Design System Integrated Licensing Service - Based Information Technology

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Abstract The government management system, which has been a pointed and long hierarchical system of authority and command, must be developed into a network organization management system that can reduce decision making lines and broaden the span of control. Development of E-Government, it needs an in-depth concept to study and determine the workflow of a government process that will be developed and use technical standards and recommendations as a reference. In general, the objectives of this study are: (1) The establishment of quality, fast, and affordable network of public information and services to the wider community, (2) Formation of an interactive relationship with the business world to deal with changes and international trade competition. (3) Establishment of mechanisms and channels of communication with State institutions and the provision of public dialogue facilities. (4) Establishment of management systems and work processes that are transparent and efficient.

In this research specifically, the concept of e-government will be elaborated, which focuses on technological issues and then discusses the modelling of a one-stop licensing service system using the Unified Modeling Language approach which is one of the standard components in the e-government concept language in this study. To achieve these objectives, a method with several stages of activities is carried out as follows, namely: observing the licensing process and observations in several North Toraja District Offices, analyzing the requirements specifications in e-government development, creating a model of the one-stop licensing service mechanism that will be applied, making designs and making applications in the form of prototypes, after that implementation. The benefits obtained from this research are to increase the effectiveness and efficiency of work from the government, the bureaucracy path is more concise, the relationship between the government and the community and business people is increased, has greater opportunities and is open to join the global community.

1. Introduction
1.1 Aspects in E-Government Development
In addition to technological aspects, e-government is related to various non-technological aspects such as cultural aspects, organizational structure, policies and processes that take place in government. To facilitate management, e-government development is reviewed in two aspects or areas:

- Policy and planning aspects
  In this aspect discussed about the vision, mission, and strategy of e-government development, various kinds of challenges that will be faced in the development of e-government such as the
problem of rules on access to information, privacy, and confidentiality of documents, copyright, and others.

- In terms of application development

In this aspect, it is discussed about the development of e-government from a technical perspective, including technology choices, determination of required standards, implementation of security, system integration, etc.

Figure 1, visualizing aspects of e-government development above. From another point of view, the two areas are the separation of problems in the field related to technology with non-technological parts, but it needs to be developed to ensure the successful implementation of e-government.

![E-government Framework](image1)

**Figure 1. E-government Framework**

1.2 E-Government Technology

E-Government was developed using internet-based technology because it is more flexible, more widely used and easier in terms of data interoperability. By using internet-based technology, e-government can be integrated with e-business and various applications that already exist on the internet. A varied and more innovative service can be developed by taking into account data protection and privacy issues. Existing data exchanges use the XML format (eXtensible Markup Language), as shown in Figure 2. XML is the industry standard for determining document formats so that they are easy to manage, interchange and operate.

With a platform like the one above, the government, the community and business people can utilize data together and coherently. Because the internet technology used to develop e-government continues to transform world life in terms of social, economic and cultural aspects, it must be fully understood the potential possessed by the Internet. E-government that is developed must be a system that can be trusted (trusted system) that is able to attract the interest of the community to use it. And security are two fundamental pillars in developing a system that can be trusted.

![Interoperating e-government networks](image2)

**Figure 2. Interoperating e-government networks**
1.3 E-Government System.

The e-government system was developed in layers (layered) both in terms of the technology used and the services offered.

Information Technology Framework for E-Government.

The general strategies that can be used in e-government development are as follows:

- Open standard system
- Model of Computing client / server
- Internet / Intranet
- Collaboration for evolutionary integration
- Multimedia services

1.4 E-Government Architecture

The e-government architecture that will be developed consists of three layers, namely transport service, basic service, and cooperative service. The transport service layer consists of the TCP / IP standard as an Internet protocol. The Basic Service Layer consists of services that run on TCP / IP protocols such as e-mail, file transfers, web, and directory access. Middleware at the cooperative service layer serves to facilitate the development and use of applications between departments or sections. Middleware is an architecture that serves to hide the rules or business logic that exists in the server so that the client does not know the process that occurs on the server. The middleware implementation can use COBRA (Comman Object Request Broker Achievement) from OMG.COM (Component Object Model) from Microsoft or EJB (Enterprise Java Beans) from SUN.

Public services provided can be developed directly from the Basic Service Layer or through applications developed that run above the Cooperative Service Layer. Services that run above the Basic Service Layer in the form of information and communication both one-way and two-way. While the services that run above the Cooperative Service Layer are generally in the form of transactions that require collaboration with other parties, such as banking and related departments.

Integrated Services. To provide integrated services, e-government is divided into three layers as follows:

a. Front Office

Functioning as a service center provided to the community. This Front Office has various media (channels) to present services. In addition to electronic services, the public can still use the benefits of non-electronic services using paper-based correspondence. Electronic services are concentrated on Internet based portals.

b. Back Office

Serves as a place to carry out processes and coordination to provide services, both services that are provided or based on community requests. Some services that may be provided in an integrated manner in this back office are, among others, handling certificates, births, deaths and marriages, education, health, taxation, tariffs, licenses, customs, policy rules and others. To provide integrated services, the components that must be met are the common infrastructure, integration enabling mechanism, and specific business processes.

c. Policy Development & Evaluation

Needed to improve the quality of e-government services continuously. This e-government architecture will cover the complexity of the bureaucracy needed to provide a service. This is very beneficial for the community, because the community does not need to know and be involved in the provision of services. The community only needs to mention the service they need, complete the requirements needed then wait for the process for the service. The community does not need to go to the department / office or office to resolve the issue.

1.5. E-Government Infrastructure

Infrastructure needs to be built to support the e-government system.

- Server with security system
This server is used to provide e-government services. The required server can consist of several servers for several services and departments/services, or one server for all services handled by that server. If each department/service uses its own server, this server can be placed at the ISP or intranet of each department/service. The function of each department/service server is to support e-government servers that are accessed directly by the public.

- Intranet in the department/service involved in e-government. This intranet or LAN (Local Area Network) is needed so that local government employees in each department/service can be actively involved in providing e-government services. Because in the implementation of e-government they are dealing directly with the services provided. Intranet is connected to the internet through several alternatives including VSAT, dial up and leased lines. The intranet of each department can be connected to each other using the internet network or independently. If the intranet is interconnected, data exchange can be done between intranets but if it is standalone, the data exchange is done through an e-government server.

1.6 Interpretable E-Government

The e-Government system that will be developed is e-government that is able to provide electronic services that are integrated with data and information management carried out in a distributed manner in the departments related to the data and information. So from the community side that uses e-government systems, all data management or information retrieval processes are seen from one application in one server - even though in the process of processing data interoperability occurs between servers that support the e-government system. While from the government side as a service provider, data and information management is carried out on the servers of each relevant department.

This system has advantages for both the community and the government. The public will avoid frustration in using this system, because he only faces one application to take care of various needs. Conversely for the government, information management will be easier, because each department can process information without being interrupted by other departments. To develop an e-government system that has integrated services and data interoperability, two things must be done before the system is implemented, namely:

- Determine metadata interoperability standards for the exchange of metadata between e-government servers of each department.
- Determine the exchange mechanism (interchange) and mirroring of e-government server among metadata.

So the information is actually stored and managed in each e-government server of each department, while what is exchanged is the metadata of that information. As an illustration, examples of population data are taken. This population data can be in the form of personal data (place of birth date, status, occupation, address, etc.), educational history, employment history, history of crime. It would be difficult if forced to manage this population data in one database server because the data is related to different departments. Personal data is managed in the sub-district office, education history is managed in the education and culture department, work history is managed by the labor department, and a history of crime is managed by the police office. A distributed system can be developed to manage this population data. Each department has its own database server to store and manage the population data that is the responsibility of the department. If complete population data is needed, there will be a mechanism for exchanging data between database servers in each department. The benefits gained from such a system are data integration, data duplication can be overcome, ease in managing and with a distributed system data processing becomes easier, because each department only manages data that is its responsibility.

1.7 E-Government Standards

To guarantee data interoperability, it is necessary to set standards and specifications in the development of e-government. These standards and specifications will be used as a reference for e-government development both at the time of initiation and later when e-government will be developed
and integrated with other systems. Standards and specifications required include interconnection problems, data integration, and data or information formats. The standards described in this paper are based on standards issued by the Internet Engineering Task Force (IETF) and recommendations made by the W3C (World Wide Web Consortium), as well as several other components that are widely known for their use.

2. Research Method

The research was carried out through several stages as shown in Figure 3 below.

![Figure 3. Research Stages](image)

The first phase of this study began with the identification of user needs which was carried out through observation of the licensing service process at the Regional Government Level II North Toraja. The second stage, the results of identification of system requirements are then analyzed to determine the functions or activities that will be applied in the system. The third stage is modeling the functions that will be implemented, doing the process of designing a complete system software using UML (selecting program packages that are appropriately analysis suitable for building systems). The fourth stage is the implementation of modeling in the form of a prototype, the fifth stage is the implementation of the prototype by attempting to register the investment licensing process, the inventory process of meeting results, the process of forming official memorandum and the district head's decision process are the parts that are implemented in the prototype. The sixth stage is testing.

2.1 Research procedure

In conducting this research, the steps are:

A. Determine user needs

Before designing a system, user needs are first determined which includes the capabilities and technical specifications that must be owned by the system. From this first stage will be obtained a need and specifications for the system that will be a reference in the implementation of the next stages.

B. Analysis of System Needs

From the results of the identification of system requirements, an analysis is carried out to determine the functions or activities that will be applied in the system.

C. Making a Model

Model the functions to be applied, then do the system design process in full using UML.

D. Prototype

At this stage the implementation of the modeling that has been obtained is in the form of a prototype. The model produced at the modeling stage is developed and made more detailed by including the technical aspects of design. From the prototype stage is specifying a design solution that can be easily translated into a programming language.

E. Implementation

The physical architecture of a system describes the structure of hardware and software in a system. The hardware structure includes the hardware needed to run the system and the
relationship between the hardware. Physical architecture also describes the physical structure of program modules and the relationship or dependency for each module with other modules.

Physical architecture is derived from logical architecture that is produced at the detailed design stage. All classes and mechanisms in the logical architecture are mapped to components and nodes in the physical architecture. Physical architecture includes two diagrams namely component diagrams that describe the structure of software and deployment diagrams that illustrate the structure of the hardware.

1. **Software Physical Architecture**
   To implement the system, the Java programming language is used because Java is one of the object-oriented and flexible programming languages, which can run many types of processors and operating systems. By using java, the design and mapping between class classes that are still logical in nature can be transformed and used directly into the component programming code to make prototypes.

2. **Hardware Architecture**
   **Web Based Application Architecture**

   A web-based applications have three main components, namely the web server, the connection to the internet network, and the browser located at the client location. The web server distributes pages containing information in a form that has been formatted to the requesting client. While information on a page is usually stored in a certain format that is fixed in a single file or database system. Requests from clients to access information available on a web server are done through the internet using the HTTP protocol. Data management / storage is carried out by the database server system.

![Figure 4. Basic Architecture of Web Based Application](image)

**F. Testing**

In this stage a trial will be carried out on the design that has been done then make improvements or corrections as needed. To improve services to the community, it is recommended that the North Toraja Regency Government establish an Integrated Licensing Service Unit. Integrated Licensing Services organized by the North Toraja Regency Government, is for licensing administration services in the North Toraja Regency.

**3. Results and Discussion**

Management of licensing services is carried out as follows:

1. The applicant contacts the information officer to obtain an explanation of the licensing requirements and the registration form,
2. The applicant submits an application to the Office or Section through the Integrated Licensing Services Unit of North Toraja Regency and submitted through the registration counter staff at the Integrated Licensing Services Unit.
3. Documents that have been examined and meet the administrative requirements are submitted to the Secretary of Integrated Licensing, to be informed to the relevant Regional Apparatus Organizations (RAO) / TEAM for technical considerations.
4. The Integrated Licensing Services Unit prepares a joint discussion meeting with certain RAO (Regional Apparatus Organization Unit) and officials appointed for and on behalf of the regent and other parties considered necessary as resource persons.
5. During the discussion meeting of officials appointed for and on behalf of the regent and certain RAO / TEAM and other parties deemed necessary to respond to requests for special permits and permits required.
6. Submission of technical considerations from RAO / TEAM by taking into account academic technical standards, property, strategic planning, RUTR / RDTR, as well as other policies determined by local governments.
7. Secretary, assisted by administrative staff in the Integrated Licensing Services Unit, inventory the technical considerations and recommendations submitted by the relevant RAO, as material for the preparation of minutes and technical suggestions / considerations submitted to the Service or Section.
8. The Service or Section responds to suggestions / considerations submitted by the Secretary of the Integrated Licensing Services Unit, in the form of approval, rejection or certain records that need further discussion.
9. If the Office / Section has provided a response containing approval, the Secretary of the Integrated Licensing Services Unit then drafted the permit decision concept and made and submitted a memorandum of service to the Head of Legal Section of the North Toraja Regency Secretary, for further processing into a Regent Decree.
10. In the decision of the permit contains the determination of permits and includes also the determination of other permits related to the implementation of licensing.
11. If the competent official (Office / Section) has provided a response that contains a rejection, the Secretary of the Integrated Licensing Service Unit drafted a rejection letter signed by the head of the Integrated Licensing Service Unit (regional secretary).
12. The Office / Section decision regarding the signed permit, or the rejection letter that has been signed, is returned to the Integrated Licensing Service Unit, to be given a registration number.
13. Integrated Licensing Services Unit coordinates the calculation of fees from all types of licensing, then submits information on the answer to the decision about the request and the amount of retribution that must be paid by the applicant.
14. The applicant pays retribution through the regional treasury office officer in the North Toraja Regency Integrated Licensing Service Unit.
15. The applicant makes a decision on a permit or rejection letter

Visualization of the licensing service mechanism can be seen in the following figure:
Information:
Submission of Requests; UPPT Meeting; Inventory of Meeting Results; Technical Consideration; Note Memorandum; Service / Section Responses; Request Validation; Ratification of Office / Section Decree; Information on Office / Section Decisions about Permits.

3.1 Modeling the UPPT Licensing System
This section will discuss the licensing modeling of the Integrated Licensing Service System (SPPT). PPT Licensing System Modeling is divided into two layers, namely PPT business process modeling and PPT modeling software.

3.2 PPT Business Process Modeling
The PPT business process explains how the Integrated Licensing Service Unit performs its functions. The business process of PPT is stated in the form of activity diagram. In this study, the business process is explained from the external side, namely the applicant and from the internal side, namely the user.

3.3 External Side
Business process from the external side or from the applicant's side is stated in the activity diagram in Figure 7. The applicant first goes to the UPPT office, if the applicant wants to register for a permit application, then the applicant goes to the registration window. At the registration window, the applicant can request information regarding the requirements required to submit an application. If the applicant has completed the requirements, the applicant can submit an application. After completion, the applicant receives a receipt of the application or registration receipt. If the applicant wants to know the outcome of his application, the applicant goes to the information counter and provides a sign of registration. After that the applicant gets information whether the application was accepted or rejected. If the application is accepted, the applicant gets a print out of the levy that must be paid. After paying, the applicant gets proof of payment, which will be exchanged, for a decision letter at the collection counter. Conversely, if the application is rejected, then the applicant gets a receipt to be exchanged for a receipt to get a decision letter of refusal, at the pick up counter.
Figure 6. Applicant Activity Diagram

4. Conclusion

From this study it can be concluded that:
1. At the stage of identifying the system needs can be revealed the weaknesses that occur in the licensing process in the District. North Toraja at this time.
2. With the obstacles that occur at this time in the current licensing process, it can be determined the functions of the system that will be developed in the integrated licensing service. With the model obtained, it can be described an integrated licensing service system in the district. North Toraja.

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