

Developing A Low-Cost E-Government Concept in Pagar Alam

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Abstract- The purpose of this research is to make a government concept that is cheap and applicable to Pagar Alam City, so that it can increase authority in utilizing technology and support the realization of the vision and mission of Pagar Alam City. Cheap e-government is a system that can provide a faster and easier service that prioritizes better service to the public; Citizens can request information electronically from the government, the public can request permits online, taxes and fines can be online, report crimes through e-government sites including complaints or making ID cards, driver's licenses, passports and important letters online. Some of the cheap e-government concepts are: Standardized E-Government, Simple System E-Government, Investment E-Government, Sustainable E-Government and Shared E-Government Infrastructure. The research resulted in a concept of an inexpensive government system that could be implemented in the city of Pagar Alam

Index Terms – E-Government, Information Technology, Low-Cost Development, Pagar Alam

I. INTRODUCTION

The development of information and communication technology has provided solutions to improve the performance of public services through e-government. The aspects of human resources, budget costs, facilities, and infrastructures must exist in e-government development. Through the implementation of e-government, authorities can offer better services to the public. This is notably more needed in developing countries where public services are inefficient.

Indonesia, as a developing country, has experienced a positive trend in implementing e-government application

in their public services. Data from the Ministry of Communication and Information (2018) revealed that until the end of 2018, there were 281,467 registered domain IDs. More specifically, 271,193 domains (96.35%) were from Indonesia, and 10,274 (3.65%) of them were from abroad (e.g., the United States, Singapore, Australia, and Japan). This figure increased as much as 12% from 2017. This encouraging evidence occurred because several local governments in Indonesia have exhibited favorable progress in implementing e-government.

Nevertheless, despite the growth, there still exist several limitations. From a financial standpoint, the amount of funds spent on e-government development is negatively disproportionate with the results obtained. It needs an immense amount of financing to build a government system in Indonesia. This is evident in the development of the Traffic Information System in the city of Palembang. The authority in the city spent Rp. 7,677,414,000. (seven billion six hundred seventy-seven million four hundred fourteen thousand rupiahs). There was also the cost of Rp. 700,000,000 (seven hundred million rupiahs) to build the Area Traffic Control System (ATCS) (<https://lpse.palembang.go.id>). Similarly, the city of Bandung disbursed an amount of Rp. 6,400,000,000 (six billion four hundred million rupiahs) to maintain the Area Traffic Control System (ATCS); and as much as Rp. 3,655,000,000 (three billion six hundred fifty-five million rupiah) for ATCS maintenance rehabilitation (<https://lpse.bandung.go.id>).

The Indonesian government should avoid desultory establishment and should present clear concepts during the process of e-government development. With this in

mind, it is possible to create low-cost e-government and still attain desirable results. Based on this background, this study aims to develop a concept of a low-cost e-government system in the city of Pagar Alam. From a practical perspective, this attempt could help the government in the city to efficiently manage their resources and eliminate challenges. This program, in the end, could potentially facilitate the government to provide better public services to the citizens of Pagar Alam.

II. RESEARCH METHODOLOGY

This research aims to develop a more profound and explicit conceptualization of the development of a low-cost e-government system. This study used literature reviews as the primary method to fulfill the aim. The literature reviews were employed because it can create a strong basis for advancing knowledge and development theory (Webster & Watson 2002).

A systematic literature review involves three sequential activities of input, process, and output (Levy & Ellis 2006). This study has conducted reviews of low-cost e-government literature which included all those activities. The reviews incorporated all perspectives of academic, practical, technical, social, and information system processes.

In the procedure, this study identified journal articles from Google Scholar, McGraw Hill, University Of California, columbia.edu, and Wiley Online Library. The terms used were "standardization of e-government system in Indonesia", "simple system e-government in Indonesia", "investment e-government in Indonesia", "sustainable e-government in Indonesia", and "shared e-government infrastructure in Indonesia". Table 1 shows the results of searches for journal articles using the keywords above.

TABLE 1. TOTAL ARTICLES PER DATABASE

No	Database Name	Low-Cost E-Government Concept				
		SP	ST	IN	ST	SA
1	Google Scholar	273	899	249	207	146
2	McGraw Hill	136	222	1	-	12
3	University Of California	2	2	2	-	-
4	columbia.edu	1	-	1	-	1
5	Wiley Online Library	4	2	1	-	1
Total		416	1225	255	207	160

Note: ST: Standardization, SP: Simple, IN: Investment, ST: Sustainability, SA: Shareability

This study first read the abstract of the articles. If they were relevant, the process continued to analyse the whole article contents. In the course of the literature study, the critical concepts revolved around "simple systems,

standard systems, investment systems, sustainable systems, and share e-government". The results were then recorded and developed into "low-cost" and "e-government" for a clearer understanding. Further, this study employed the International Organization for Standardization (1998) as a guide in developing the concept of low-cost e-government. This was beneficial to identify low-cost factors that are substantial for the development of e-government service.

III. E-GOVERNMENT IMPLEMENTATION IN PAGAR ALAM

One of Pagar Alam's visions is to make Pagar Alam an advanced city with the concept of community welfare, economic magnificence, and equality in education. This indicates that Pagar Alam aims to make e-government as one of the primary supports in the welfare of its people. This is apparent as the city has implemented e-government in the form of a website (see: www.pagaralamkota.go.id). The principal function of the website is to provide information to the city's stakeholders (e.g., public and private sectors). Despite the effort, the implementation of such e-government still encounters several challenges, particularly in website management. For example, within the application, numerous business contents on Your Business Profile menu are inaccessible. Your Business Profile page is intended for residents of Pagar Alam who own businesses in the field of home industry, entrepreneurship, service, and others. This feature operates to publish business profiles in electronic media so that all people around the world can access them. Nevertheless, with the ineffective e-government application, such purpose is futile.

IV. LOW-COST E-GOVERNMENT CONCEPT

Low-cost e-government is a system that provides faster, easier, and better services to the public. Actions citizens can perform online through e-government are as follows: (a) requesting information electronically from the government; (b) requesting permits; (c) paying taxes and fines; (d) reporting crimes; (e) proposing complaints; (f) creating documents such as ID cards, driver's licenses, passports, and others. Some of the low-cost e-government concepts are: standardization of e-government, simple system e-government, investment e-government, sustainable e-government, and shared e-government infrastructures.

A. Standardization of E-Government Concept

Reference [1] developed a basic framework for the e-government system in Indonesia based on the following principles: (a) reusability - which is building a flexible system so that it can be utilized by various levels of

government (Central, Dati I, Dati II); (b) inform - which is building a system that can provide complete and standardized information about government institutions and local governments for broad purposes; (c) accelerate - which is building a system that is time-efficient in transaction flows or work processes; (d) reduce - which is building a system that can diminish unnecessary costs, provide cost transparency, and minimize errors in transactions or the process of making residence certificates; (e) improve - which is building a system that can enhance services to the community, businesses, and other government institutions, and also strengthen community participation.

B. Simple System E-Government

Reference [2] affirmed that the stages of e-government development are as follows: (a) Emergence - at this stage, the usage of a website is a means of publishing information. However, the available data and information are merely a vision, mission, and activities of the organization. Also, at this stage, the website remains a one-way communication tool, and there is no electronic interaction between the government and the public. (b) Enhance - at this stage, the e-government system has provided links that connect with certain information, such as permit forms, documents, reports, and regulations. (c) Interaction - at this stage, webpages presented by a government not only provide exposure and information but also facilitate electronic communication so that two-way communication can be created between government and communities. (d) Transaction - at this stage, e-government systems have provided 24-hour services, such as making, extending, or renewing agreements, passports, particular identity cards, or others. (e) Transformation - at this stage, all government agencies have been integrated into one webpage. These integration and transformation provide one-stop service for communities.

C. Investment E-government

Reference [3] stated that a government has to invest in order to sustain the long-term growth of its system. The government should prioritize strategic investments in new and innovative key e-government areas. Countries in the world consider this strategy as a way to initiate or accelerate the much needed and future-oriented e-government development programs. The investments are also beneficial to achieve sustainable economic growth that can create competitive advantages for private sectors. Also, the government should consider optimizing their e-government systems as a priority task. They should transform their systems to be more agile and dynamic. This way, they can be more resilient in the ever-changing world. Further, they can provide better service and improve their performance for the public in the long-term.

D. Sustainable E-government

One study [3] reveals that e-government projects in developing countries encounter voluminous challenges to provide sustainable e-government services. The study suggests the following strategies to overcome such problems: (a) Basic services - through this stage, governments can obtain the trust of the public by responding to questions on the web. (b) Streamlined services - efficient services are complete and integrated, where stakeholders can attain certain government services without having to visit government offices. The integration of government departments and e-government services will allow different departments to communicate in realtime and avoid delays in payment processing. (c) Automated services - automation occurs in e-government where users are proactively involved in government activities. Specifically, in the automated e-government, the system is smarter and synchronized with user accounts that it can provide automated services, such as text reminders on unpaid bills, license and ID renewals, and others [4].

E. Shared E-government Infrastructure

Reference [5] Connectivity is the extent to which a government use IT infrastructure to connect all resources to improve the quality of services to the public. Connectivity with adequate reach enables local governments to capture public information and disseminate it to stakeholders via the Internet, virtual communities, and personalized information channels. In addition, connectivity in the e-government context refers to the ability to link data and information that are owned and stored among government offices. Further, connectivity is the center of information-based innovation, re-engineering, and management of the rapid change of technology. In the shared e-government, serviceability is another prominent factor. Such term corresponds to the ability to provide services that meet public demands. These usually involve procedural and governance efficiency. The serviceability in this shared e-government context is based on Sabani, et al. Finally, the success of using and reusing e-governments in different cities and districts depends on the compatibility and connectivity of IT infrastructure elements.

With the application of low-cost e-government, authorities can organise their management systems, services, and work processes by using IT. Also, by implementing this low-cost e-government system, transparency, accountability, efficiency and effectiveness, and public participation will improve. Thus, the implementation of e-government, both in central and local governments, will eventually foster the Good Government Governance paradigm. Figure 1 shows the concept of a low cost e-government

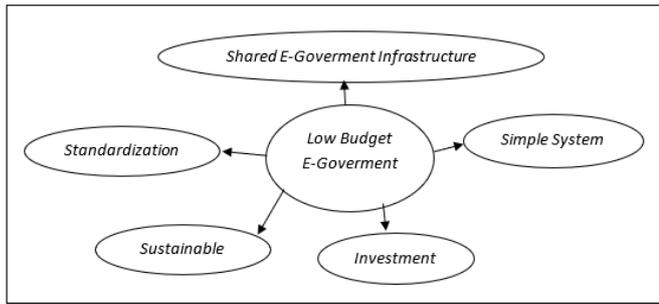


Fig 1. Low-Cost E-Government Concept

Some of the low-cost e-government concepts are: standardized e-government, simple system e-government, investment e-government, sustainable e-government, and shared e-government infrastructures. Standardized e-government means that government can use the system to provide complete information, reduce unnecessary costs, and minimize errors in transactions or other processes. In terms of simple system e-government, it is simple because it simplifies government processes by providing information to the public and also conducting other activities such as creating licenses. Relating to [6] investment e-government and sustainable e-government concepts, to advance long-term growth of a government system, authorities should invest, build a system based on long-term needs, and provide sustainable services. In the shared e-government infrastructures framework, authorities should connect their resources to improve service quality to the community. Table 2 shows journal articles using a low-cost government system

TABLE 2. PRELIMINARY RESEARCH

No	Researcher (s)	Low-Cost E-Government Concept				
		ST	SP	IN	ST	SA
1	Push and Shareeful [3]				√	
2	Mariano [4]	√				
3	Jayanti [5]	√				
4	Hasibuan [6]	√				
5	Rosadi [7]	√				
6	Irawan [8]	√				
7	Nugraha [9]	√				
8	Ali [10]	√				
9	Jumiati [11]	√				
10	Sumantri and hasta [12]	√				
11	Pratama, et al. [13]	√				
12	Heryana [15]	√	√	√		
13	Pratama [16]	√		√		
14	Yunita [17]	√		√		
15	Suciska [18]	√		√		
16	Wulandari [19]	√		√		
17	Hardjaloka [20]	√	√	√		
18	Bertot, et al. [21]	√				
19	Mulyono [22]	√				
20	Kumar, et al. [23]	√		√		√
21	Basu [24]		√		√	√
22	Abdulbaqi [25]		√	√		√

No	Researcher (s)	Low-Cost E-Government Concept				
		ST	SP	IN	ST	SA
23	Fang [26]		√		√	√
24	Glybovets [27]		√		√	√
25	Ali [28]		√		√	√
26	Laynea, at al. [29]		√			
27	Singh, at al. [30]		√			
28	Musfekar [31]			√		
29	Salsabila, et al. [32]				√	√
30	Navarra [33]					√

Note: ST: Standardization, SP: Simple, IN: Investment, ST: Sustainability, SA: Shareability

V. CONCLUSION

As with all conceptual transactions performed over a network of information systems, e-government requires prerequisites for the successful implementation of the program (see critical factors section). In reality, e-government implementation develops at distinct speed. This is due to multitudinous factors beyond the control of the government. The obstacles commonly confronted by developing countries such as Indonesia are as follows: (a) low level of per capita income - this aspect causes most people to be outside the reach of interactive IT (e.g., the Internet, mobile phones, and TVs). (b) Low level of IT literacy - because of this factor, people are unable to operate IT and unaware of the benefits of online activities (e.g., online payment and internet banking). It also hinders the growth and development of IT applications in the country. (c) Low level of personal computer (PC) penetration rates - the absence of computer leads to no access to the Internet. (d) Low internet penetration - due to this reason, the public is often left behind the latest national and global information. (e) Inadequate IT infrastructures (e.g., the minimum length of fiber optic cable and communication network with low data transfer capacity (bandwidth). (f) There is no sufficient law protecting transactions conducted through electronic networks.

This study developed this concept of low-cost e-government to overcome funding problems. Pagar Alam, as a city with minimum e-government capacity, should commence to develop and implement an e-government application. This could involve building a site that is directed or focused on the distribution of information and services to specific segments of society. This effort can later extend further to cover a broader segment of society (Start Small but Think Big). Sites launched by the city of Pagar Alam at an early stage are directed at fulfilling several basic functions as follows:

1. Publicising government institutions, along with their functions and components.

2. Educating and directing the community in interacting with government agencies (for example, in paying taxes, administering ID cards, driving licenses, and others).

3. Instructing and directing companies in interacting with government agencies (for example, in terms of export/import management and administration).

Thus, this study suggests a better strategic and policy framework or concept for the development of sustainable e-government in the city of Pagar Alam.

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