Enterprise Architecture Dimension e-Government Ranking Indonesia

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Abstract---Republic of Indonesia under Presidential Instruction No. 3 of 2003 on National Policy and Strategy Development of e-Government, any government agency should have a Strategic Plan for Development of e-Government. XYZ City government plan that the master plan development of information and communication technology is the basis for the development of applications and information technology infrastructure in the city government XYZ. This study uses the dimensions of e-Government ranking of Indonesia (EGRI) that the guidelines created by the Ministry of Communication and Information of the Republic of Indonesia, has defined five dimensions of the ICT master plan that will be reviewed, namely Policies, Institutions, Infrastructure, Application, and Planning.

Keywords---Enterprise Architecture, ICT Masterplan, E-Government, Indonesia, Ranking, EGRI.

I. BACKGROUND

As mandated by Indonesian Presidential Instruction No. 3 of 2003 on National Policy and Strategy Development of e-Government, any government agency should have a Strategic Plan for Development of e-Government. It is intended that the development activities can be run in a harmonious and integrated through realistic and measurable stages, with due regard to initiatives coming from various units.

XYZ City government plan that the master plan development of information and communication technology is the basis for the development of applications and information technology infrastructure in the city government XYZ. With the various Regional Regulation XYZ on Provision of Communication and Information, it is felt necessary to encourage harmonization back masterplan e-Government so it can be aligned with the vision, mission and strategic directions, so it can always be in line with the dynamic development of the governance in local government area XYZ and to support the development goals that benefit the community.

II. LITERATURE REVIEW

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Enterprise Architecture, ISO / IEC 42 010: 2007 defines the architecture as: The basic organization of a system embodied in its components, their relationships to one another and the environment, and the principles that govern the design and evolution [1].

The term enterprise in the context of enterprise architecture can be used to show the entire enterprise include all the information and technology services, processes, and infrastructure and specific domain in the enterprise, and architecture across multiple systems, and multiple functional groups within the enterprise [2] [3] [4].

E-Government Ranking Indonesia (EGRI) is an activity organized by the Directorate of e-Government, the Directorate General of Telematics Applications, Ministry of Communication and Information of the Republic of Indonesia, involving government agencies throughout Indonesia. EGRI activity was an activity held in order to view a map of the condition of the use of Information and Communication Technology (ICT) by the national government agencies (Nuryaman, 2018). EGRI is expected to promote the development and use of ICT in government agencies throughout Indonesia. In practice, the Ministry of Communication and Information of the Republic of Indonesia in cooperation with various groups of elements of the ICT community, universities and relevant government agencies [5] [6] [7].

III. RESEARCH METHODOLOGY
The methodology in this study using the dimensions of e-Government ranking of Indonesia that the guidelines created by the Ministry of Communication and Information of the Republic of Indonesia, has defined five dimensions that will be studied, namely:
A. Policy,
B. Institutional,
C. Infrastructure,
D. Applications, and
E. Planning.
Each dimension has the same weight in the assessment because everything is important, interrelated and mutually supportive of one another.

IV. RESEARCH RESULT
ICT Analysis XYZ City
A. ICT Strategy Map XYZ City
   a. The main theme of the development of e-Government is the integration of ICT for excellent service solutions.
   b. Their alignment of IT Masterplan to see the condition of ICTs now and look forward to the plan.
   c. Information system that is reliable and easy to use, especially at the executive level
   d. The information system that can be accessed through mobile devices (smartphones / PDAs)
   e. Building the capacity and capability of human resources in ICT
   f. Has associated with disclosure
   g. Includes management of information systems in the City of XYZ
   h. Review of the information presented
   i. Planning of the information to be presented
   j. Integration of information systems in the local environment (intranet) XYZ City
   k. Accommodate Instruction No. 3 of the Ministry of Transport, Information Technology and Communications for guidance on e-Government Blueprint
   l. The resulting document can be used as a guide to implementation is not theoretical,
   m. Utilization of ICT are reliable, integrated and growing
B. Dimensional Analysis Policy
   a. Strategic and tactical level policies are needed to guide the implementation of the development and use of ICT in all sectors in XYZ City Government.
   b. Not to uncoordinated activities and budget for the development and use of ICT for all SKPD, making it difficult to plan and evaluate the effectiveness and efficiency of the ICT budget as the purpose of convening the e-Government.
   c. There are no SOPs procurement, planning, utilization and control associated with the development of e-Government Municipal Government XYZ, it is at risk in the implementation of the procurement and use of ICT for each Local Government Unit of Work (SKPD) out of sync and not the standard trigger the vulnerability and inefficiency of the budget.
C. Analysis of Institutional Dimensions

a. Not yet been established functional organizations such as the CIO or regional ICT Board as the direction of Ministry of Communication and Information Technology on Government Regulations No. 41 of 2007, the organization led by the head of the region for the function that determines the policy and monitoring and evaluation of development and use of ICT.

b. Department of Transportation, Information and Communications currently not in full control over the development and use of ICT as well as an integrated budget control, non-optimal due to the authority given. so it has not been able to provide e-government effective and efficient environment of the City of XYZ.

c. HR is managed by the Department of Transportation, Information and Communication is far from sufficient to manage ICT in all SKPD.

D. Dimensional Analysis Application

a. Many applications have been developed by SKPD but because SKPD not have sufficient resources so that the application be less than optimal utilization because it is not supported by an adequate ICT infrastructure that should be managed by the Department of Communications, Information Technology and Communications.

b. The information system for the administration in districts and villages still perfectly constructed so that the existing infrastructure is still not used optimally to the needs of e-government, it is still limited to surfing the Internet are often not directly related to the activities of the office.

c. Risks arising from the condition of existing ICT applications is the inefficiency of the budget due to less than optimal operational and application performance degradation due to less than optimal operational applications.

d. Data are still scattered in every SKPD and not on the Inventory of the SKPD. Risks that appear above the existing data now is the difficulty in collecting data, difficulties in reporting the data, the data security risks, and risks of data integrity.

E. Dimensional Analysis Infrastructure

a. ICT Infrastructure development is urgent to in finish. As a modern city and is the main route connecting the north coast of traffic between regions and often the city in which the implementation of national and international events, XYZ city should have an information system and an adequate ICT infrastructure.

b. Bandwidth management is not optimal so that regardless of the bandwidth available will always feel less so that some still want to hold their own SKPD bandwidth needs through services other carriers such as desired SKPD, it is risky to the optimization of IT resources and activity use of ICT can not be controlled.

c. Every SKPD desperately need access devices, servers and storage managed by SKPD Department of Transportation, Information and Communication. Gradually will be built according to the standard data center. Management of independent data center will reduce the security vulnerability information.

d. Information security systems / network either wired or wireless has been carried out but has not been audited. SKPD already connected Internet network is constrained in the provision of LAN, it is also related to the constraints of the role of the Department of Transportation, Information and Communication in the supply LAN SKPD including any control.

F. Dimensional Analysis Planning

a. State Level Development Plan (RPJMD) has not explicitly make ICT as a supporting all aspects and acceleration necessary for their utilization.

b. Not yet prepared Business Continuity Plan (BCP) management of ICT infrastructure, so that whenever a service failure occurs, the Department of Transportation, Information and Communication City of XYZ difficult to perform an action that is fast, accurate and effective way to ensure the sustainability of the system.

c. Proposing coordinated ICT activities yet SKPD, making it difficult for policy-making to optimize the budget in the ICT sector

d. There is currently running functions of planning and control over the implementation of e-Government in XYZ city government.

e. ICT implementation can not be measured directly in support of city development mission XYZ

f. Imbalances in the implementation of ICT in the units in the municipal government of environmental XYZ

g. Non uniform technology standards, policies and reasonableness of the price in the implementation of ICT in education office

h. Redundancy ICT-related activities, which can actually be integrated.

i. Not integrated ICT activities.

G. Vision, Objectives and Strategy Implementation of e-Government of XYZ City

a. A clear vision of the leader: Some of the directors who do not have a good understanding of the information and communication technology, as a result of these leaders can not produce a good vision of the development and utilization of information and communication technologies in urban development XYZ

   b. Strong support from the community: the strong support of the community, support will be available if people understand well the impact of ICT deployment, the community will also support if the community requires and can utilize the services in ICT.

   c. Determination of e-Government agenda

ICT Masterplan recommendation XYZ City

A. Vision, Objectives and Strategy Implementation of e-Government of XYZ City

   a. Vision: Realizing XYZ into a Smart City with a government that is efficient, effective, accountable and transparent governance E-Government is good and right.

   b. mission:

     – Strengthening governance of information and communication technologies

     – Building infrastructure information and communication technology is integrated to improve the performance of government and public service

     – Develop an integrated information system in accordance with the vision and mission of city government

     – Improving public disclosure

B. Strategy Implementation Stages

   a. Stabilization policy and institutional posture will focus implemented in the first year and the second focus of the implementation of this master plan alignment, in the third year until the end of the fifth year only a review, and the addition of SOP as needed, while for the more human resources following the general procedure.

   b. Consolidation of the infrastructure to achieve the ideal conditions will be implemented during the first 3 years and 2 years and so forth live maintenance and replacement of devices already time to be replaced by an effective age and level of damage

   c. Infrastructure development (e-Government) in the first 2 years will be the maturation of the integrated system architecture, business process reengineering the entire bureaucracy, dissemination and implementation of projects instance, in the next 3 years made massive systems development activities involving the entire SKPD.

C. Dimension Strategy Policy

   a. Accelerate the preparation of the completeness of regulations related to the development, management and utilization of e-government / ICT XYZ City Government

   b. Accelerate the implementation of e-government development in the bureaucracy by promoting changes in bureaucratic processes and electronic-based work culture

   c. Build and strengthen standardization and delegating authority to the entire SKPD ICT development as one of the efforts towards the effectiveness and efficiency of development, management and use of ICT in XYZ city government.

   d. Dissemination, control and monitoring of strategic legitimate policy to be implemented, to ensure that the policy has been implemented properly in all SKPD.

D. Strategy Institutional Dimensions

   a. The formation of the functional organization of the CIO / ICT Council where the head of the region, or at least the head SKPD second echelon competent to make ICT policies that lead directly control the development and use of ICT

   b. Strengthening the role of manager Department Transportation, information and Communication (Dishubinkom) that specifically and independently in the management of e-Government to facilitate coordination with other officials in the management of ICT

   c. Increased capability of human resources in the field of ICT both SKPD handling and other officials Dishubinkom

   d. Procurement and distribution of ICT-related human resources are coordinated with relevant SKPD Dishubinkom: the number, qualifications, education

   e. The legality of the policy manager of ICT in education office

   f. The formation of functional career (Computer Personnel, engineers, researcher) for HR ICT

   g. The need for assistance for the development of ICT management

   h. Formation of Helpdesk and network monitoring functions SKPD both external and internal network was quickly made.

E. Dimensions of Infrastructure Strategy

   a. Acceleration provision using the Fiber Optic backbone network covering the entire SKPD and public service distribution network up to the village / community health centers / schools

   b. Accelerating the development and management of Data Center and Data Recovery Good to ensure convenience and improvement of information security

   c. Utilization of intranet for communication between SKPD

    d. Their ICT infrastructure management standards policy in SKPD

    e. Their bandwidth management policies, Public Internet Protocol (IP) and the use of internet access to the entire SKPD

F. Dimension Strategy Applications

    a. Development of ownership, use data / information and e-government applications are integrated within the framework of interoperability.

    b. For the asset management of data and information in XYZ city government, it is necessary to centralize the data and information policies resulting from the processing of data in the data center SKPD Dishubinkom.

    c. Every SKPD have a good information system for public services (G2C), business (G2B) and internal services (G2E), in accordance with the priority of needs gradually.

    d. The need for standardization of metadata for application development and management in the context of a single data interoperability.

    e. Open Source Software Policy is used for application development and server operating system, while for client / desktop using the open source / proprietary.

    f. Acceleration XYZ City website redevelopment and development of integrated SKPD website.

    g. The use of social media-based public good free text, audio, and video, to publicize the activities SKPD to the community, as well as to respond to community feedback as part of public disclosure (KIP)

G. Dimension Strategy Planning

    a. Determination document e-Government Development Plan is used as preparation materials RPJMD and related SKPD strategic plan for ICT development

    b. Preparation of documents action plan for each activity area of ICT impact on the performance of SKPD

    c. Immediately prepared Business Continuity Plan (BCP) for ICT infrastructure services

    d. Dissemination of the development and utilization of e-government to the executive level

    e. Their recommendations for the optimization of ICT budget for the organization of the entire SKPD Dishubinkom.

H. Policy Blueprint

Table 1:*Policy Blueprint*

Regulation	Theme
	E-Government organization business which contains the Decree of the Vision and Mission, Forms of organization, Author, Indicators and Honor
	Development and implementation of an integrated e-Government applications
	The development and utilization of integrated infrastructure
e-Government Policy	standardization metadata
	Asset management area information
	Utilization of legal software (open source, proprietary)
	Utilization of access to information
	Information Security and Incident handling
SOP ICT	Data Center Management
	LAN Network Management

I. Blueprint Planning

    a. E-Government planning must involve all components of the city government through a mechanism that has been set by regulation mayor

    b. Implementing e-government planning governance is one of the functions of the management of information systems implemented by a work unit under SKPD Dishubinkom

    c. Periodically (short term, medium term and long term) should be given to devising e-Government as stated in official documents defined through regulations mayor

    d. Planning are:

      − Planning Parent 25 years

      − 5-year Strategic Plan

      − Planning Act every year

      − Sustainability planning system

    e. Each content of ICT planning is part of the town planning

J. Institutional Blueprint

    a. Government ICT SKPD business XYZ City, the SKPD that handles affairs

Development of Information and Communication Systems:
Management of the system is functioning:
- Planning a comprehensive e-Government,
- Planning application system (MIS, EIS, DSS)
- Document preparation system development,
- Socialization system,
- Performance measurement system is implemented (internal auditors and external auditors contact)
Application development and integrated system function:
- Development of e-Government,
- System migration,
- Security system,
- *Help desk* system,
- Control of proprietary software,
- System development policy,
- Repository of e-government applications
Data management functions as:
- Planning data flow throughout the process of city government bureaucracy,
- Inventory data security grounds,
- *Backup / restore* data,
- Coordinate with SKPD for utilization of the data,
- Planning needs and infrastructure for storing transaction data.
- Policies and management of information assets (digital document)
- Development and management of city government website

Infrastructure management Information and Communication Technology:
Data Center Management and Data Recovery Center function:
- Manage all devices and control the passage of data center requirements and data recovery center,
- Maintenance and upkeep of the system,
- Control of procurement and utilization of data center
- monitoring system
Network management and ICT devices perform the function:
- Management of data transmission medium (wired and wireless),
- Inventory and control of the local administration of ICT tools,
- Help desk and maintenance treatment of ICT tools in education office,
- Installation and maintenance as well as network control and media transmission.
- *monitoring traffic* network
Information Security Management function:
- *monitoring* traffic behavior
- *Update anti mall ware*
- Information security policy
- Handling of information security events
- Coordination with related organization state of data security

b. SKPD owner bureaucratic process which besides SKPD ICT management as the owner of the data / information and the bureaucratic process as users of ICT infrastructure and information systems in charge
- Business process re-engineering (BPR) is conducting an inventory of the current bureaucratic process that can optimalisation into the information system
- system development
- Coordinate with Dishubinkom SKPD for permission feasibility of proprietary software and application needs of the central government or the provinces to analyze the integration with existing systems
- Coordinate with other SKPD in terms of data acquisition, management and accountability of ownership.
- Utilization of ICT infrastructure, sector departments to coordinate with SKPD Dishubinkom
- Every SKPD not supposed to carry out procurement, treatment and control of their own ICT infrastructure especially without coordinating with SKPD Dishubinkom, it is intended to control the security of the city government information assets. But when there is a system built from the center to the national interest, then

the system can be arranged to prevent technical problems that disrupt information access operational performance of the entire network of the city government. Dishubinkom SKPD who has the authority to security policies throughout the system.

K. Blueprint Application
   a. Development of the city government's official website XYZ is designed to be interactive with the management of applications submitted to each SKPD, XYZ City Government website will be rebuilt website content details and specifications:
   – XYZ City Area profiles
   – Profile XYZ City Government
   – Public policy Info
   – XYZ Town planning info
   – Info achievements and results of development
   – Complaints, exchange of ideas and discussion forum townspeople XYZ
   – City Gallery XYZ
   – XYZ City government services (information provision and form Online):
   – Community service
   – Business services
   – Bureaucracy services online
   – Social networking media XYZ City residents
   – Advertising and promotional efforts
   b. The development of e-government applications up to 5 (five) years in the future based on XYZ Urban Development Vision

Table 2:*Application Development*

Clusters	Details Module
Civil Servant performance	E-mail,
	Mutations And Career
	Attendance & Payroll,
	Performance assessment,
	Training
performance	Data Development,
Government	Website municipal government,
	E-Filling,
	Regional Planning,
	Procurement Goods Area,
	Management and Monitoring Project,
	System Evaluation And Results
	Performance Development,
	System Budget,
	Cash and Treasury,
	Regional accounting,
	Regional Goods Management,
	Goods catalog Regions,
	Local Revenue Management,
	Local Company management,
	Village government and the District
	Population,
Service	Complaint Society,

Society	Spatial And Environment
	Health,
	Education,
	Job Agency,
	Social and Poverty,
	Transportation,
	Street, Bridges and Drainage,
	Communication,
	Trash and Waste,
	Housing and Settlements,
	Green space Open money,
	Street lighting,
	Clean water
	Invite and Levy,
Business services	Registration And Licensing,
	Business and Investment,
	Administration Parliament,
	System Local Elections,
	Catalog Law,
	Potential Areas,
	Agriculture Fisheries Livestock,
	Tourism,
	Small Medium Enterprise,
	Industry Commerce,
	Building And Building,

L. Blueprint for Infrastructure

Table 3:*Blueprint Infrastructure.*

Dimension	Indicator	Policy
Data Center	Space DC: raise the floor, wall, cycling, cooling,	Procurement Activities Green DC / DRC to standard TIA 942 Tier 1
	humidity control, control of dust, smoke detector, fire, cabling	
	server, Storage, switches, routers, firewall / IPS	efisiensi device resources using the latest technology
	Rack, Main Power, secondary Power, UPS, grounding, power capacity, power network	Efficiency, device resources using the latest technology
	Monitoring logical security, physical security	SLA guarantee 99, 9%
	Maintenance, replacement tools and the availability of care tools	Maintenance Daily
		readiness replacement device
Networking	Topology and cabling	WAN, MAN, LAN
	Backbone	between District and SKPD who passed

	Distribution	Of all SKPD s / d to village
Security	Card War Physical security	Biometrics Basic
	Card security logic	safety measure prior to the network and specific allocation
	Awareness	Role as well as each employee's information asset security
	Application	Open
		Source Basic
	Disaster Recovery System (DRC) *management*	Given to third parties who provide customer satisfaction guarantee
	Risk / vulnerability management	*Monitoring*
Services	SLA	99, 9%
	coverage	All Over SKPD, villages and health centers
	capacity	Capacity used is 70% of the installed capacity
	Policy	Utilization IT, access, IP and bandwidth
	repository	Know Manage Assets
		Information
	Data management	Know Manage single data
	Data warehouse	System executive information
		System decision support information
	Data Processing	function as Backup System
	basic application	web, E-mail, VoIP, etc.
	standard service	use IT Infrastructure Library
Management	SOP	use
		SS 502
	Audit IT	Conducted every year
	SDM	Optimizing
		SDM
	bandwidth and	optimization
Access	*local Loop*	needs and utilization

The need for government data center XYZ City:
a. Data Recovery center entrusted to a third party who has good information security standards, preferably already have ISO 27001: 2005 or SS504 or also using it although not yet certified standards
b. The room: 2.5 x 4 meters, with no window / glass wall to the outside edge of the building.
c. Total rack at least 3: Rack security and storage, rack servers and rack distribution
d. Air conditioning, the room temperature below 20 degrees Celsius
e. *raise floor* and roof: when using standard materials and secure from access animals (rodents, insects or slither), then it is best used as wiring lines, raise floor height of about 30 cm.
f. Biometric door lock security
g. Each cable has a label and a destination address
h. Periodic maintenance for each device

V. CONCLUSION

Results of this study was to align the strategic plan in the Information Technology sector (e-Government) and recast the masterplan application XYZ in the city government. Expected completion of a plan of Information Technology (e-Government) in the city government XYZ that is consistent with the latest developments and needs,

and provide guidance in the development, maintenance and management of information technology in order to support the tasks and functions of the city government of XYZ.

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