Analysis of Information Quality and Data Security in the KPU (General Elections Commission) SIDALIH (Voter Data Information System) Application

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Abstract. The purpose of this study was to determine the quality of services provided and data security in the use of the KPU's SIDALIH (Voter Data Information System) application. This research uses qualitative methods by analyzing online news media. The news is collected using the NCapture feature and then the Nvivo 12 plus software is used to manage and analyze the data. The results show that the accurate indicator in the SIDALIH application service has the highest percentage of 33.33%, then the relevant indicator with a percentage of 29.17%, the completeness indicator with a percentage of 22.92%, and the timeliness indicator with a percentage of 14.58%. Infrastructure indicators have a percentage of 53.33% and management indicators have a percentage of 46.67%. The SIDALIH application can provide accurate information, but the delivery of information on the SIDALIH application takes time to be accessed. Security infrastructure needs to be improved so that it is not easy to be hacked and it is necessary to establish guidelines, rules, and task forces that play a role in tackling information technology disasters or data leaks. The limitation of this research is that the data obtained is only from online news media, so it still needs to be explored further regarding its truth and legitimacy. The findings in this study can be used as a reference for improving the quality of information and guaranteeing the security of user data in the future.

Keywords: Information Quality · Data Security · SIDALIH (Voter Data Information System)

1 Introduction

Along with the rapid development of the times, technology has become the main player in this fast-paced changing era. Technology continues to develop relentlessly, and every time it always gives birth to new things. Technology spreads to the fields of economics, politics, society, and government. Of course, the presence of this technology has both

good and bad impacts. Jobs that used to be done manually are now being done by machines or computers [1]. The government has adapted to changing times by using technology in running its government. The use of Information Technology in government has evolved over the last few years to make interactions between government and citizens (G2C), government and business (G2B), and inter-agency relations (G2G) more effective, democratic and transparent [2].

Personal computers, cell phones, e-mail, and the internet have permeated all walks of life. Industrial productivity has increased and service efficiency has increased [3]. When people understand how to use the internet properly and can operate other electronic media, the government seeks to provide public services that are more efficient, transparent, and easy to access [4]. Digital-based services are the answer to this rapid technological development. The transition from manual to digital means that it has covered various activities in government, be it administration, data management, information, and management, which have worked electronically [5].

Information technology has now been used by the KPU. A mandatory condition must be met in the implementation of electoral democracy, namely updating voter data. The accuracy of voter data enhances the quality of electoral democracy and provides the widest possible platform for the public to cast their right to vote [6]. Technology plays a major role in supporting performance and convenience in processing public data as well as ease in holding elections conducted by the KPU [7]. As proof that technology has been present in general elections, namely the presence of several applications issued by the KPU, some of these applications, namely nominations with the Candidacy Information System (Silon), Political Party Information Systems (Sipol), Calculation Information System Information Systems (Situng), Information Systems Electoral District Information (Sidapil), Recapitulation Information System (SiRekap) and Voter List Information System (Sidalih) [8].

In anticipating the occurrence of things that might eliminate someone's right to vote which will lead to disputes on election day, it is necessary to register voters earlier before voting takes place. Inaccuracies and errors in voter data will have an impact on the legitimacy of general elections and the completeness of general election administration [9]. Before the determination of the DPT (Fixed Voters List), the accuracy of voter data would be accommodated in advance on the DPS (Temporary Voters List) but reflecting on the experience of previous elections this could not accommodate all voters [10]. So that this becomes a problem that triggers disputes over election results, and the majority of requests filed with the Constitutional Court are related to disputes over more requests about inaccurate voter lists [11].

Based on these problems in updating data, the use of information technology implemented by the KPU caught a lot of people's attention at the beginning of its appearance, namely SIDALIH. SIDALIH is a product of Information Technology that has efforts as a double e-government that implements the principles of e-governance and e-government so that people are allowed to be directly involved in general elections [12]. According to Wulan Suri & Yuneva (2021) SIDALIH is an online-based voter data information system centered on the KPU server. SIDALIH was created to serve voters regarding voter data, and support the work of election administration employees in compiling, coordinating, announcing, and maintaining voter data. SIDALIH performs CRUDE (create,

read, update, and delete) functions. SIDALIH has advantages over previous methods from election to election, SIDALIH can overcome most of the problems at the stage of updating voter data, and SIDALIH can provide data regarding the number of voter lists accurately [14].

In research Akbar et al., (2021) This study describes artificial intelligence that is applied to the KPU's voter data updating application or SIDALIH. The results show that in terms of the effectiveness of siding, it has benefits that can assist organizers in recapitulating voter lists effectively, being able to produce accurate and precise reclaimer data, and being able to detect the presence of multiple voters. Constraints and obstacles that occur in the application of SIDALIH namely regarding the quality of human resources, the occurrence of natural disasters, the existence of population database incompatibilities, lack of community participation, there are network and system disturbances, and there are multiple voters with many voters on the previous voter list.

Research conducted by Makuta et al., (2021) The results of this study explain that the recommended model for updating data for the 2024 election is a continuous data updating model and an improved model, with voter data in SIDALIH being able to connect with regency/city KPU, Disdukcapil (Civil Registry Service Office), sub-districts, and hamlets. Data updating must be ongoing based on data generated by Disdukcapil by cooperating with SIDALIH and SIAK (Population Administration Information System) and utilizing IT, so that data that has changed in the relevant h5amlets will be known by the district/city KPU directly, Disdukcapil, sub-district, and hamlet governments. Because so far, the SIDALIH application is only available at Disdukcapil, while the KPU, sub-district government, and hamlets obtain data only from hamlets.

This research is different from previous studies because at present the implementation of SIDALIH in Indonesia faces various serious challenges for the Indonesian government with the large demands of the public for the government to get maximum service, as well as the rapid development of science and technology [17]. So the government is required to be able to provide the best quality and useful information and be able to provide a sense of security for people's data. Data security and the quality of services provided to the government will have a major impact on people's interest in adopting digital services provided by the government [18]. Research with the title Analysis of Information Quality and Data Security in Using the SIDALIH KPU Application is interesting to discuss to find out how SIDALIH plays a role in providing quality information services and how can the technology used maintain the security of user data. And is SIDALIH still relevant for future use?

2 Literature Review

2.1 Information Quality

Information is a form of data that is formed in such a way that it can be understood and has meaning for its users or recipients so that it has a real impact on users who will influence their decisions [19]. The higher the quality of the information provided about the products produced by a system, the more decisions will be made by users [20]. Reliable quality information can describe according to client needs through information services and

empower them to be able to carry out their work successfully [21]. The quality of the information on SIDALIH is complete, non-misleading, and more transparent [15].

SIDALIH information quality refers to the validity, value, and usefulness of information that is the result of an information system and the quality of these results. SIDALIH information quality describes the extent to which the system can provide users with useful and significant information accurately and quickly [22]. The quality of information becomes the main determinant of the quality of the website. Good quality information can produce enjoyment and positive behavior in its use. Customers will form a positive view when information can meet their wishes during the decision-making process and is available in an adequate manner [23].

The quality of the information produced depends on several things, namely, completeness, the information disseminated or published must be complete or not partial, if the information provided is incomplete it will affect decision-making so that will affect problem-solving. Relevance, the information provided must have benefits for its use, this will influence the user in making decisions. Accurate, the information conveyed must not be negatively misleading, the information must be following the actual situation. And the timeliness of information should not be delivered late, because the information that is not on time is no longer valuable [24].

2.2   Data Security

According to Benuf et al. (2019) Personal data is individual data that is confidential which is guarded and protected. In an electronic system, personal data is protected and monitored, including data acquisition, data collection, and data dissemination. Protection of personal data in electronic systems refers to the principle of respect for personal data as privacy. Public privacy and data security are matters of serious consideration and concern in digital-based services that utilize internet media. Because the security of public data is a benchmark for the quality and ability of the government to provide digital services [26].

Protecting personal data is an obligation for users of electronic systems. The confidentiality of personal data collected, obtained, processed, and analyzed must be used according to user needs. Documents that contain personal data need to be protected to avoid data misuse. Organizations and individuals are responsible for personal data that becomes their control if personal data is misused [25].

According to Iswandari (2021) The government as the provider of information needs to guarantee its security and confidentiality so that acts of abuse do not occur. Several things become paralyzing or damaging in e-government services. These problems can be classified into 4 categories, namely: 1) Infrastructure security, government networks are built to interact between institutions and various elements on time. Building data network security is the key to infrastructure development and forms the basis of all information services. 2) Application security. The government certainly has strict regulations regarding applications in terms of security and usability. However, public access that is so broad in e-government services is vulnerable to potential security breaches so mitigation is needed in terms of security. 3) Identification of management, the management of access to information and services is the hand of the government as the spread of electronic transactions increases. The government needs to help users, so they don't

have difficulty accessing it and don't jeopardize user security. 4) Information Guarantee, Information owned by the government whether it contains personal information must be accounted for by them. All Applications and Web sites must provide sufficient access to data security so that it is not misused. Information owned by the government whether it contains personal information must be accounted for by them.

Of the four categories then the indicators in data security are adequate infrastructure and Management.

3   Research Methods

The study uses a qualitative method by analyzing online news media that focuses on reporting on service quality and data security in the KPU's SIDALIH application. Data were obtained from national online news media, namely Kompas.com, Merdeka.com, Tribunnews.com, and Suara.com which are related to the SIDALIH application (Table 1).

Table 1. Data source

Online news platform	Number of news
Kompas.com	9
Merdeka.com	5
Tribunnews.com	7
Suara.com	5

Data collection begins with searching for keywords that are appropriate to the focus of this research found in reputable online media in Indonesia, then using the Extensions Ncapture feature to retrieve news from online news in the form of PDFs so that it can then be processed. The data analysis technique in this study used manual coding through the features of the Nvivo 12 Plus software. Data were analyzed by processing manually coding online news results. Manual coding was done by manually classifying data that was relevant to the topic discussed in this study. The data is presented in the form of diagrams and pictures by utilizing the Crosstab query and Word Cloud features from the coding results.

4   Results and Discussion

4.1   Information Quality SIDALIH KPU

The SIDALIH (Voter Data Information System) application presented by the KPU is to provide voter data information to the public and to make it easier for officers to update voter data. SIDALIH (Voter Data Information System) is a creative product from the KPU which has a positive value that can update and convey information about voter data so that voters can exercise their right to vote. Of course, the election will not take place if there are no participants and voters, it is the KPU's job to facilitate voters as in a democratic government system [27].

The 2014 legislative election was the first time the SIDALIH application was used, being the first step in organizing online-based voter list updates. In updating voter data, SIDALIH is expected to be able to improve the performance of the KPU. The activity of updating voter data on an ongoing basis is an activity carried out by the KPU to obtain voter data that is more accurate, up-to-date, comprehensive, continuous, and not only dependent on the election process because voter data has the following elements, namely: 1). Voter data is a guarantee so that the owner can exercise his right to vote; 2). As the main component in determining the quality of the holding of elections; 3). As supporting data in activities or processes in the administration of elections such as distribution of logistics, nominations, verification of political parties, and others; And 4) the data is used as a reference in the recruitment of TPS (Polling Station) supervisors and TPS officers [28].

The function of SIDALIH in updating and maintaining voter data was developed to assist the KPU in updating and maintaining voter data. In carrying out its function, SIDALIH is used to carry out the data input process in the form of adding new voters, improving data, and deletion of data, it can be said that SIDALIH helps to identify problems that exist on the voter list, such as duplicate data, data that does not meet the requirements, under 17 years of age, invalid KK (Family Card) and NIK (National Identity Number), voters who have died and several problems regarding other voter lists. Then the function of SIDALIH in terms of dissemination or publication of data, SIDALIH KPU opens access to the public to information regarding voter lists, both providing information about voter lists online and a copy of the voter list given to supervisors in the form of a print out that has been pasted in village office and other strategic places [27].

The quality of information generated by the KPU in the SIDALIH applications as DPT (Fixed Voters List) information is always a polemic in every election event. This is a challenge for the KPU in conveying voter data information, of course, it will affect the quality of information delivery in the SIDALIH application. The results of the analysis through Word Cloud Analysis display a few words regarding the Quality of Information in the SIDALIH application. The word SIDALIH is a word that often appears in online news that has been collected because SIDALIH is closely related to research on the variable quality of information (Fig. 1).

Then through the Nvivo Crosstab Query from the four online news Kompas.com, Merdeka.com, tribunnews, and suara.com which have been collected provide information that the Accurate indicator has the highest score of 33.33% and Timeliness has the lowest score of 14.58% (Fig. 2).

Based on the picture above it can be explained that:

First, Completeness. In the results of online news collection, it is known that the completeness of the information described in the news sources Kompas.com, Merdeka.com, Suara.com, and Tribunnews.com shows a score of 22.92% through manual coding results on completeness items, using NVivo 12 plus. Completeness is indicated by the contents of the information contained in the SIDALIH application. Completeness has a score that is below the accurate and relevant indicators. One of the provisions of quality information is the completeness of the information content available. Completeness of information

Fig. 1. Word Cloud Analysis Information Quality

Fig. 2. Crosstab Query Information Quality

is one of the most important indicators in conveying information because incomplete information will result in future user decisions.

Second, Relevant, in the results of news collection through online news such as Kompas.com, Merdeka.com, Suara.com, and Tribunnews.com the indicator relevant has a score of 29.17% Results from coding per indicator relevant using Vivo 12 Plus. The relevance indicator has a higher score than the completeness indicator but is still below the accurate indicator. Appropriateness in the delivery of information is a component needed for the community to obtain information according to their needs and uses. The usefulness and relevance of the SIDALIH application are related to election information or information about the DPT (Fixed Voters List) of the user community so that the information conveyed is under the needs of the community.

Third, Accurate, information provided in the SIDALIH application is the most important component of this application, the accuracy of voter data in the SIDALIH application influences the running of general elections. As explained by Habibah & Safuan (2022)

that the use of information technology to produce accurate data is important for optimization. Using this technology is very important in the data processing. In the picture above it can be seen that the accurate indicator has the highest score based on coding through the results of data collected from online news media with a score of 33.33%, this score is the highest compared to other indicators.

Fourth, Timeliness. The timeliness indicator has the lowest score compared to other indicators with a score of 14.58%. The results are based on data collection through online media and then coded using the Nvivo 12 Plus application. Timeliness is the indicator with the lowest score because the data available in the SIDALIH application requires time to update and re-data collection in the field related to DPT so it takes more time to input data into the SIDALIH application.

4.2 SIDALIH Data Security

Public data security is an important matter that requires serious attention and consideration in the administration of a digital-based bureaucracy that utilizes the internet network. Because one of the main things in improving service quality is the ability to provide reliable service. The development and construction of a system that supports the implementation of E-government need planning and needs to pay attention to aspects based on facts and possibilities that will occur later. Information owned by the government regarding people's data needs security and confidentiality guarantees so that it does not fall into the hands of irresponsible parties who will misuse the data and will have very serious consequences. The government needs to guarantee that public data will remain safe and will not be leaked to parties who should not know the data. Of course, a data leak will have quite a big loss for both the community as the owner of the data and the government itself. Buying and selling personal data and information without the consent of the data owner is a very dangerous crime within the scope of buying and selling which has entered the international sphere [26].

Data leaks are things that have a serious impact, leaked data will cause financial losses. Most recently, the data leak disseminated by Bjorka has become a concern for the Indonesian people because the data allegedly came from the KPU's SIDALIH application. The results of online news coding from Kompas.com, Tribunnews.com, Merdeka.com, and Suara.com use NVivo's Computer Assigned Qualitative Data Analysis (CAQDS) by coding based on indicators on Data Security, namely Infrastructure and Management. Following are the results of the Crosstab Query (Fig. 3).

First, infrastructure is needed to support information system management so that data centralization forms a definite data collection procedure to improve data security. The government needs to cooperate with non-government institutions and work optimally to fulfill the provision of good security infrastructure. Need to ensure that the data security infrastructure has been guaranteed and tested, for example by implementing a central security system on network infrastructure and a Security Operation Center (SOC) that can increase security on all devices.

Infrastructure has an influence on data leakage in the SIDALIH application. Because the infrastructure in terms of system and network security in the security SIDALIH application is inadequate, data leaks occur. Based on the results of coding from online news media namely Kompas.com, Merdeka.com, Suara.com, and Tribunnews.com the
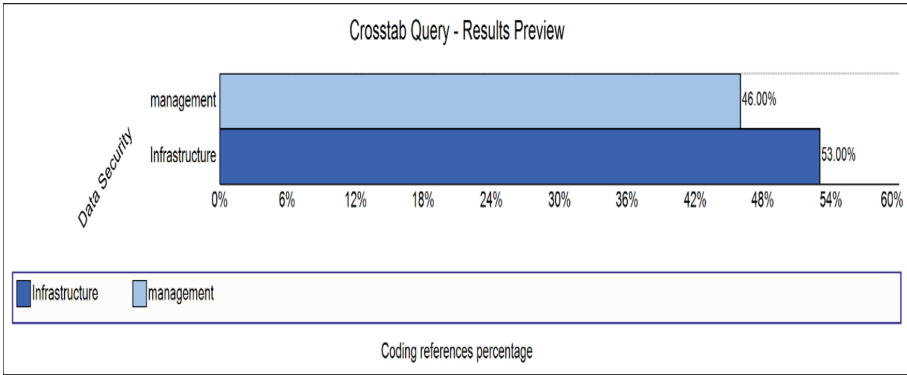
Fig. 3. Crosstab Query Data Security

security indicator has the highest score of 53.33%. The news media presents relevant news regarding weak data security infrastructure against data leaks.

The application of e-government must of course be accompanied by the construction and development of supporting elements for the security of the system. e-government development must look at several aspects that are likely to occur. Information about individuals in the community needs security guarantees so that it is not misused which results in serious impacts.

Second, Management, the management indicator has a Crosstab Querry score of 46.67%, the result is based on manual coding using NVivo 12 plus. Based on the news that has been collected and manually coded relevant news regarding security management, in general, it can be explained that agencies in the management of personal data do not yet have definite rules regarding guidelines for dealing with data leaks. The work unit that will play a role and be responsible for the prevention of leaks has not yet been formed. Data leakage is a challenge for the SIDALIH data manager they manage.

5   Conclusion

Shows that the indicator Accurate in the SIDALIH application service has the highest percentage, namely 33.33%, then in second place followed by the indicator of relevance with a percentage of 29.17%, the completeness indicator is in third place with a percentage of 22.92% and the timeliness indicator is last with a percentage of 14.58%. Then in data security, there are 2 indicators, namely Infrastructure and Management. In the results of data processing from online news media Kompas.com, Merdeka.com, Suara.com, and Tribunnews.com using the NVivo 12 Plus software as a qualitative data analysis tool with the Crosstab Query feature, it was found that the infrastructure indicator had the highest percentage, namely 53.33% while the management indicator has a percentage of 46.67%.

Based on these results, it can be concluded that the SIDALIH application can provide accurate information, but the delivery of information on the SIDALIH application takes time to be accessed because in updating data and updating data it is not impossible to

experience problems in the field. In terms of data security, security infrastructure needs to be improved so that it is not easy to be hacked and it is necessary to establish guidelines, rules, and task forces that play a role in tackling information technology disasters or data leaks. Seeing this, SIDALIH is still relevant for future use but needs to strengthen system defense and change the voter list re-data collection system. The limitation of this research is that the data obtained is only from online news media, so it still needs to be explored further regarding its truth and legitimacy. SIDALIH is a useful application in elections but every year it always has problems or has problems updating data. The findings in this study can be used as a reference for improving the quality of information and guaranteeing the security of user data in the future.

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