A service application prototype of citizen portal apps (C-PORT) for improving local government public services

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Abstract. Government services to community are not properly carried out without participation and liveliness of governmental units which have been set up based on their duties and service function. The reason is that they are the spearheads of the government services to community, especially in public services. The intended public services are focused on customer satisfaction (customer-driven government). In order to successfully achieve customer satisfaction, it is necessary to get feedback from community as service users so that government as service manager may cognize some complaints about the public services that have been provided. The community feedback can be delivered through complaint services that can be directly responded by the intended unit works. The aim of this study is to develop citizen portals (c-port) apps for service complaints to support public service management in order to realize the concept of smart districts based on local wisdom. The application has developed in android based as front-end for user (citizen) and as web-end for government and related regional work units. The result of study is a prototype, a product of citizen portals (C-Port) software as a mean of communication and media for government to provide services to wider community.

1. Introduction

1.1. Background of the problem
Along with the development of management of the organization of the country and in an effort to realize excellent and quality service, the paradigm of public service develops with a focus on management that is oriented to customer satisfaction (customer-driven government) [1]. This customer satisfaction is the feedback obtained from the public on the implementation of government services. To achieve good results, feedback can be carried out by various stakeholders involved including the community as service users, service management leaders and service implementers. This effort is one of the efforts to connect good governance with public services.

The development of information technology currently provides a huge opportunity to overcome problems related to public services, one of which is by applying the concept of smart regency. By applying the concept of smart regency, it is expected to be able to overcome the problems that occur in Pandeglang Regency, including Regional Leaders having difficulty in obtaining information and...
identifying poor services provided by several agencies because community reports are often not well documented or even the regional leaders do not know it. Community reports and complaints are often not resolved and even do not get a meaningful response. So that good relations, reciprocity and mutual support between the government and the community is difficult to materialize. By referring to the concept of smart regency that have been implemented in cities in the territory of Indonesia, the concept of smart regency is seen to have a vision that is in line with good governance systems by providing alternative solutions to a variety of problems at the regency and population level. The smart regency offers smart governance so that it makes it easy for its inhabitants to obtain information quickly and precisely as well as provide a decent, comfortable and safe life.

1.2. The purpose of the research
In general, the purpose of this research is to analyze and evaluate the readiness of Pandeglang Regency in applying the concept of smart regency to support service activities to the community, especially for service complaints against the implementation of government governance in Pandeglang Regency. Other purposes of conducting this research are as follows:

- Developing citizen portals (c-port) apps software for community complaints services as a means of communication between the community and the Pandeglang Regency Government.
- Good governance of complaints by handling complaints recorded in electronic storage media so that it can be neatly documented.

Provide recommendations reports to OPD-OPD related to complaints / reports of the community so that it can be used as a reference to improve services to the community.

2. Literature review and theoretical basis

2.1. Study of the concept of smart city and smart regency
Smart city framework models have been developed in various countries. Each framework that is developed usually follows the characteristics of their respective regions and which components of the smart city is the focus of development. The British Standards Institution develops a smart city framework by paying attention to four concepts namely visionary, citizen-centric, digital and open and collaborative [2]. The smart city concept was developed in the city of Vienna by promoting the concept of intelligence, creativity and analysis of the residents to support the creation of the smart city that was expected and also applied the City of Berlin, Germany by focusing on administrative, housing, economic, mobility, infrastructure and public security services [3,4].

Some cities in Indonesia which also participated in implementing smart cities include Jakarta, Bandung, Yogyakarta, Surabaya and Makassar. At the regency level, the smart city was successfully developed by the Banyuasin Regency Government which has succeeded in entering the top 25 national smart city ranks and was chosen as a pilot project in developing smart cities. In this case, the smart city concept developed by Banyuasin Regency has succeeded in improving public services, adequate infrastructure, proper health and education, and improving people’s economy [5,6]. In contrast to the development of smart city in various regencies in Indonesia, the development of smart cities in Pandeglang Regency is the development of smart cities that still maintain the existing local wisdom and culture of the community. The customs that prioritize religious life and mutual cooperation that are still maintained become interesting studies in the development of the concept of smart city based on local wisdom.

2.2. Public complaints service governance
Based on Presidential Regulation Number 76 of 2013 concerning Management of Complaints, in Article 1 number 8 it is explained that Complaints are the submission of complaints submitted by complainants to the public service complaint manager for implementing services that are not in accordance with service standards, or the neglect of obligations and / or violations of prohibitions by the organizer [7].
Complaints can be made by the public to certain agencies due to dissatisfaction related to public services organized by the government as the service provider. However, this should not always be responded negatively, because complaints from the community can provide constructive input, criticism or suggestions to the Government to improve services. Therefore, regarding complaints submitted must be managed properly, so that the information submitted related to complaints can be known by the policy stakeholders. Customer complaints are one of the best indicators to determine whether the services provided are as expected by the customer, such as the services in the business world. To improve complaints services can be carried out online where complaints can be conducted by utilizing information / internet technology [8,9].

3. Method
The research carried out was designed for one year with the following stages:

- Focus group Discussion (FGD) to collect and obtain input in the form of additional information related to the development of citizen portals (c-port) apps related to complaint services.
- Preparation of Specification Documents of Software Requirements.
- Preparation of the Software Design Description (DPPL) document containing the documentation of the C-Port application design.
- C-port Application Implementation with stages of Coding, Installation and Testing of the System.

4. Results and discussion

4.1. Analysis of information needs

4.1.1. System function analysis

1) Login Function (C-PORT APPS-01). This function is used for the process of user entry into the system, divided into four sub-functions, namely:
   a) Public Login Function (C-PORT APPS-01-01), this function is used for the public login process when registering, updating profiles, submitting complaints, reply to comments, check the status of complaints and see the display history of complaints.
   b) Administrator Login Function (C-PORT APPS-01-02), this function is used for the login process for managing operator data, managing OPD data, validating OPD data and making reports on complaints.
   c) Operator Login Function (C-PORT APPS-01-03), this function is used for the login process to respond to customers, to see customer history displays and make complaint reports.
   d) Login function of Head of Department / OPD (C-PORT APPS-01-04), this function is used for the login process to display graphs of complaints and make complaints reports.

2) Registration Function (C-PORT APPS-02)
This function is used by prospective users, i.e. public who will make a complaint or require services in order to access the C-Port Application

3) Update Profile Function (C-PORT APPS-03)
This function is used to complete user profile data, i.e. public who already has an account.

4) Function to Submit Complaints (C-PORT APPS-04)
This function is used by public to make complaints to the relevant agencies on issues raised by public.

5) Function to Check Complaint Status (C-PORT APPS-05)
This function is used by the public to see the status of complaints that have been submitted to the relevant department.

6) Function of Viewing the Complaint History Display (C-PORT APPS-06)
This function is used to display the history of complaints, divided into two sub-functions, namely:

a) Function to see display history of public complaints (ACPPB-06-01), this function is used by public to view the history of complaints.
b) Function to see Operators display history of complaints (ACPPB-06-02), this function is used by the operator to view the history of complaints of all complaints users namely the public.

7) Management Function of Operator Data (C-PORT APPS-07)
This function is used to perform operator data processing. This function consists of several sub-functions, namely:

a) Function to Add Operator Data (C-PORT APPS-07-01), this function is used to add Operator Data
b) Function to Update Operator Data (C-PORT APPS-07-02), this function is used to store the corrected Operator Data.
c) Function to Erase Operator Data (C-PORT APPS-07-03), this function is used to erase operator data.
d) Function to Search Operator Data (C-PORT APPS-07-04), this function is used to search Operators Data.
e) Function to Save Operator Data (C-PORT APPS-07-05), this function is used to carry out the storage process of Operators Data.

8) Function to Manage OPD Data (C-PORT APPS-08)
This function is used to perform data operator management. This function consists of several sub-functions, namely:

a) Function to Add OPD Data (C-PORT APPS-08-01), this function is used to add OPD Data
b) Function to Update OPD Data (C-PORT APPS-08-02), this function is used to store corrected OPD Data.
c) Function to Erase OPD Data (C-PORT APPS-08-03), this function is used to erase operator data.
d) Function to Search OPD Data (C-PORT APPS-08-04), this function is used to search OPD Data.
e) Function to Save Operator Data (C-PORT APPS-08-05), this function is used to carry out the process of storing OPD data.

9) Function to Validate the Complaints Data (C-PORT APPS-09), used to validate complaints data from public.
10) Function to Validate the Complaint Graph (C-PORT APPS-10), used to display graphs for complaints.
11) The Function to Respond Complaints (C-PORT APPS-11), is used to provide responses to complaints submitted by public.
12) Function to Make Complaints Report (C-PORT APPS-12), used to print reports generated by the c-port apps application

4.1.2. System user analysis. The users (Actors) involved in the Citizen Portals Application (C-Port) Apps for Complaints Services are described in table 1 as follows:
Table 1. C-Port apps application user table.

| User Level                              | Access rights                                                                 |
|-----------------------------------------|-------------------------------------------------------------------------------|
| Internal Users (Administrators)         | Manage applications including application setup, granting access rights and statistical data analysis on C-Port Apps applications. |
| External Users (Public, OPD Operators and Head of Department / OPD) | Public: Access the main page, registration form, update profile and post complaints. |
|                                         | OPD operator: accesses the complaint page, responds to complaints and makes a report for each OPD handled. |
|                                         | Head of Department / OPD: access reports in accordance with the needs of each OPD. |

4.1.3. Software and hardware analysis. Hardware needed includes hardware requirements that will be used in this research is a laptop with Asus X550V Intel Core i7 7700HQ Processor specifications, 8GB RAM, 1 TB VGA Hard Drive Nvidia GeForce GTX 950.

The software requirements needed in developing C-Port applications are as follows:

- Windows 10 from Microsoft as an operating system
- MYSQL server, as an application running DBMS
- PHP as a program used to develop applications
- Notepad ++ as a professional HTML and PHP editor
- Apache as a web server
- Google Chrome as a web browser.

4.2. Designing C-Port apps applications using usecase diagrams

Usecase diagram is diagrams that illustrate the ongoing activities or interactions of the actors involved and the system. Usecase diagrams are used to obtain the functional requirements of the existing system. The following is a usecase diagram for the citizen portals (c-port) application for complaint services. The following is the design of the c-port apps application for the complaints service submitted by the community:

![Figure 1. Usecase diagram for C-Port apps.](image-url)
4.3. Data modeling using entity relationship

Database design is described using Entity Relations Diagram (ERD). Entity relationship diagram (ERD) design is intended to provide an overview of the relationships between tables that contain data to be processed by the system. This relation also at the same time shows the distribution of data between the tables to be built and provides a brief description of what data requirements exist in the system. The following is the ERD design for the citizen portals (c-port) application for public services Community Complaints are described in Figure 2 as follows:

![ER-diagram of C-Port apps application.](image)

**Figure 2.** ER-diagram of C-Port apps application.

4.4. Interface design

4.4.1. Login interface design. The Login Interface Design is a display that is used to log in for system users such as Administrators, OPD Operators, Public, and Heads of Department / OPD to be able to enter the main page of the system and can make transactions based on access rights that have been granted by the Administrator. The following is a design for the login process so that System Users can use the system according to their needs.

![Login interface design.](image)

**Figure 3.** Login interface design.

4.4.2. Design of interface submit/Post complaints. The interface design of Complaints Posting is used to add complaints that will be made by the community. The following is the design of interface for posting complaints on the Citizen Portals (C-Port) application.
4.4.3. Prototype of citizen portals (C-Port) apps application complaints service. The following is a prototype of the Citizen Portals (C-Port) Application Complaints / Complaints Service Application:

Figure 4. Design of interface submit/post complaints.

Figure 5. Login page display application login.

Figure 6. Display of page responding to complaints.

5. Conclusion
Based on the results of research that has been carried out to date, it can be concluded several things as follows:

- This research has succeeded in identifying information needs related to smart city development through several Focus Group Discussion (FGD) activities attended by representatives of agencies in the Pandeglang Regency Government. In this case the FGD was carried out in the Smart Space of Diskomsantik and Unsera Command Center Space at UNSERA.
- Visit activities and FGDs that have succeeded in identifying the software requirements needed by the OPD in the Pandeglang Regency Government.
- This research has succeeded in designing a citizen portal (c-port) apps application that is used to improve public services, namely the public complaints service. This C-Port application is designed as a means of communication between the Pandeglang Regency government and the community in order to improve public services.

Acknowledgment
The acknowledgment was conveyed by the Ministry of Research, Technology and Higher Education, that has funded this research with the Higher Education Leading Research (PTUPT) scheme for the 2019 fiscal year.

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