

Analysis with the Pieces Framework in the Xyz Village Service Information System

Ucu Nugraha¹

Widyatama University
ucu.nugraha@widyatama.ac.id

Iwan Rijayana²

Widyatama University

Murnawan³

Widyatama University

R.A.E Virgana Targa Sapanji⁴

Widyatama University

Rosalin Samihardjo⁵

Widyatama University

Sri Lestari⁶

Widyatama University

Abstract

The village is the level of government below sub-district in an area, information system population data service at the village level majority still using the manual system. System like this which often results in data not valid, and sometimes there is data that does not match with the fact, the impact often goes wrong in the process of searching for population data information, both old population data and population data transfer. The same is true for letter data correspondence, such as death certificates, letters of birth certificate, transfer certificate domicile, and so on. Mail archive sometimes not obviously due to unorganized archiving properly or not stored in a databases. Problem analysis is done by using the PIECES framework approach. PIECES itself is an abbreviation of Performance, Information, Economics, Control, Efficiency, Service. These PIECES have six parts, of each of the six parts a check list is made, each check list in the as the name implies will cause problems.

Keywords

information system, village service, PIECES

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Introduction

Service to the community by the apparatus the government is sometimes still considered not maximum, there are still many people who complain about the service performance of the apparatus government. Especially in rural areas, service administration is still done conventionally as well as the recording of resident data village. Population data recording at the village level very important, because with the data collection good will produce quality information for local and central government. Expected with a good data collection of villagers and organized, then the local government does not need to again recording the data of village residents to houses. The use of information technology has not been felt optimally distributed in the government environment lingkungan village level, especially in service village administration which is a sub-system of the state administration system. In this case the village is the spearhead in the process of recording population data, which helps the official task population and civil records, can report population events or events or important phenomenon. These changes may be related with identity card or family card, birth, death, and so on. XYZ Village in recording population data it's still done conventionally with administrative services. Lots problems encountered in recording population and administrative services, just like when a citizen is about to submit a letter death, the writing of the letter was hampered due to the officer is not on the premises, or even the chief the village is not in place because on duty out, which document is it requires validation from the village head, this thing hinder service.

Literature Review

Information Systems

A collection of several interrelated components related so that it can produce an information certain, as well as data collection systems that organized and how to use it. System Information is a combination of people, equipment, processing instructions, storage, changing and disseminating information in a organization/institution.

Information System Function

The information system has the following functions:

- a. Collecting data from inside or outside enterprises.
- b. Processing data and processing it into meaningful and useful information.
- c. Store the information needed by enterprises.
- d. Distribute information to all user.

Village population data recording information system to help the population and records service civilians in the event of a population incident, namely: events experienced by residents who must reported as having an effect on issuance or change of family card, identity card resident/or certificate of residence Others include moving in, change of address, and the status of limited stay becomes permanent (Dirgahayu, Supriyono, Domai, & Saleh, 2021). While the important events in question are: events experienced by a person include: birth, death, stillbirth, marriage, divorce, child recognition, child ratification, adoption, name change and change citizenship status (Dirgahayu et al., 2021).

Problem Solving

Problem solving is the science section and the arts section. This is a state of mind that requires a lot thinking and analysis. Solution to problem requires a logical approach to sort out lots of data. Keep in mind, the solution is never clear. Effective problem solving can be the best solution, marked with things like the following:

1. Understanding of the real needs of the situation. It involves a level of research and data collection, followed by analysis detail to reach a real understanding.

2. Awareness of the business environment. Troubleshooting should be done in context of the problem in the surrounding environment. That matter must be taken into account, in order to find practical, effective solutions.
3. Actively communicate. problem solving it is best to communicate with involve various stakeholders.
4. Well, penetrating the question. Understanding and learning comes from asking a lot questions that reveal new facts, which leads to more problems.
5. Deal with the facts, only the facts. Effective problem solving is necessary erase the emotions and politics surrounding the issue and solution.
6. Think analytically. Troubleshooting starts from state of ignorance and uncertainty and growing understanding and certainty through analysis and thinking.
7. Full and thorough diagnosis. Solution problem is all about analysis, discoveries, and insights from facts.
8. Creativity and innovation. The best solution for problems often come from "out of the box" ideas.
9. Applying new ideas and tools to problems encountered. A solution only effective if it can be implemented and give the desired result.
10. Writing an effective report. An articulation clear from the problem analysis, conclusions, and Important recommendations for selling solutions.
11. The accepted solution. Get buy-in throughout analyzing the problem, and the solution suggested is important.
- 12.

Here's a simple framework that can provide the necessary structure for help solve problems in the environment unstructured.



Figure 1. problem solving framework structure (Ma, Jaggi, Curtis, Srebro, & Takáč, 2021).

Pieces

PIECES itself is an abbreviation of Performance, Information, Economics, Control, Efficiency, Service. These PIECES have six parts, of each of the six parts a check list is made, each check list in the as the name implies will cause problems. The following is an explanation of each part PIECES :

1. Performance (P) = Throughput, response time (system performance).
2. Information (I) = Outputs, inputs, data storage (information that served).
3. Economic (E) = Costs, benefits (benefits achieved).
4. Control (C) = Security (security system).
5. Efficiency (E) = People, users, machine (people efficiency and process).
6. Service (S) = Service that given.

Method

The method used in system design This villager's information refers to problem solving framework. Problem Solving The framework consists of 4 stages, namely problems definition & planning, data gathering, data analysis and synthesis, and recommendations & solutions. The most important and important steps are: Problem Definition & Planning, at this stagethe problem will be known, besides that analysis of the problems that occurred, and This stage is planning for problem solving done. Problem analysis is done by using the PIECES framework approach (Whitten, 2007). Next is the Data Gathering stage, on This stage conducts a site visit to the service section village population, by interviewing personnel service department, then study the documents used in the service process

to make it easier to understand the material then determined by the liaison officer from the service department. Conduct discussions with stakeholders village decisions in the context of collecting data related to policies, namely the village head, secretary of the village head (scribe), and the population service. The next stage is Data Analysis and Synthesis, at this stage is done outside the object researched, which is carried out internally by the researcher alone or in a team system designer/developer. This stage carry out the analysis and synthesis processes that refer to to the data that has been collected. Expected from the results of this analysis and synthesis can produce a decision or the development of a new system capable of solving problems that have been discussed in the previous stage. The last stage is Recommendation and Solution, this stage is the conclusion of problem solving. So that it can be understood by all parties, this conclusion contains about recommendation.

Results and Discussion

PIECES analysis results on services villagers at the time of the present condition, as following :

Performance

- a. Response time: Making a certificate and other letters are written using word processing application, in this case the tools using microsoft office, and number letter was determined at that time. Impact number letters are not well organized, and data the resident who made the letter did not stored in the database. Besides the letter not made in duplicate, so that when the concerned citizen lost the letter the village office is not available the archive. Finally the officer had to make again from the beginning, and sometimes officers service is not in place because he was on duty outside the office. Likewise when there are new residents who will stay not directly recorded.
- b. Throughput: Poor response time resulting in less than optimal the performance of the service department to citizens in the process of making letters needed. And the invalid number of citizens recorded at the actual amount.

Information

- a. Outputs
 - 1) To find out the number of residents who actually the village is always looking for documents that sometimes the document is not archived with good, and sometimes have to re-register back.
 - 2) To find out the wrong family member a villager sometimes difficulty.
 - 3) Information about residents who dead, born, and difficult immigrants to appear.
- b. Inputs
 - 1) Not everything is recorded about the data death, birth, immigrants, or residents who have moved.
 - 2) Not registered every citizen who apply for a certificate.
- c. Stored data
 - 1) Unorganized data storage well (have not used databases).
 - 2) Without good stored data, often the emergence of data duplication, so that resulting in the available data not valid.

Economics

A lot of use of paper and photocopy then it requires money and space that is not a little.

1. Control
Process of saving, changing, and data deletion is easy to control, and data protected because the data is stored centrally on the server.
2. Efficiency
 - a. Residents who apply for a certificate is made, always must waiting for the village head for approval.
 - b. When the village head needs a report citizen data, reports are processed manually.
3. Service

- a. The system applied in the village is still manually, even when using a computer still stand alone, and all data stored on each PC's computer, so that when the village head needs information from the service department, must be first move to media storage such as flash disk, next data from the flash is transferred to a PC that is owned by the village head.
- b. If there is a data change, the data must be transferred back to the village head's PC so that the stored data is always up to date date.

Referring to the results of the PIECES analysis, the system XYZ village service that is running at the moment this is a lot of things to fix. This fix not just change the existing system, but change focused on related engineering with things better and clearer, so that village services to the community be faster, more effective and efficient. Use The PIECES framework is intended to avoid fatal failures in implementation engineering process. The following is a recommendation or solution given, it is hoped that this recommendation can solve the problem. As for recommendations is like the following.

Performance

Troughput

- Officers always record / update data on residents, both immigrants, residents who moved, residents who died, and residents who give birth.
- Citizen registration is always stored in the database.

Response Time

- Preparation of documents required by residents, officers write directly in the application, and stored in the database. So that when a letter with a number and subject for residents who the same needs to be reprinted, so the officer can print it quickly her back.
- To record residents and update citizen data, it can be done anywhere and anytime

Information

Inputs

- Citizen data recording is no longer done manually, but is inputted and stored in the database.
- Likewise with the preparation of letters requested by residents all stored in the database.

Outputs

- Fast in the process of searching data.
- Can quickly find out the data of family members.
- To find data on residents who died, gave birth, moved, or newcomers will be quickly identified.

Stored Data

Penyimpanan data dikelola secara terorganisir, sehingga tidak ada duplikasi atau redundansi data.

Economic

- With the client-server based application, there is no need anymore archive data in hardcopy form, as well as in reporting generation.
- Data collection is always carried out for new residents, who moved, died, or giving birth
- Making letter requests is always stored in the database.
- Save on filing cabinets.

Control

With the proposed system, data integrity will be guaranteed, and data changes that occur will be easily controlled and controlled, because the data is stored on the server.

Eficiency

- Interested parties with citizen data will be faster know it, unhindered by place and time.
- Officer in serving the preparation of the documents required by residents are faster, because the framework and citizen data are already available already integrated.
- The village head will easily and quickly view the residents' data reports village.

Services

- The application is a web system, all data is stored on the server, so that to access it simply use a web browser.
- Interested parties can directly view the report data through an application that is already available
- Because the data is stored on the server, and there is no data redundancy, so that when the local government at the sub-district level or The district asks for village population data, the village doesn't need it anymore do a census.

In addition to generating solutions or recommendations based on PIECES analysis, too recommend about the proposed system is client-server based.

Conclusion

The process of analyzing the village service information system XYZ uses the PIECES framework produce solutions and recommendations in the form of systems village service information should be client-server based. It is hoped that with a client-server basis, village services to its citizens become faster, effective and efficient.

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