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# Enterprise Architecture Planning at KSP Artha Nugraha Klaten Using Enterprise Architecture Planning (EAP)

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A R T I C L E I N F O

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ABSTRACT

In the era of technological development in today's era, almost all fields use technology to support performance so that it gets faster and increases. This also applies to cooperatives. The Artha Nugraha Savings and Loan Cooperative is a private cooperative that is developing in Klaten Regency. This cooperative, located in Klaten Regency, requires the use of information technology in developing technology for better operational governance, of course, by maintaining the goals of the cooperative. The main activities of the cooperative are registering new members, savings and loan business functions, managing savings and loan reports and member resignations, supported by supporting activities, namely administrative management and HR management. Therefore, to speed up work in cooperatives, careful planning is needed, using the Enterprise Architecture Planning (EAP) method to help strategically design a process in the development of information technology in the form of enterprise architecture. The results of the design that has been made will produce a data architecture, an application architecture, and a technology architecture that will make it easier for officers or cooperative management to obtain accurate, relevant, and fast information.



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## 1. INTRODUCTION

The world of technology in today's era is increasingly advanced and growing more rapidly. For now, the human mind's ability to catch up and balance with the times is very easy to balance and easy to pursue. The development of information technology is able to improve the performance of organizational activities so that these activities can be carried out quickly, precisely, and accurately so that information technology can help achieve the vision and mission of the organization (Saputra, Antoni, & Akbar, 2021) .

Strategic planning can be carried out by various organizations or institutions so that the vision and mission of the organization can be achieved. One example of an organization is the Savings and Loans Cooperative (KSP). Based on the General Provisions of Article 1

of Law No. 17 of 2012 (Perkoperasian, 2012), the definition of Savings and Loan Cooperatives is that "Savings and Loan Cooperatives are cooperatives that run a savings and loan business as their only business." with the aim of improving the welfare of cooperative members and, in general, all of society.

One of the Savings and Loans Cooperatives (KSP) in Indonesia is the Artha Nugraha Savings and Loans Cooperative (KSP), which is located in Tegalsari village RT 02 RW 04 Trunuh, South Klaten, Klaten. KSP Artha Nugraha is a savings and loan cooperative that has the main task of saving and providing loans to members and prospective members. Thus, to support the smooth running of the task, the role of the information system is needed to assist and manage savings and loan cooperatives (managing the acceptance of new members, managing member savings and loans, and financial management by producing savings and loan reports).

This gap can be reduced through a paradigm in planning, designing, and managing information systems called Enterprise Architecture (EA), with the hope that the system can be utilized to achieve alignment of information systems with business functions run by cooperatives. One method that can be used is Enterprise Architecture Planning (EAP) from the Zachman framework. EAP is simpler to learn and has been widely used in previous research with each problem in each organization (Mastan & Stefanus, 2021).

Previous research using the EAP method was conducted by Calvinia Flora Widjaja and Setiawan Assegaff (2021) with a case study of PT. Eternal Palm. This research was conducted with the aim of getting a clear picture of how to design an enterprise architecture and how to get a good enterprise architecture that can be used by PT. Palma Abadi to achieve its strategic goals (Widjaja & Assegaff, 2021).

Research conducted by Adimas Agil Pangestu and Kristoko DH (2021) with a case study of the Salatiga City Dispora aims to produce a blueprint for IS/IT proposals to become the basis for the strategic business process activities of the Salatiga City Youth and Sports Office (Pangestu & Hartomo, 2021).

Furthermore, there is a study written by Seni Meilani Putri, Umi Hayati, and Rizal (2020). This research is related to an EMR design that aims to help the process of managing medical record data so that services and archive storage are better and can reduce errors that occur (Putri, Hayati, & Dzulkarnaen, 2020).

This research was conducted with the aim of making an information technology design in the form of an enterprise architecture by providing information related to the main entity of a business function, applications that can be used to manage business functions, a technology platform that is able to provide an environment for an application and recommendations.

## 2. RESEARCH METHOD

Explaining research chronological, including research design, research procedure The method to support the preparation of this research uses data collection methods consisting of (Sasue & Wijaya, 2020):

a) Literature review

Look for some quality journals on EAP related to the research topic. Then study it and understand it as a tool in research.

b) Observation

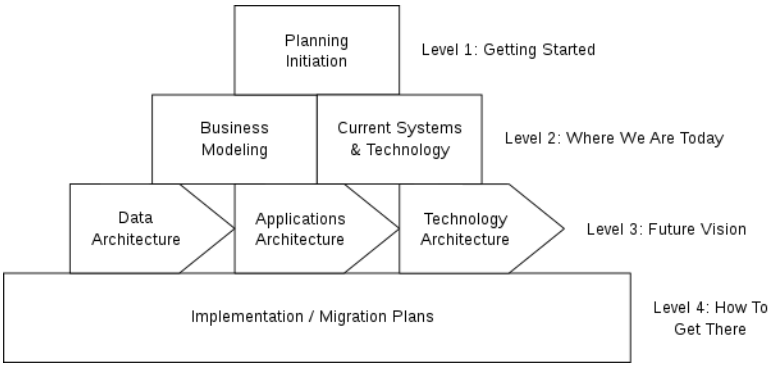
It is useful to see things or data directly related to the material needed in the preparation of research, such as goals and organizational structure and existing information technology policies.

c) Interview

Conduct interviews or questions and answers with KSP Artha Nugraha employees, which are useful for obtaining data that will be processed to carry out strategic planning of information systems.

In the Enterprise Architecture Planning (EAP) methodology, which is a derivative of the Zachman framework, the stages are as follows (Wikiwand, 2019):

Pict 1. Enterprise Architecture Planning




1) Level 1: Planning and Initialization

This stage is very important in that the scope, vision, mission and planning of activities or work plans are defined, determining the methodology to be used, the resources involved and determining the tools to be used. The result of this layer is an enterprise architecture planning work plan and support from enterprise executives and management (Krisetya, Cahyono, & Latuperissa, 2014).

2) Level 2 : Where We Are Today

This stage has two stages, namely business process modeling and current systems and technologies (Trisminingsih & Putra, 2017).

- Business Modeling

Develop a knowledge base about business and information that can be used in carrying out business activities with the aim of providing a complete and thorough knowledge base that can be used to define the architecture and implementation plans.

- Current Systems & Technology

Used to define the technology platforms and systems that will be used in the current enterprise and provide a long-term reference.

3) Level 3 : Future Vision

In this 3rd layer there are 3 stages, namely:

- Data architecture

Defines the main types of data used to support business activities. Consists of data entities that have their own attributes and relationships to other data

- Application architecture

In this application architecture defines the main types of applications needed by organizations to manage data and support business functions (Khusna, Kusrini, & Arief, 2013).

- Technology architecture

The technology architecture aims to define the technology platforms needed to provide the environment for applications that are used to manage data and support business functions (Subagio, 2012).

4) Level 4 : How To Get There

This 4th layer is about the implementation plan. At this layer, the very last part of the Enterprise Architecture Planning (EAP) model which defines the stages for application implementation, From these results, the estimated time plan is used to build the system development for the next few years (H. S, 2014).

## 3. RESULTS AND DISCUSSIONS

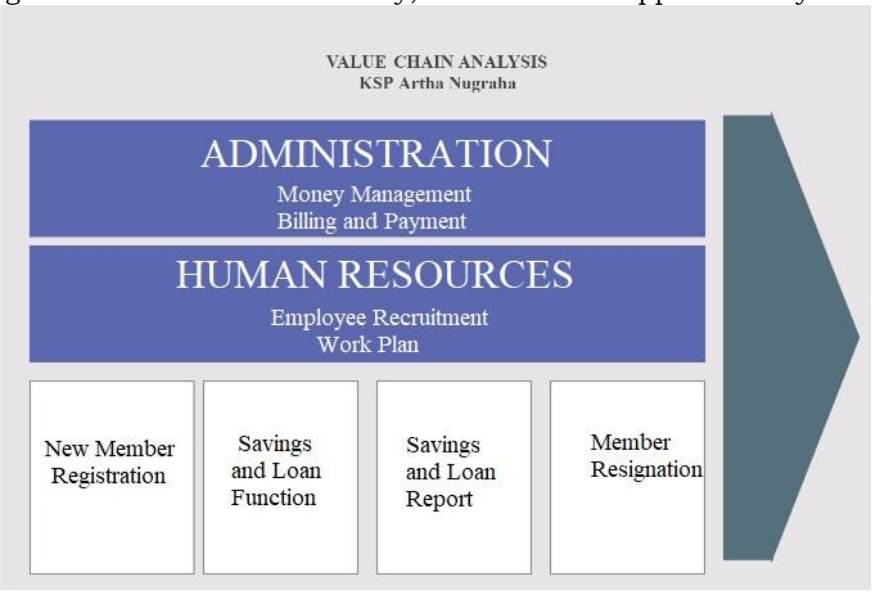
1. Planning and Initialization
   A literature study is the initial stage used in the planning initiation stage.

a. Business Scope One of the private savings and loans cooperatives developing in Klaten Regency is KSP Artha Nugraha. The business activities carried out by KSP Artha Nugraha are to carry out a savings business function and a loan business function.

b. Vision and Mission of the Company KSP Artha Nugraha is a cooperative that has a vision and mission in carrying out its duties and responsibilities. The vision of KSP Artha Nugraha is to become a cooperative that grows, develops, bears fruit, and is independent so that it is beneficial for members and the surrounding community. Meanwhile, for Artha Nugraha's KSP Mission, namely:
   - Expanding the business network in each district,
   - Become a well-known and trusted cooperative.
   - Establishing Human Resources management competencies cooperative
   - Creating loyalty among members and prospective members.
   - Member satisfaction is a service priority.
   - Increase turnover, assets, and welfare of members.

2. Where We Are Today

At this stage, it produces a value chain with the aim of knowing the activities and activities carried out at KSP Artha Nugraha. In the value chain in enterprise business, there are 2 categories: the first is main activity; the second is support activity.




Picture 2. Value Chain KSP Artha Nugraha

Main activities consist of new member registration, savings and loan functions, savings and loan reports, and member resignations. Meanwhile, the supporting activities consist of administration and HR. The value chain model can be seen in Picture 2.

3. Future Vision

A. DATA ARCHITECTURE

Candidate data entities are obtained from existing business functions in the organization based on the value chain. The purpose of this stage is to define data entities that will be used for business processes (Farsal , 2014).

Table 1. Candidate Data Entities

| **Business Entity** | **Data Entity** |
|---|---|
| New Member Registration Entity | - Registration<br>- Information<br>- Member<br>- Membership card |
| Savings and Loan Function Entity | - Savings<br>- Loans<br>- Submission |
| Savings and Loans Report Entities | - Deposit reports<br>- Loan report<br>- Billing and payment reports |
| Member Resignation Entity | - Resignation report |
| Administrative Entity | - Flower processing<br>- Billing and payment processing |
| HR Entity | - Employee recruitment<br>- Work plan<br>- Officer<br>- Manager<br>- Supervisor |

Table 2. Data Entities

| function<br><br>Data Entity | **New Member Registration** | **Savings and Loan Function** | **Savings and Loan Report** | **Member Resignation** | **Administration** | **HR** |
|---|---|---|---|---|---|---|
| Registration | CRU | | | | | |
| Information | CRU | | | | | |
| Member | CRU | RU | RU | RU | | |
| Membership card | CRU | | | | | |
| Savings | | CRU | RU | | | |
| Loan | | CRU | RU | | | |
| Submission | | RU | | | | |
| Savings report | | | CRU | RU | | |

| function<br><br>Data Entity | **New Member Registration** | **Savings and Loan Function** | **Savings and Loan Report** | **Member Resignation** | **Administration** | **HR** |
|---|---|---|---|---|---|---|
| Loan report | | | CRU | RU | | |
| Billing and payment reports | | | CRU | RU | RU | |
| Resignation report | | | | CRU | | |
| Flower processing | | | | | CRU | |
| Employee recruitment | | | | | | CRU |
| Work plan | | | | | | CRU |
| Officer | RU | RU | RU | RU | RU | RU |
| Manager | | | RU | RU | RU | RU |
| Supervisor | | | RU | RU | RU | RU |

C : Create, R : Read, U : Use

B. APP ARCHITECTURE

This stage is used to determine candidate types of applications used to support business processes. To produce an application architecture, there are several stages: first making a list of application candidates, and after that, each application is defined according to its function.

Table 3.Application Candidates

| **Business Process** | **Code App** | **Application Candidate** |
|---|---|---|
| New Member Registration | SI-PA | New Member Registration Application |
| Savings and Loan Function | SI-SP | Savings and Loan Function Application |
| Savings and Loan Report | SI-LSP | Savings and Loan Report Application |
| Member Resignation | SI-PE | Member Resignation Application |
| Administration | SI-A | Administration Application |
| HR | SI-SDM | HR Application |

Application Definition::

[1] APK Code : SI-PA
Name : Registration Application Member
Desc : The application is used to register prospective members to become members of the cooperative.

[2] APK Code : SI-SP
Name : Savings and Loan Application
Desc : The application is used to apply for types of deposits and loans, manage types of deposits and loans, as well as manage bills and payments.

[3] APK Code : SI-LSP
Name : Savings and Loans Report Application
Desc : This application manages reports on the calculation of savings, loans, bills, and member payments for monthly (monthly)

[4] APK Code : SI-PE
Name : Member Resignation Application
Desc : This application is used to take care of the resignation of members (removing members from the cooperative).

[5] APK Code : SI-A
Name : Administration Application
Desc : This application is used to manage the funds used to support the course of the cooperative.

[6] APK Code : SI-SDM
Name : HR Application
Desc : This application is used to manage the appointment or recruitment of cooperative employees and establish a work plan.

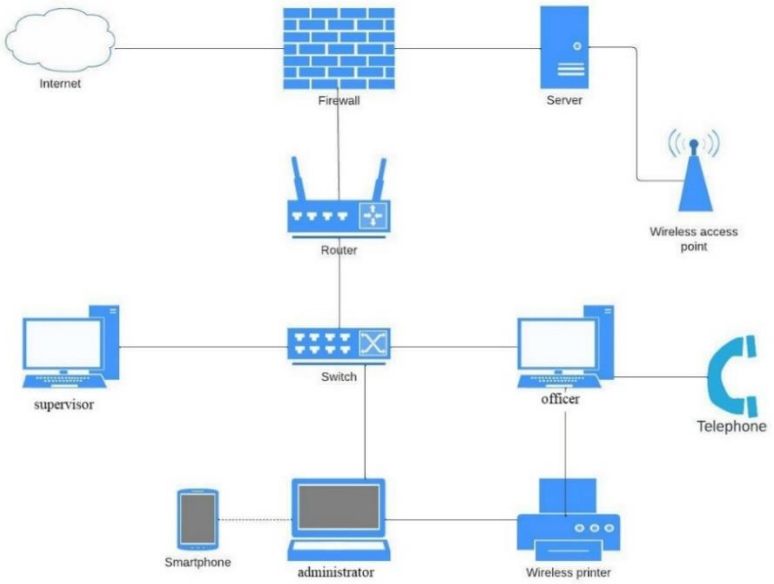
Table 4. Application Relations with Business Functions

| Application candidate / Business Function | **New Member Registration** | **Savings and Loan Function Application** | **Savings and Loan Report Application** | **Member Resignation Application** | **Administration Application** | **HR Application** |
|---|---|---|---|---|---|---|
| New Member Registration | CRU | | | | | |
| Savings and Loan Function | | CRUD | RU | | | |
| Savings and Loan Report | | | CRUD | RU | RU | |
| Member Resignation | | | | RD | | |
| Administration | | | | | CRUD | |
| HR | | | | | | CRUD |

**C : Create, R : Read, U : Use, D : Delete**

C. TECHNOLOGY ARCHITECTURE

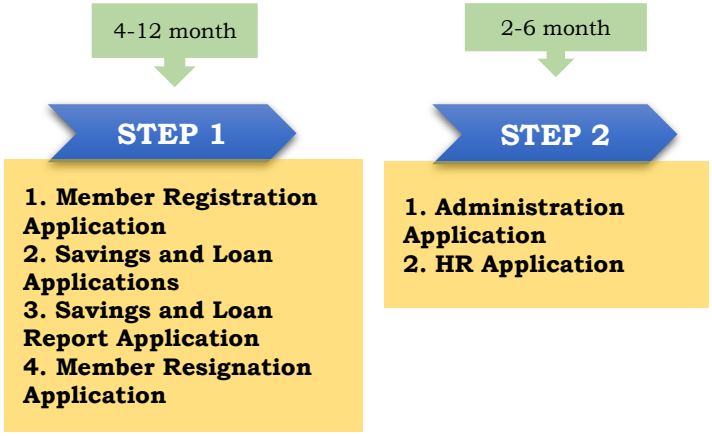
The figure below illustrates a technological architecture development that can later be used to improve system performance.




Picture 3. Technology Architecture

D. How To Get There

The last stage of this enterprise architecture is an implementation plan to develop an application that will be used later for the next few years to support performance. In this implementation phase, it contains an estimated time for the plan to be built and a total of 6 application projects to be built (Zaliluddin, Enterprise Architecture Planning Sistem Informasi Perusahaan Manufaktur (Studi Kasus : CV. Harta Jaya Perusahaan), 2015)




The development of each application is assumed to take 30–60 days on average.

## 4. CONCLUSION

Based on research and analysis using the Enterprise Architectural Planning method, it can be concluded that from the process of business activities at KSP Artha Nugraha, 17 data entities in the business processes needed to build and support business processes and in the development of information systems in the application architecture found a total of 6 applications that are used to manage and support business processes at KSP Artha Nugraha in order to improve services that are accurate, timely and integrated.

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