

E-government Facilities Analysis for Public Services in Higher Education

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Abstract. E-Government in higher education can be utilized in order to provide public services to stakeholders both internal and external. The research objectives is to analyze the e-government facilities for public services in higher education. The research began by reviewing the concept of public services and e-government, then continued by analysing e-government facilities based on the E-Government Maturity Level developed by Wirtz and Piehler. The research subject was the e-government website of three universities that ranked the top three of webometrics version (Indonesia country rank), while the research object was e-government facilities for public services. Data collection was done by observing e-government sites via online browsing. The research's results indicated that all three e-government sites have met four e-government business model and provided e-government services in line with the fourth stage on the e-government development stage. It can concluded that the three universities have achieved e-government maturity at the fourth level.

1. Introduction

E-government is a new breakthrough in order to provide and improve public services quality to be effective, efficient, transparent and accountable. E-Government objectives to improve interaction between government and society for the provision of public services through the use of information technology intensively [1], with the network as a basis of competitiveness [2]. Most of e-government is developed taking into public trust consideration as a determinant factor [3],[4], or simply focus on trust in specific public services [3]. Instead, it focuses only on trust in public administration [5].

The research of [6], found that creating public trust is not only determined by adopting e-government, but also the public policy of the institution. The e-Government was a part of the government program and brings many benefits to citizens like time and cost savings, availability 24/7 [7]. While the results of [8] that the quality of e-government-based services and public services communication was affect public trust on public services comprehensively. According to the Governance Deputy of the Ministry of Administrative Reform and Bureaucracy Reform, it is stated that in e-government principle, is the provision of public services by utilizing information technology for the benefit of providing information services and other services for its citizens. The goal of e-government is to improve the efficiency and effectiveness of public services, and democratic governance processes. ICT in the public sector are able to improve organizational efficiency and effectiveness and are able to reduce the burden of bureaucracy



[9],[10],[11]. Beside that a high level of e-government maturity depend on the investment in ICT infrastructure [12].

Based on [13], [14], [15], [16], higher education professionally can provide public services through e-government to stakeholders both internal and external. This research objectives is to analyze the e-government facilities for public services in higher education. This research began by reviewing the concept of public services and e-government, then continued by analysing e-government facilities based on the E-Government Maturity Level developed by Wirtz and Piehler.

2. Methodology

The research was descriptive research with qualitative approach. The research subject was the e-government website of three universities that ranked the top three of webometrics version (Indonesia country rank), while the research object was e-government facilities for public services. Data collection was done by observing e-government sites via online browsing. The three universities are The University of Indonesia (UI), Gadjah Mada University (UGM), and Bandung Institute of Technology (ITB). Research parameter in determining the e-government maturity level was based on Wirthz and Piehler research.

Step by step in e-government facilities analysis as follows:

1. Describe e-government business model. Based on [17], e-government business model described as figure 1.
2. Analyze e-government facilities based on e-government development stage, which are presentation / information, communication, transaction, participation, and open integration. Figure 2 described the Wirthz e-government development stage [17].
3. Recapitulate e-government facilities based on e-government services
4. Conclude e-government maturity level.

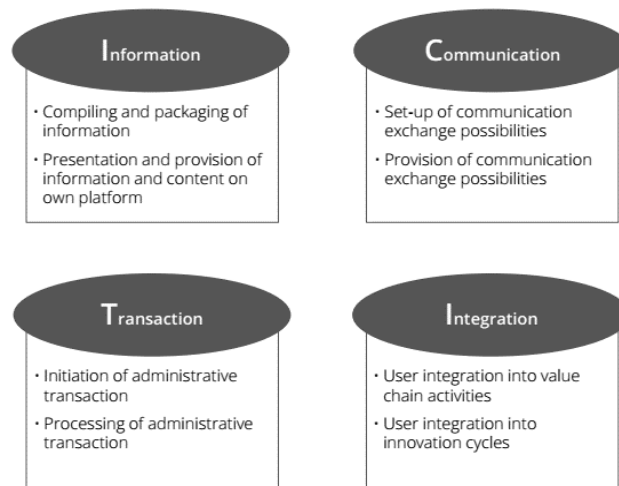


Figure 1. E-government Business Model

3. Results and Discussion

3.1. Public Services

According to [19], the meaning of public services is an activity or series of activities in the context of fulfilling the needs of services in accordance with legislation for every citizen for the goods, services and/or administrative services that provided by public service providers. According to [20], public services is any service activities undertaken by public service providers as an effort to meet the needs of the recipient service and the implementation of the

provisions of legislation. Thus, public service is a fulfillment of the needs and desire of society by the public service providers, with the aim of improving the welfare of the community.

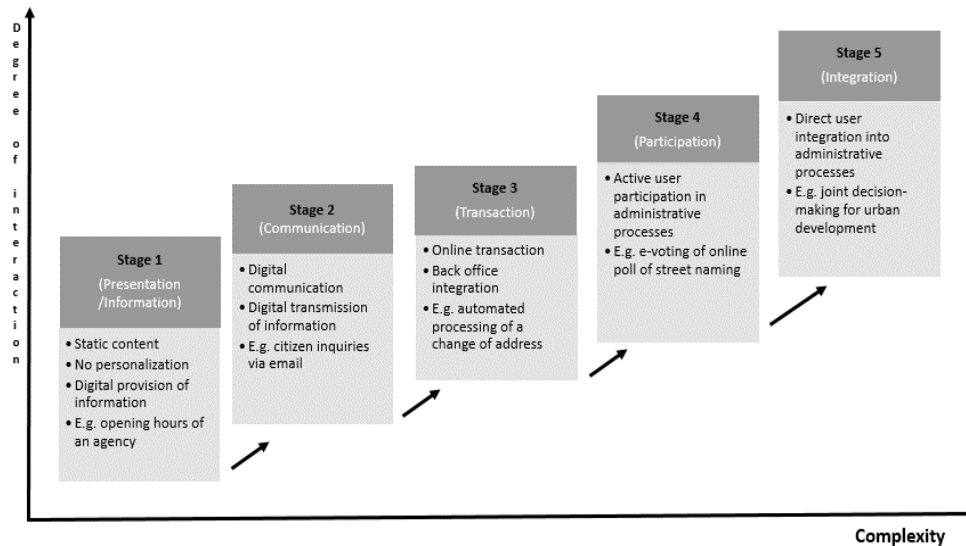


Figure 2. E-government Development Stage

There are four important elements in the process of public service, ie service providers, service recipients, service types and public satisfaction. The principles of public services according to [19] are Transparency, Accountability, Conditional, Participatory, Equal Rights, Equal Rights and Obligations.

3.2. E-government

E-government can be defined in various ways. E-government is the process of utilizing information technology as a tool for implementing government system more efficient. There are two main things in the meaning of e-government, first is the use of ICT (one of which is the internet) as a tool, and second is the purpose of utilization so the government governance can be more efficient. Through IT/internet, all processes or procedures in the government can be passed more quickly according to the rules that has been set.

There are many kinds of e-government services, the types of e-government ie *Government-to-Citizen* (G2C), *Government-to-Business* (G2B), *Government-to-Employee* (G2E), dan *Government-to-Government* (G2G). Based on the types of e-government services, higher education could use the e-government for public services as described in table 1.

Table 1. E-government for Public Services in Higher Education

E-government Type	Public Services Type
<i>Government-to-Citizen</i> (G2C)	(1) Information services in academic, general and financial administration, student affairs, and cooperation, (2) Student registration service, (3) Heregistration services, (4) Study Planning Services, (5) Graduation Certificate Service, (6) Complaint Service
<i>Government-to-Business</i> (G2B)	Good and services Procurement
<i>Government-to-Employee</i> (G2E)	Information services in academic, general and financial administration
<i>Government-to-Government</i> (G2G)	Web service between universities and related ministries

Based on online search results on all three universities sites it appears that the three universities have a special page for public information services. The page displayed the following information: (1) Standards, Procedures, and Guidelines for Public Information Services, (2) Forms related to Public Information Transparency, (3) List of public information, (4) Public information access report, (5) Public complaints services.

3.3. E-government Business Model

The concept of business model is appealing and useful in the public sector [18]. Based on [19], e-government business model described as figure 1 was classified into four class ie: Information, Communication, Transaction, and Integration (ICTI). Information Business Model divided into mandatory and non-mandatory information offers sub categories. Mandatory information offers provide information that needs to be supplied to public stakeholders in connection with services that have to be provided in accordance with laws or regulations. Beside the term non-mandatory information offers describes information services that are neither required by law nor associated with any obligatory government service. All three universities had both mandatory and non-mandatory information on their website as seen in table 2.

Table 2. E-government Information Business Model

University	Mandatory Information Offers	Non-Mandatory Information Offers
UI	List of Public Information Page	Downloadable Information Application Form
UGM	List of Public Information Page	Downloadable Information Application Form Online Information Application Form
ITB	List of Public Information Page	Downloadable Information Application Form

The core target of the Communication Business Model is the provision of online communication possibilities for government to user interaction. These can be divided into two subcategories ie interactive communication offers and automated communication offers. All three universities provided interactive communication services via telephone, fax, email or social media. Automated communication offers was also provided via Public Information page on the website especially public complaints service. UI provided tab complaint service on the website, UGM provided online complaint service portal, and ITB provided complaint service page on the website.

The Transaction Business Model focuses at the initiation, handling, and processing of administrative procedures through the e-government platform with the aim to complement or substitute existing offline government services. This online service offering can either be partial or full. The three universities provided the services as seen in table 3.

The Integration Business Model handles the integration of public stakeholders into the value chain of the public sector organization. This integration may take the form of participative, collaborative, or cooperative action. From the services provided, all three universities had public participant services i.e. integrating public stakeholder preference, feedback, and opinion into public policy-making, administrative procedures, and public management.

From the description, the three universities have provided ICTI e-government business model and can be accessed directly by the society both internal and external stakeholder through the university sites.

3.4. E-government Services and E-government Maturity Level

After observing e-government business model of three universities, furthermore the research was examining the e-government services provided by the three universities website. E-government services have become an important instrument of public administration. E-government maturity models taken from e-government services were used to compare the development status of e-government portals for supporting public services. Based on [17] as illustrated in figure 2, there are five key e-government development stages namely (1) presentation/information, (2) communication, (3) transaction, (4) participation, and (5) open integration.

Table 3. E-government Transaction Business Model

University	Partial Online Services	Full Online Services
UI	Downloadable Information Appl Form	tab complaint service

UGM	Downloadable Information Appl Form	Online Information Application Form Online Aspiration Information System
ITB	Downloadable Information Appl Form	Complaint Services

E-government development stage is used as e-government maturity level. The higher the level would increase the complexity. The presentation stage as the first level e-government systems are limited to present static information. In the communication stage, e-government systems provided communication services and digital transmission of information. The second level help society to get public services via digital communication. In the transaction stage as the third level, society can process administrative procedures and services online. Therefore the e-government system is integrated into the back-office system, which allows automated processing of the initiated administrative procedure. The participation stage as the fourth level permits society as the active user participation in administrative process. In the open integration stage as the fifth level, society is directly integrated into public processes and value creation, and manages interconnected administrative procedures that support an automated execution of multiple transactions.

UI website had static content that presented mandatory and non-mandatory information based on e-government business model. UI website provided digital communication services, i.e. information about dynamic communication offer via email and social media, and automated communication offer via content/website search. Online transaction that was integrated with back office system was also prepared on UI website through online form facilities. The partial online transaction for the information application form and full online transaction for complaint services. UI gave opportunity for the stakeholder to participate in aspiration online form. There's no open integration services yet on UI website.

UGM website had static content that presented mandatory and non-mandatory information based on e-government business model. UGM website provided digital communication services, i.e. information about dynamic communication offer via email and social media, and automated communication offer via content/website search and also via online public aspiration information system. Online transaction that was integrated with back office system was also prepared on UGM website through online form facilities both in partial and full online transaction. UGM gave opportunity for the stakeholder to participate in online public aspiration information system. Both internal and external stakeholder can write their aspiration and get the respond through the portal. There's no open integration services yet on UGM website.

ITB website had static content that presented mandatory and non-mandatory information based on e-government business model. ITB website provided digital communication services, i.e. information about dynamic communication offer via email and social media, and automated communication offer via content/website search. Online transaction that was integrated with back office system was also prepared on ITB website through online form facilities. The partial online transaction for the information application form and full online transaction for complaint services. ITB gave opportunity for the stakeholder to participate in aspiration online form. There's no open integration services yet on UI website.

Table 4 is the e-government services recapitulation that provided by the top three universities (Indonesia country rank – webometrics version). Based on the recapitulation, the three universities were on the fourth development stage. Therefore it indicated that the e-government maturity level was 4 (four).

Table 4. E-government Services Recapitulation

University	Stage 1 Presentation	Stage 2 Communication	Stage 3 Transaction	Stage 4 Participation	Stage 5 Integration
UI	√	√	√	√	×
UGM	√	√	√	√	×
ITB	√	√	√	√	×

4. Conclusion

Based on the types of e-government services, higher education could use the e-government for public services. The research observed e-government sites via online browsing for the top three universities in Indonesia based on webometrics version (Indonesia country rank). The three universities have provided ICTI (Information, Communication, Transaction, and Integration) e-government business model and can be accessed directly by the society both internal and external stakeholder through the university sites. The three universities were on the fourth stage of e-government development stage, therefore it can be concluded that the e-government maturity level of three universities was 4 (four).

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