difficulty operating the system because they did not understand the concept of archive management. When archiving items in SIRADI that are synchronized with SIKD, they do not understand the items, such as the age of active archives, the age of inactive archives, "SAVE", and "DESTROY" information.

SIRADI is the main factor that can be relied upon in determining whether or not an archive document is included. Archive evaluation needs to be based on the JRA. Records that enter the dynamic archive system must be in accordance with the JRA. Thus, all archives do not need to be kept for a long time. For example, an official invitation letter only has an active storage archive for one year. Meanwhile, the period of inactive archives is one year. Therefore, synchronizing SIRADI with SIKD was necessary to make the correspondence management procedure more efficient. The creation of the new system involved a SIKD expert from ANRI to determine the appropriate archive system. The advantage of SIRADI-SIKD synchronization is the similarity of the interface menu in the archive system due to

ANRI's involvement. Archives in this system can be linked to other systems, such as the Static Archives Information System (SIKS). Thanks to this convenience, archives stored in SIRADI-SIKD and SIKS can be incorporated into the National Archives Information Network (JIKN) initiated by ANRI. Selain itu, SIRADI hanya membutuhkan minimal satu operator. Banyaknya jumlah operator akan menyebabkan kesulitan dalam pengendalian dan evaluasi arsip yang disimpan karena tidak jelasnya rantai penanggungjawab. Namun, jika dikelola oleh satu orang untuk setiap unit akan memudahkan mereka dalam menyusun dan mempertanggungjawabkan beban kerjanya serta memudahkan pimpinan dalam melakukan pengendalian dan evaluasi.

3. Conclusion

The procedure for developing the synchronization of SIRADI with SIKD began with an archival workshop and FGD with ANRI. Then identify needs in SIRADI and identify components that can be synchronized with SIKD. The workflow of the synchronized SIRADI and SIKADI systems is the assessment of archives in a 'DESTROYED' and 'SAVED' state. Then, identify the identity of the archive starting from the active or inactive storage of archive media, access rights, number of archives, storage code, archive location, and summary of content. There are four requirements in the operation of synchronized SIRADI-SIKD, namely the existence of manuscripts, JRA, archive access rights, and archive classification patterns. This research has limitations in terms of the use of literature relevant to the synchronization of electronic correspondence, thus limiting the depth of analysis. Future research is expected to examine the synchronization of electronic correspondence information systems using several theoretical approaches. In addition, SIRADI only requires a minimum of one operator. The large number of operators will cause difficulties in controlling and evaluating the archives stored due to the unclear chain of responsibility. However, if managed by one person for each unit, it will make it easier for them to compile and account for their workload and make it easier for leaders to control and evaluate.

Author Contributions

Agung Kuswantoro	: Research conceptualizer, proposal and introduction.
Ahmad Saeroji	: Research design.
Muhamad Nukha Murtadlo	: Research methodology and data processing.
Arif Wahyu Wirawan	: Data processing results written down.
Dedi Kurniawan	: Financial report preparation.

Declaration of Competing Interest

We declare that we have no conflict of interest.

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