

Design and Build a Population Administration Data Collection Application System Using the Zachman Framework

Anti Aprianti^{a,1,*}, Yayatillah Rubiati^{b,2}, Muhamad Renaldi Aripin^{c,3}, Cecep Warman^{d,4}

^{a,b,c,d} Department of Information System, Nusa Putra University, Jl. Raya Cibolang Kaler No.21, Kab. Sukabumi 43152, Indonesia

¹ anti.aprianti_si17@nusaputra.ac.id, ² yayatillah.rubiati_si17@nusaputra.ac.id, ³ muhamad.rinaldi_si17@nusaputra.ac.id,

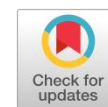
⁴ cecep.warman@nusaputra.ac.id

* Corresponding Author

Received 07 May 2021 revised 11 May 2021; accepted 18 May 2021

ABSTRACT

The purpose of this study is to determine how the application of the Zachman Framework in designing a population administration data collection system in Kadaleman village, because the current process is still carried out conventionally so that data storage is irregular. In analyzing the system using the Zachman Framework approach with a Planner, Owner, Designer, and Builder perspective and perspective issues, namely What, How, Where, Who, and When. For system modeling using UML. Data was collected by using observation, interview, literature study, and distributing questionnaires involving 35 respondents. Measurement of data using a Likert scale, with correlation test analysis using Spearman rho. The implementation of a web-based prototype system with the results of the usability value test on the system application shows that the system has met the aspects of learnability, efficiency, memorability, errors, and satisfaction. The results of the correlation analysis of the Zachman Framework model on the system built have a very strong correlation, which implies that the system built through the Zachman Framework approach can be realized and implemented.



KEYWORDS

Decision Support System
Simple Additive Weighting
recruitment of employees



This is an open-access article under the [CC-BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license

1. Introduction

The development of technology today, both in government and private agencies is required to be able to participate to know the flow of information in all fields, especially in the field of computers. With the use of the computer will make it easier to process data and very influential in the efficiency and effectiveness of work. Computers are one of the technological advances that in its development are very helpful in government agencies to improve community services, especially in the administration.[1]

Population administration is a series of structuring and publishing activities in the issuance of population documents and data through population registration, civil registration, management of population administration information and utilization of the results for public services and development of other sectors. [2]. In terms of Population Administration Data Collection one of the activities of the village government is to record a form of birth, death, move and come. With the data collection activities in the village government, of course, it is necessary to instill information technology in order to help every activity related to population administration, so that the existence of computerized technology will help in every data collection activity in the village. But the current condition is not all villages make full use of communication and information technology in supporting work systems such as in conducting data collection and archiving of population administrations whose processing is done conventionally which usually uses agenda books and notebooks more often.

One of them is The Village of Kadaleman Sukabumi, so in its implementation it is not uncommon to have to deal with various obstacles that must be faced. Currently, Kadaleman Village is technically implemented in terms of data collection carried out by each village device by manually recording data and then reporting it to the Village Secretary, and inputting it in the Microsoft Excel application, it is done in the process of collecting residents who move or come.

Research conducted by Endra Suseno with the title "Enterprise Architecture Modeling of Village Population Data Information Systems With Framework Togaf 9.1 Dan Soa" The purpose of this research is to produce Enterprise Architecture Modeling, which can be used as a foundation for the

development, implementation of technology and information systems for villages. Design an EA-based architectural model tailored to the activities of the village that can facilitate the implementation of information systems by using the TOGAF ADM and SOA frameworks. Can produce a strategic plan of integrated information systems according to needs.[3]

Furthermore, the research conducted by Oki Liandi and Fitria with the title "Evaluation of Cobit 5 Framework Governance at the Office of Population and Civil Registration". Currently, information technology governance is needed to regulate all factors and dimensions related to the use of information technology in synergy and provide added value for an agency. The Office of Population and Civil Registration in Tanggamus, Lampung for example, in the application of information technology sometimes found out-of-sync population data. So that this research has the aim to evaluate the governance of information technology in the Population and Civil Registration Office of Tanggamus, Lampung. The method used is an operational audit with the COBIT 5 Framework. The COBIT 5 framework can help an agency realize good information technology governance. The results showed that the governance of information technology in the Office of Population and Civil Registration is categorized at level 4, namely manage and measurable. This shows that business processes are well measured and monitored.[4]

The research was conducted by Reni Septiyanti, Darius Antoni, M Izman Herdiansyah and Widya Cholil with the research title "Analysis of Population Digital Services for the Poor in Palembang City Using The Information Technology Infrastructure Library (ITIL) Framework". As is known that the Palembang City government has implemented e-government, but how much e-government can help the Palembang city government to interact between the government and all levels of society including the poor in Palembang city. In its application, the condition of e-government services is still insufficient infrastructure that supports e-government services for the poor in Palembang city. To design a good e-government service, it is necessary to design SI / IT services for the community in Palembang City with the Service Design stage in the Framework Information Technology Infrastructure Library (ITIL) Version 2011 to be accepted in all levels of society including the poor in Palembang city. SI /IT service design based on the results of analysis of si /IT service conditions and needs to community service business processes. This research uses qualitative approach methods and analysis with a standard reference approach using the ITIL standard version 2011 in Service Design. The results of this research are in the form of a design of population digital service information systems such as administrative and population services, Family Hope Program (PKH) services and digital archive storage services based on the Service Design stage in ITIL Version 2011 that has been carried out, namely the Service Level Management process in the form of Service Level Requirement documents, Service Level Agreement and Operational Level Agreement..[5]

Research conducted by Dian Anisa Martadala, Neneng, Erliyan Redi Susanto and Imam Ahmad with the research title "Smart Village Model in Administrative Services (Case Study: West Kotabaru Village Martapura District of East Oku)" At this time the mechanism of population administration services in the West Kotabaru Village Office still uses conventional means that cause the process of recording and making population administration takes a long time, Often the occurrence of queues, the uncertainty of the completion of delayed services in the following days also often occurs so that it has an impact on the emergence of costs that must be incurred by the community due more than once to the place of service. The purpose of this research is to design population administration by using information technology tools as the first step in the development of smart villages. Designing smart village models for population administration services at the West Kotabaru Village Office using the prototype method. System testing using iso 25010 testing methods covers 6 (six) main characteristics of ISO 25010, namely Functional Suitability, Reliability, Performance Efficiency, Usability, Maintainability and Portability. System design uses UML (Unified Modeling Language) with each diagram i.e. use case diagram, activity diagram and class diagram. From calculations carried out using the Likert Scale obtained a result of 83.99%. Then it can be concluded that the design of this system is declared very good to be used and worthy of implementation.[6]

Furthermore, the research conducted by Jadianan Parhusip with the research title "Website Development of Population Administration Information System in The Village of Rungan Fall of Palangka Raya City Using Waterfall Method". The District of Tumbang Rungan in Palangka Raya manages the population as part of the Population Administration, among others; Death Certificate, Marriage Certificate / Marriage, Birth Certificate, Transfer Certificate, Disability Certificate, Construction of State-Owned Enterprises (IMB), Earth and Building Tax, and Land

Certificate. Currently there are still many government agencies that manually process population data, including The Village of Tumbang Rungan, Palangka Raya City, which still uses paper-based forms. If the requirements are listed incomplete, then the person concerned must return first to complete the missing requirements, until they are sufficient and complete. It's very troublesome and wasteful of energy and other sacrifices. The village of Upmbang Rungan, Palangkaraya City, plans to build a system that aims to assist the public in conveying information and receiving complaints by using web facilities and monitoring correspondence processing (which is being processed or resolved), and to allow public publications to fill in data online. To solve this problem, a research was created, website-based with research stages divided into two stages, namely: (1) literature studies and (2) software development by applying waterfall modification methods that include four steps namely system analysis, design, implementation and testing. Share implementations using PHP in creating program code and Mysql as a database for storing data. In addition, software testing uses Blackbox Testing.[7]

The research was conducted by Fabriyan Fandi Dwi Imaniawan and Fanny Fatma Wati with the research title "Web-Based Population Administration Information System in Bogangin Sumpiuh Village". The development of the system in the form of a web-based Population Administration system in Bogangin Village is a system that provides information about population data and mail printing services based on the web, thus helping speed and quality in the delivery of information and facilitate in correspondence printing services to be more effective and efficient. In this case, the web can only be accessed by users, namely citizens and administrators. The method used in the development of this system is SDLC (System Development Life Cycle) and waterfall process model. In this research in addition to presenting the study of theories used as a basis for preparation, will also be discussed about the design of systems and the creation of population administration web. So it is expected to be implemented in a product that will fix all the shortcomings in the old system..[8]

The research was conducted by Masna Wati and Engla Despahari with the research title "Population Administration Service Information System and Civil Records of Villages in Marangkayu Kutai Kartanegara District". Villages / villages in Marangkayu district of Kutai Kartanegara Regency strive to perform population administration services and civil records to the community in accordance with the principles of the Service Standard Guidelines. To improve the quality of service, a service system is needed in the village so as to facilitate the performance of service providers in the village and improve the quality of service of the apparatus that becomes a computerized system and facilitates the collection / archiving of citizen administrative data. The resulting system can be used to serve the citizen application process in the form of a domicile certificate application, family card application, KTP application, SKCK application and domicile transfer application needed by residents for the next process at the sub-district level..[9]

The research was conducted by Prihantara Arif Budi Santosa and Dana Indra Sensuse with the research title "Enterprise Architecture Design Using TOGAF: Case Studies in the Directorate General of Population and Civil Registration". In carrying out its duties and functions, the organization does not yet have an IT master plan so that it has an impact, among others, on the absence of business goals and support on IT investments made and not proper integration of the system. This leads to data inaccuracies. This research aims to analyze the architecture of information systems in organizations which can then be submitted as a proposed enterprise architecture (Enterprise Architecture) in accordance with the strategic needs and policies of the organization. The model used is The Open Group Architecture Framework – Architecture Development Method (TOGAF ADM) because the implementation stages are quite flexible, complete, detailed, and easy to implement. Data collection is done through interviews and studies of organizational documents. The results of the study include 7 (seven) major activity processes, 8 (eight) information system proposals and proposed technological architecture concepts for operational activities and the achievement of vision and mission.[10]

Based on the related journals described above, this research will design and build a population administration data collection application system using the zachman framework where zachman framework methods have perspectives that are able to help the process of information system development and have a logical structure for the analysis and presentation of artifacts from a management perspective. So that from this research will produce a design also a system that results from a design that has been made.

2. Method

2.1. Tahapan Penelitian

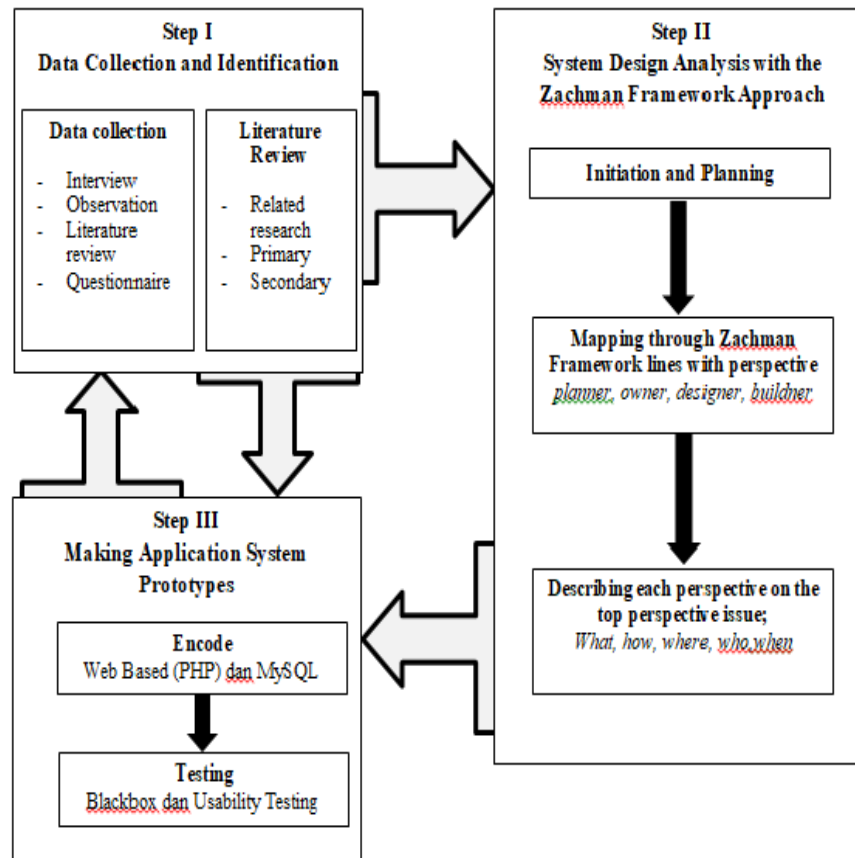


Fig. 1.Research Stages

This stage consists of several steps as follows::

- The first step of data collection and identification of problems related to population administration.
- The second step is to analyze the system design using the zachman framework approach method where in this step will be analyzed from the perspectives of the zachman framework consisting of the perspective of planner, owner, designer, and builder..
- The third step is to create a population administration application system in accordance with the analysis of system design that has been made using the zachman framework method.

3. Result and Discussion

3.1. Model Analysis

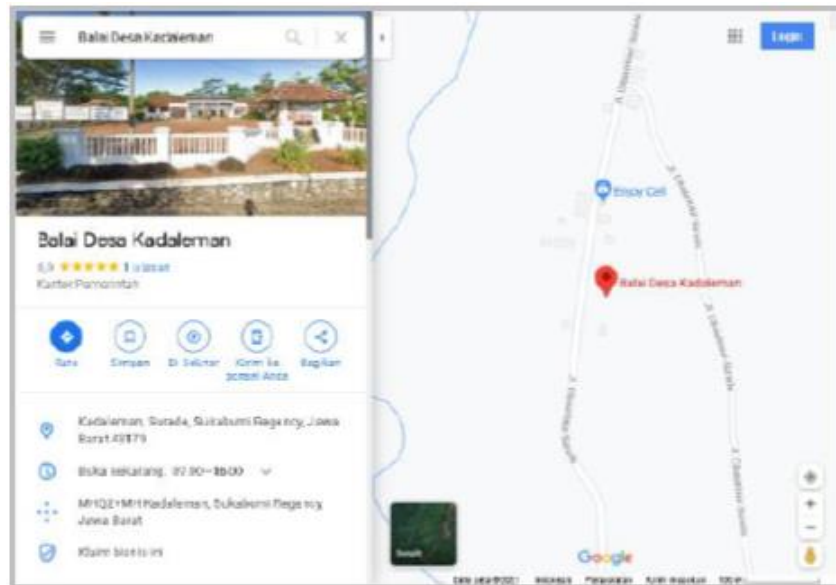


Fig. 2. Page Ranking

Picture. 2. above shows the location of the research site, the location is in The Village of Kadaleman. At this stage included in the perspective of planners in the zachman framework.

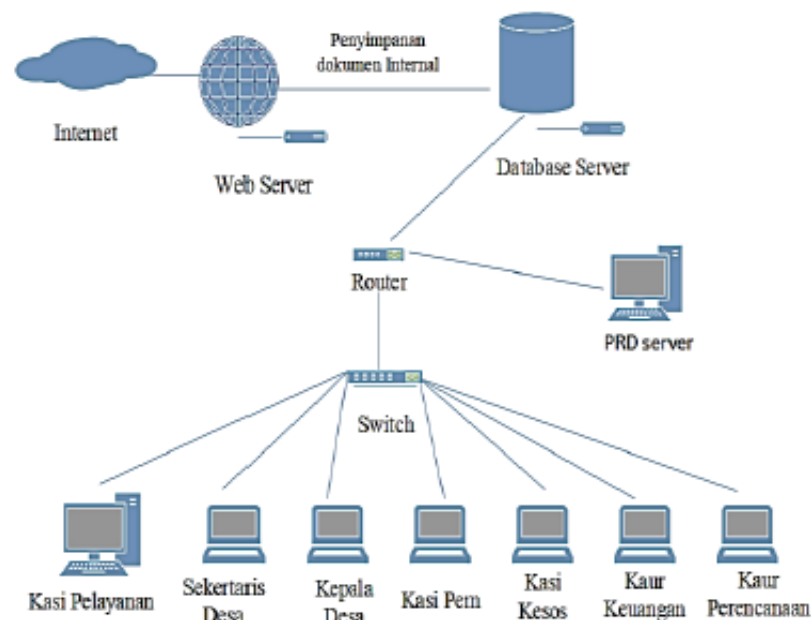


Fig. 3.Design (Model System)

Picture. 3. Is a picture of the design of a network architecture whose storage already uses a database server and the system created will be accessible to every field in Kadaleman Village. For the design of this network architecture is included in the perspective of the designer or model system.

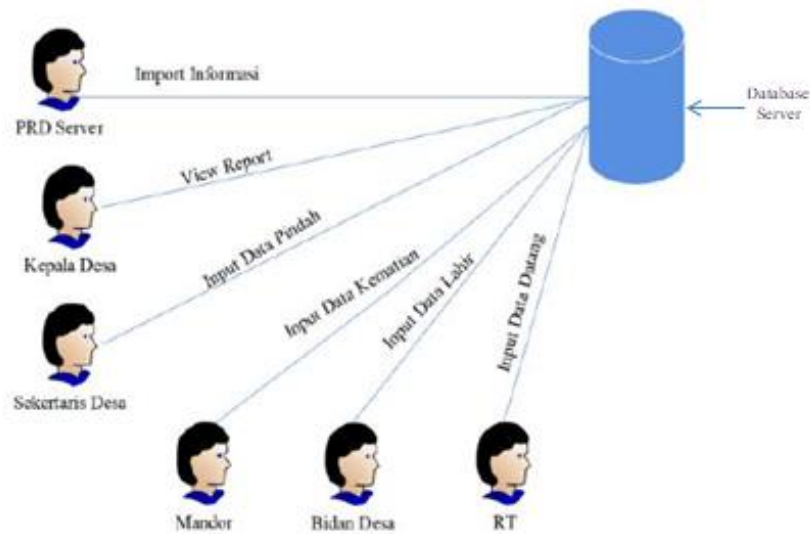


Fig. 4.Builder (Technology Model)

Picture. 4. Above shows the network scheme of the population administration system to be created, this image is included in the builder's perspective where it will be discussed about designing technology models based on system analysis that has been done at the previous stage.

3.2. System Modeling (Designer Perspective)

At this stage, system modeling is carried out based on the designer's perspective to visually determine the specifications, construction, and documentation of system artifacts. The system modeling uses UML which consists of use case diagrams, activity diagrams, sequence diagram and class diagrams. An explanation of each system modeling is shown in Figures 5 to 11 below

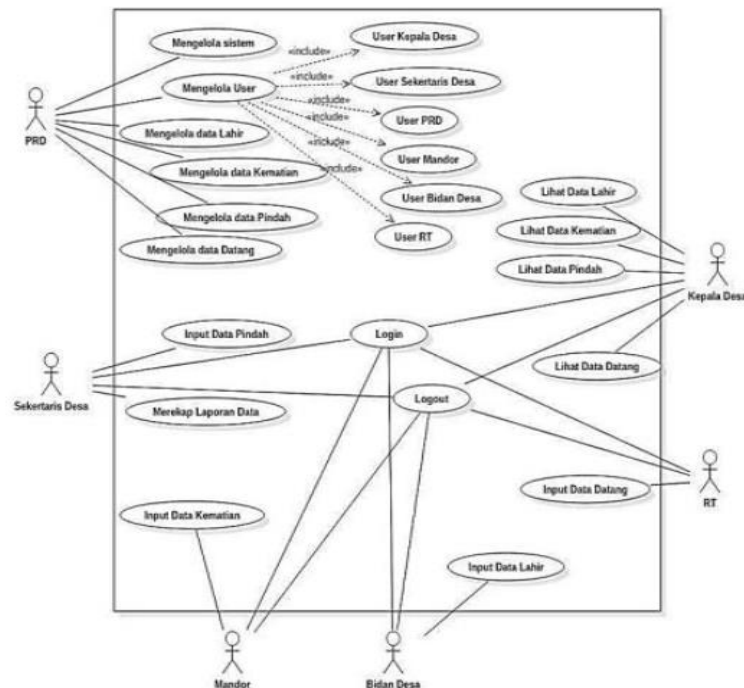


Fig. 5.Usecase Diagram

Picture. 5. Is a use case diagram that has 6 actors consisting of PRD, village head, village secretary, foreman, village midwife, and RT. Each actor has their own right of access i.e. PRD is an actor who has the right of access as a whole PRD in this system is a registration officer, the village head is an actor who can monitor birth data, death data, immigrant data, and data, the village secretary is an actor who can input immigrant data and recap data collection reports, foreman is an actor who can input death data, Village midwives are actors who can input birth data and RT is an actor who can input incoming data.

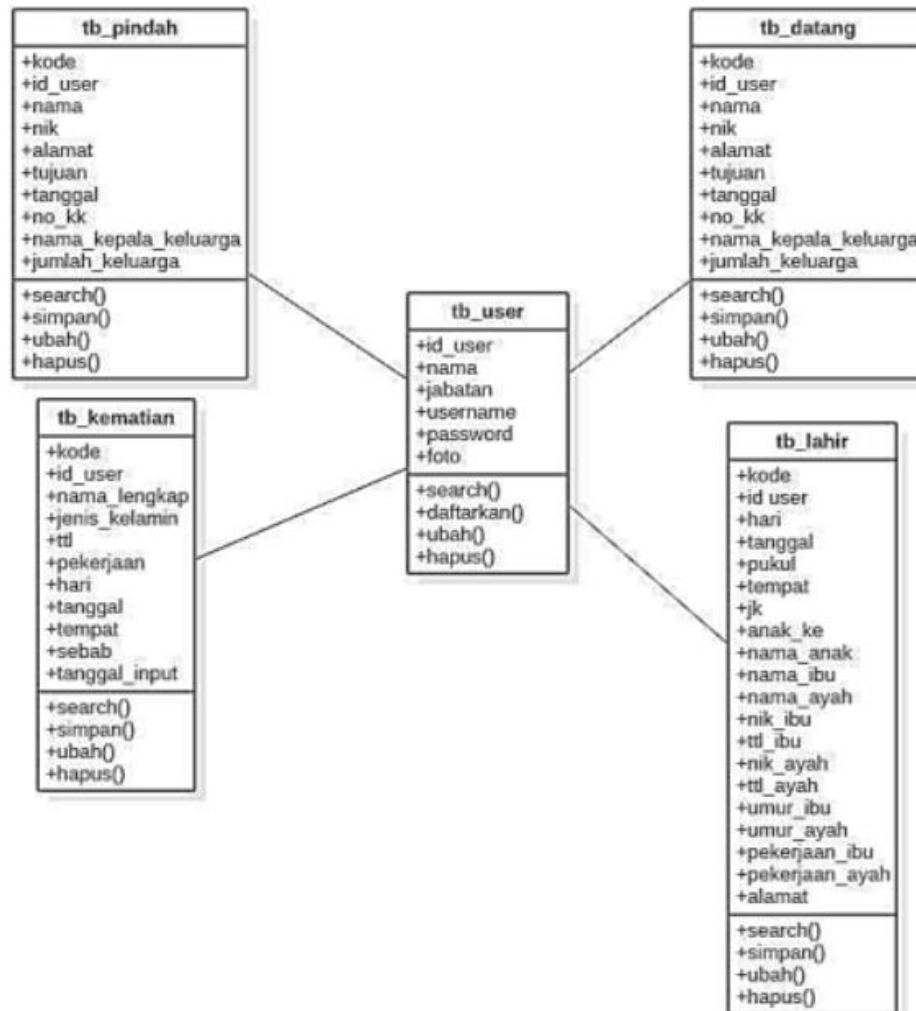


Fig. 6. Class diagram System

From the picture. 6. There is a class diagram image, in the class diagram is known to have 5 tables consisting of moving tables, tables coming, death tables, user tables and birth tables.

3.3. System Prototype

The system prototype is a model produced through software development based on references from various perspectives, the following is the user interface of the resulting system prototype as shown in Figures 8 to 9 below.

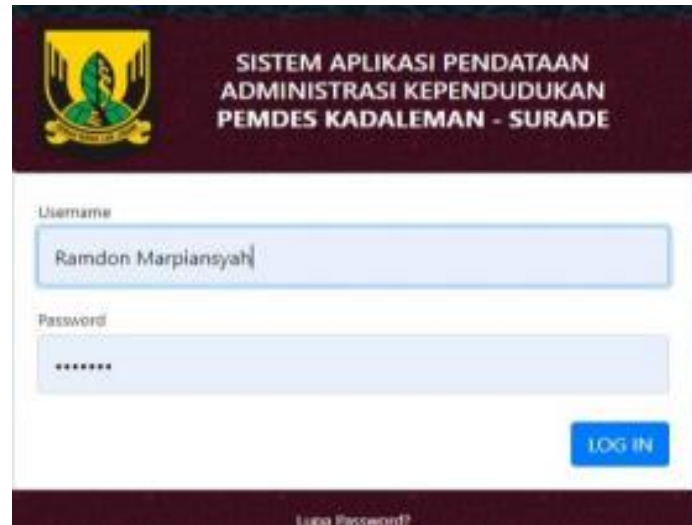


Fig. 7. Login Page For All Actors

The image above is a login display image, at the time of login required the correct username and password in order to access the population administration information system.

No.	NIK	Nama Lengkap	Nomor KK	Nama Kepala Keluarga	Alamat Asal	Alamat Tujuan	Jumlah Keluarga	Aksi
1	2243683001	Juhdi Rizki	234682873278	Kartun	Kp. Kadaleman RT 01 01 Desa Kadaleman, Kecamatan Surade Kabupaten Sukabung, Jawa Barat Kode Pos: 43176	Kp. Cibeureum RT 02 RW 01 Desa Kadaleman, Kecamatan Surade Kabupaten Sukabung, Jawa Barat Kode Pos: 43176	6	[Edit] [Hapus]
2	320228790520003	DEWI	1234567890	USMAN	SURADE	CIKACAP	3	[Edit] [Hapus]
3	320206200920003	roni	434789332457	deden	tegai pari	surade	1	[Edit] [Hapus]

Fig. 8. Village Secretary Moving Data Page

The image above is a view of domicile transfer submission data, in the system can change the data and delete the data.

3.4. Testing System Suitability, Security, Compliance

System testing is carried out based on system functionality on several indicators including suitability, security, compliance. Following are the details of the tests as shown in fig 10 to 12 d below.

Table 1. Functional Testing Of Suitability Indicators

Function	Input Data	Expected Result	Observation	Information
To add data moved	Fill out the form provided	Data save successfully	Application response when filling in data moving, birth, death	It works
Provide report information to users	Display information already stored on the system	According to user requirements to view the required data	The application provides a summary of data reports	It works

Table 2. Security Indicator Functional Testing

Function	Input Data	Expected Result	Observation	Information
Access security	Fill in the login form according to access rights	The system denies outside access rights	Application response when the data entered is true and false	It works

Table 3. Compliance Indicator Functional Testing

Function	Input Data	Expected Result	Observation	Information
Application compliance function with rules	Check some system function such as login, add data and reports	There is a conformity of data collection with existing regulations	The result of data collection carried out by all village officials are in accordance with the reporting	It works

3.5. Evaluation of the System Questionnaire Test Results with the Zachman Framework

The author conducts a closed questionnaire method, from the questionnaire filled in by the respondent where the X variable is the application of the Zachman Framework and the Y variable is the Village Population Administration Data Collection, then it is processed in the SPSS application version 25 and a frequency test is carried out on the respondent's answer. The following is the variable X questionnaire indicator which is described in tables 1 and 2 below.

Table 4. Variable Indicator X

Var	Question
X1	Does the village have a mechanism for implementing rules in carrying out population administration data collection (Scope / Contextual)
X2	How do villages make data collection an important program in administration (scope / contextual)
X3	The village provides services to the community in order to meet the needs of the community and village officials Provide better performance for the village (Scope / Contextual)
X4	The village collects data every time a resident is born, dies, moves away and comes

	(Scope / Contextual)
X5	The village has a population administration data collection application system service (Owner / Business concept)
X6	Villages need a system that can help complete the work better (Owner / Business concept)
X7	The village has a procedure that explains the administrative data flow (Owner / Business concept)
X8	The village has an administrative data input system (Owner / Business concept)
X9	The village does not yet have a system that has the ability to adapt to services needed now and in the future (Owner / Business concept)
X10	The village does not yet have a system that has the ability to adapt to services needed now and in the future (Owner / Business concept)
X11	The village has a user friendly data archiving (Designer/ Logic System)
X12	Sekdes, foremen, village midwives, and RT's who collect data on deaths, births, moves, and dating (Designer / Logic System)
X13	Village has efficient data archiving (Designer / Logic System)
X14	The village has a data collection application system that has not been integrated (Designer / Logic System)
X15	The village prepares a data master book complete with the number and code of each administrative data (Designer / Logic System)
X16	The results of this data collection were submitted by the village secretary to be recapitulated (Builder /Technology model)
X17	Village secretary handles administrative data collection (Builder / Technology model)
X18	The village designs all data collection needs in providing services to the community (Builder /Technology model)
X19	The village empowers the potential performance of village officials in supporting data collection (Builder /Technology model)
X20	The village records administrative data regularly (Builder / Technology model)

From the variable frequency table X with 20 indicators, namely the application of the Zachman Framework. The results of the recapitulation of the total respondents who became users of the village population administration data collection application system were as many as 20 people. The following is a recapitulation of the respondent's answer, which is shown in graph 13.

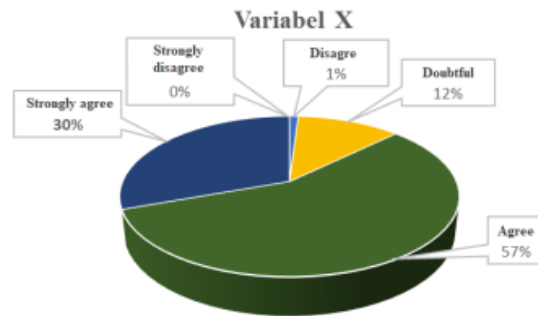


Fig. 9. The graph shows a summary of the results from the respondents for variable X

Table 5. Variable Indicator Y

Var	Question
	The village has a more effective population administration data collection application system service (Scope / Contextual)
	The village has a structured data filing as needed (Scope / Contextual)
	The village has a system that has the ability to adapt to the services needed (Scope / Contextual)
	The village has 6 actors to be able to log into the population administration data collection application system (Owner / Business concept)
	The village has an application architecture plan to support structured data archiving (Owner / Business concept)
	Villages have the opportunity to create a structured data collection system (Owner / Business concept) In the population or service administration data collection application system: birth data, death data collection, moving data collection, incoming data collection (Designer / Logic System)
	In the population administration data collection application system, there is archiving: data collection of births, deaths, moves, arrivals (Designer / Logic System)
	In the population administration data collection application system, you can log in according to their respective rights which can distinguish the needs of the user's business process (Builder / Technology model)
	Application systems are built based on needs, each part and integrated (Builder / Technology model)

From the Y variable frequency table with 10 indicators concerning the functions of the Village Population Administration Data Collection System. The results of the recapitulation of the total respondents involved in the system were 20 people. The following is a recapitulation of respondents' answers, shown in Figure 14 below.

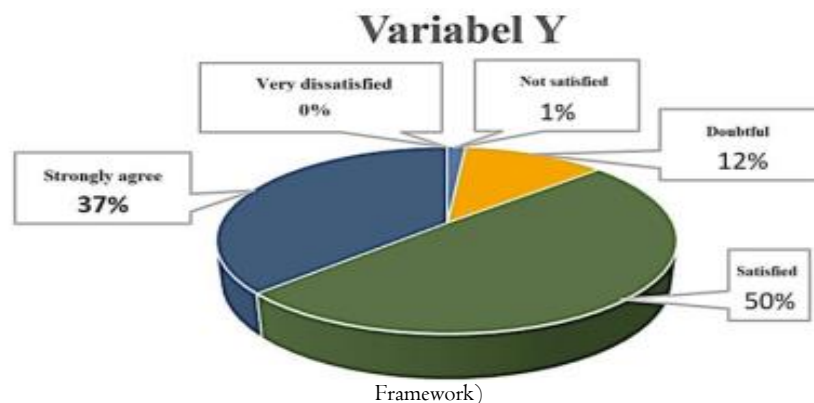


Fig. 10. The graph shows a summary of the results

From the respondents for variable Y D. Measuring the correlation degree of the relationship between variables X and Y Correlation analysis is used to measure the degree of relationship between X and Y variables, to measure this correlation taken from a questionnaire in the Village Population Administration Data Collection System with the Zachman Framework. After that the data is processed using the SPSS 25 application and the following is explained in table 3 below:

Table 6. Analysis of the Correlation Results of the X and Y Relationships

Correlations				
			Zachman Framework	Village Population Administration Data Collection
Spearman's rho	Zachman Framework	Correlation Coefficient	1,000	,729"
		Sig. (2-tailed)		,000
		N	20	20
		Correlations Coefficient	,729"	1.000
		Sig. (2-tailed)	,729"	
		N	20	20
**. Correlations is significant at the 0.01 level (2-tailed)				

Based on the table above, the results of the Spearman's rho test analysis as in table 10 above can be seen the correlation value between the Zachman Framework (Variable X) which is implemented in the Village Population Administration Data Collection System (Variable Y) obtained a correlation coefficient of 0.729, this value is at a value of $\pm 0,76 - 0,99$ which means that the correlation is very strong, the correlation coefficient is positive = 0.729 so that the variable relationship is unidirectional. E. Testing User Acceptance Test (UAT) This test is carried out by running the results of the design of the population administration data collection website by entering the url address that has been provided, then logging in, adding data, changing data and conducting data searches carried out by village officials. The following is a description of Task Usability Testing.

- Task 1: Log in
Village Officers are asked to log in
- Task 2: Add data
Village officers are asked to add data to the form provided.

- Task 3: Perform change data
Village Officers were asked to change the desired data.
- Task 4: Perform data deletion
Village officers are asked to erase the data that they want to delete
- Task 5: Finding Data
Village officers are asked to carry out the process of searching for the desired data.

When responding to questions on a Likert scale, respondents determine their level of agreement with a question by selecting one of the available options. Usually five scale options are provided with the format: 1 = Less Easy, 2 = Less Easy, 3 = Easy Enough 4 = Easy 5 = Very Easy. The following is a questionnaire related to the Usability aspect, which is shown in table 4 below.

Table 4 Usability Aspect Plot

Question	Aspek Usability				
	L	Eff	M	Err	S
Is the login process very easy to do ?					
Is the Ready-to-Mix menu easy to remember ?					
Is adding, changing and deleting data easy to do ?					
Is a data lookup column very helpful ?					
Are picture symbols easy to understand ?					
Is the language used on the website easy to understand ?					
Is the color design of the website comfortable to look at ?					
Is the form on the website easy to use ?					
Are the warning messages easy to understand when there is an error ?					
Are all the existing functions running well ?					

Information:

- L :Learnability
Eff :Efficiency
M :Memorability
Err :Errors
S :Satisfaction

1. Usability Testing Analysis After distributing questionnaires to 10 (ten) village apparatus respondents, then a recap of the results is carried out. Based on the percentage of Usability Testing results above, the conclusions are obtained as shown in table 5 below.

Table 7. The Results Of The Usability Value

Question	Value	Prosentase
Q1	46	90%
Q2	44	88%
Q3	42	84%
Q4	44	88%
Q5	45	90%
Q6	42	84%
Q7	43	86%
Q8	45	90%
Q9	44	88%
Q10	43	86%

Analysis of Usability Testing Correlation Results Correlation analysis is used to measure the degree of relationship between X and Y variables, to measure this correlation taken from a questionnaire on the System Aspect with the User Aspect. After that the data was processed using the SPSS 25 application and the following is described in table 6 below.

Table 8. The Results Of The Usability Value

Correlations				
			Aspek Sistem	User Aspects
	Zachman Framework	Correlation Coefficient	1.000	,817''
Spearman's rho		Sig. (2-tailed)		,000
		N	15	15
	Village Population Administration Data Collection	Correlations Coefficient	,817''	1.000
		Sig. (2-tailed)	,000	
		N	15	20
**.				
Correlations is significant at the 0.01 level (2-tailed)				

Figure 4.8 is a page showing the final result. The ranking is obtained based on the calculation of the input data, according to the criteria and weight.

4. Conclusion

Based on the research that has been done, the results of the correlation analysis of the Zachman Framework model on the design of the village population administration data collection application system have a very strong correlation, so that its implementation will have positive implications. And from the results of the Usability test on the system that has been built, it shows that the system has met the very good aspects of learnability, efficiency, memory, errors, satisfaction.

References

- [1] Munawir, Zulfan, Y. Yanti, and Erdiawansyah, "Design of a desktop application-based village administration management system," J. Serambi Eng., vol. 2, no. 4, pp. 182–187, 2017.
- [2] M. Agnitia LEstari, M. Tabrani, and S. Ayumida, "Information System for Population Administration Data Processing at the Pucung Karawang Village Office," J. Interkom J. Publ. science. bids. technol. inf. and Commune., vol. 13, no. 3, pp. 14–21, 2021, doi:10.35969/intercom.v13i3.50.

- [3] [K. Desa, D. Framework, T. Dan, and DAN Soa, " MODELING OF ENTERPRISE ARCHITECTURE INFORMATION SYSTEM DATA VILLAGE POPULATION DATA WITH TOGAF FRAMEWORK, Faculty of Computer Science, Universitas Kuningan," no. November 2018, 2021.
- [4] O. Liandi and F. Fitria, "Evaluation of Governance in the COBIT 5 Framework at the Department of Population and Civil Registration," *POSITIVE J. Sist. and Technol. inf.*, vol. 5, no. 2, p. 111, 2019, doi:10.31961/positive.v5i2.828.
- [5] R. Septiyanti, D. Antoni, MI Herdiansyah, and W. Cholil, "Analysis of Population Digital Services for the Poor in Palembang City Using the Information Technology Infrastructure Library (ITIL) Framework," *J. Media Inform. Budidharma*, vol. 5, no. 2, p. 590, 2021, doi:10.30865/mib.v5i2.2825.
- [6] D. Anisa Martadala, E. Redi Susanto, and I. Ahmad, "Smart Village Model in Administrative Services (Case Study: West Kotabaru Village, Martapura District, East Oku Regency)," *J. Teknol. and Sis. inf.*, vol. 2, no. 2, pp. 40–51, 2021, [Online]. Available: <http://jim.teknokrat.ac.id/index.php/JTSl>.
- [7] J. Parhusip, "Information System Website Development," vol. 15, no. 1, pp. 100–111, 2021.
- [8] [Ardiansyah, "Web-Based Population Administration Information System in Bogangin Sumpiuh Village," *Indonesia. J. Netw. Secur.*, vol. 7, no. 3, pp. 1–9, 2017.
- [9] M. Wati and E. Despahari, "Information System for Population Administration and Civil Registry Services in Kelurahan Marangkayu District, Kutai Kartanegara," *J. Engineering Engineering. inf.*, vol. 2, no. 1, p. 47, 2018, doi:10.30872/jurti.v2i1.1379.
- [10] P. Arif, B. Santosa, and DI Sensuse, "Designing Enterprise Architecture Using TOGAF: A Case Study at the Directorate General of Population and Civil Registration Designing Enterprise Architecture Using TOGAF: A Case Study of the Directorate General of Population and Civil Registration," *J. Knowledge. and Technol. commune.*, vol. 22, no. 2, pp. 223–238, 2020, [Online]. Available: <http://dx.doi.org/10.33164/iptekkom.22.2.2020.223-238>