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Do Information Communication Technology Initiatives Affect Local Government Bureaucratic Transformation?

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Abstract: The authors developed hypotheses in relation to T-government with these independent variables: vision and policy, organization structure, culture and new ICT process. The multiple informant surveys and qualitative analysis of secondary data were used to advance the alternative approach to the measurement of correlational approaches. Primarily, this paper aims to answer the question: Do information communication technology initiatives affect local government bureaucratic transformation? This research utilizes mixed comparative method in two local governments namely Yogyakarta City and Bantul Regency. The researchers intend to compare two local governments according to the impact of the ICT initiatives on the internal organization transformation. Yogyakarta has initiated government digitalization project since 2003 whereas Bantul Regency has just started the ICT project since 2008. The case study is limited to two local governments only and does not intend to generalize other local governments. However, based on prior study, the findings may also contribute to the understanding of ICT initiatives on government transformation. Indonesian central government needs to consistently promulgate a coherent and strong central regulation or law policy in order to give fundamental legal transformation through e-government. Whether e-government can play its potential role in developing a service-oriented government is dependent on the changes in the administrative and political culture.

Keywords: Bureaucracy, transformation, culture, ICT.

INTRODUCTION

In Indonesia, the term “e-Government” was officially introduced to public administration through the Presidential Instruction No.6/2001 regarding Information and Communication Technology (ICT) that addresses the government of Indonesia’s need to use ICT to support the practices of good governance.

When the State Ministry of Communications and Information was established in 2001, there was a specific national policy on *e*-Government stipulated on Presidential Instruction No. 3/2003 concerning National Policy on *e*-Government Development. In Indonesia, *e*-Government is required due to the following reasons:

1. to support the government's change towards democratic governance practices;
2. to support the application of authority balances between central and local government;
3. to facilitate communication between central and local governments;
4. to gain openness and transparency; and
5. to enable transformation towards the era of an information-led society.

The *e*-government project started in 2003 based on Presidential Instruction No. 3 of 2003. Since then, various Information and Communication Ministers' decisions revolve on the *e*-government program. The position of presidential instruction is legally not strong enough to run an *e*-government program. Looking at the pattern of the policy in Indonesia, it is seen that there is no policy consistency on the highest executive level. Because of the absence of a strong supportive policy, Indonesia *e*-government (rank 106) based on UNPAN study in 2014 is lower compared to the neighboring countries such as Malaysia (rank 52), Thailand (rank 102) and the Philippines (rank 95).

E-Government project as digital government evolution project consists of a four-stage Digital Government Evolution Model comprising digitization (Technology in Government), transformation (Electronic Government), engagement (Electronic Governance) and contextualization (Policy-Driven Electronic Governance) stages (Tomaski, 2015). The transformation stage is the second stage of government digitalization in which government organizations interact with each other by using ICT (Janowski, 2015). Although the application of digital technology is to support the operations of bureaucratic organizations using *e*-bureaucracy and functional simplification and closure (Cordella and Tempini, 2015), but there is little influence of ICT initiative on government transformation, for example in United States of America (Norris and Redick, 2012).

Meanwhile, at the local level some local governments tried to initiate *e*-government project, such as Yogyakarta City and Bantul Regency in Yogyakarta Province. Yogyakarta City launched wireless-based citizen complaint UPIK on 30 January 2003 as a means of communication between the Mayor of Yogyakarta and society combining a hotlineservice as a SMS line 08122780001 and phone line 555242 (Nurmandi, 2010; Zuhriyati and Rahmawati, 2014). Bantul Regency also initiated an ICT project in 2008, five years after Yogyakarta City, however there was limited link and space of communication in the website between citizen and government, so there was a decrease in terms of the quality of the two-way communication (Sosiawan *et al.*, 2014). In Bandung City, the city government improved its ICT infrastructure including the use of social media for citizen participation, but in each functional unit there is a cloud services and limited number of ICT personnel (Novani, 2016). Theoretically ICT has supplanted many of the coordination and control roles of hierarchy, creating the opportunities for new forms of organizing that focus on process instead of function (Griffith, T.R., *et al.*, 2007). However, in government organization has different result of ICT impact on organization. Against this background, this study tries to explain T-government in Indonesia, particularly at local government level. We developed hypotheses in relation to T-government with these independent variables: vision and policy, organization structure, culture and new ICT process. We advance

an alternative approach to the measurement of correlational approaches through multiple informant surveys and qualitative analysis of secondary data. Thus, this paper aims to answer: Do information communication technology initiative affects local government bureaucratic transformation?

THEORETICAL OVERVIEW: FACTORS AFFECTING T-GOVERNMENT

Transformation is a complex problem to which no universal approach exists and for which different types of models can be used (Klievink and Janssen, 2009). One way to transform government bureaucracy is to initiate information communication technology use (Kumorotomo, 2008; Heeks and Bailur, 2007; Khan *et al.*, 2011; and Yildiz, 2007). In the last decade one of the most studied mediating systems/technologies for achieving the underlying objectives of good governance (*i.e.* open, transparent, and collaborative governance) has been the *e*-government initiative (Khan, 2013).

Transformation is reflected among four scenarios for Electronic Government in 2020, particularly centralization versus decentralization of power and related government structures (Bicking *et al.*, 2006). A distinction between Electronic Government as a transformational process versus an incremental step-by-step process was made (Stoica and Ilas, 2009). Likewise, (Rossel and Finger, 2007) makes a distinction between technological innovation and institutional transformation. Janowski (2015) classified a digital government evolution model in the evolution of the concept: digitization (Technology in Government), transformation (Electronic Government), engagement (Electronic Governance) and contextualization (Policy-Driven Electronic Governance).

T-Government is the ICT-enabled and organization-led transformation of government operations, internal and external processes and structures to enable the realization of services that meet public-sector objectives such as efficiency, transparency, accountability and citizen centricity (Weerakoddy *et al.*, 2011). This transformation will proceed in the evolution way or not the radical one, which is likely a model of growth stages (Layne and Lee, 2001; Moon, 2002). Since ICT enabled public sector reforms involve the deployment of a complex ICT infrastructure to redesign public sector organizations, they face a number of risks in relation to implementation, project management, and policy (Fountain, 2001b; Heeks, 1999; Snellen and van de Donk, 1998). Klievink (2009) said that the capabilities needed are all related to the transformation of government architecture, organizational structure, and a culture of service delivery and collaboration. In sum, by looking at previous studies, it is concluded that T-government is affected by vision and policy, government structure, culture, and business process (Janowski, 2015). Thus, T-government could be operationalized into the digitization which is integrated into the internal working and structures of government in terms of the following:

- (a) *Organizational change and change management*: interdependency of *e*-government development and organizational transformation in public sector organizations, and characteristics of organizational transformation and applying digital technology to support the operations of bureaucratic organizations through *e*-bureaucracy and functional simplification and closure
- (b) *Project, program and portfolio management*: the impact of politics, intuition and coincidence on decision-making in portfolio management of *e*-government projects, ahead of technical rationality, and adoption of suitable project practices by government organizations.
- (c) *Development according to stage of growth models*: a stage model to guide the progress of government towards joined-up structure, including the development of capabilities to migrate from one stage to another (Klievink and Janssen, 2009)

- (d) *Information sharing and collaboration*: inter-municipal collaboration and sharing information across vertical and horizontal boundaries of government organizations and pursuing a balance between centralized and decentralized information sharing.

NEW ICT SYSTEM AND T-BUREAUCRACY

Bovaird (2003) noted that implications of ICT implementation, particularly in government, namely:

- (a) The new generation of ICT-driven reforms has interacted with a number of other important movements which have implications for organizational arrangements in the public sector;
- (b) ICT drivers for changes to organizational structures, processes and behaviors in public services;
- (c) New organizational configurations in public services; and
- (d) the role of ICT in achieving organizational integration.

Application of ICT in public procurement also has important implications on organizational structures, processes, and behaviors in public services. Bovaird (2003) noted the improved use of databases in the organizations. The stocks of knowledge in the organization should help both in improving the decisions made and in implementing these decisions more consistently. Secondly, Bovaird (2003) noted that better communications improved decision-making in an organization, partly through the use of the organization's databases. Similar with Bovaird *et al.*, (2015) tried to classify ICT impact on public sector in 4 dimensions: Capabilities—considering information quality, efficiency and effectiveness; Interactions—considering coordination with business and citizens, coordination with partners, and organizational control; fostered democracy and citizens engagement—considering feedback opportunities from various stakeholders, citizens engagement in policy formulation, policy development process improvements; innovations—considering new products and services, improved products and services, and new processes

However, new ICT application has also negative impact. Andersons & Ritter (2015) in their study in schools that use information and communication technologies (ICT), it revealed that there is a fundamentally changed in the routines and practices of nearly all aspects of life, including undesired side-effects such as decreased physical activity, obesity, overweight and sedentary behavior for school-age children.

VISION AND POLICY

Vision is important, however vision needs real policy. Vision without policy is unreal in government organization. Since local government organization is rule-based organization, so ICT initiative, in some cities of Indonesia, are affected by the key factors policy and regulations, and planning and management (Nurmandi, 2015). The control-based model often assumes that decisions are taken higher in the hierarchy. In a hierarchical organizational model there are clear procedures determining who is responsible for what, and when a higher hierarchical level is needed.

Both organisations private organization and public organization organization transformation triggered by ICT relied on the following key elements: sustained corporate commitment and strategic leadership from management; a clear vision statement and strategic plan was implemented; the employment of an organisational specialist or strategic manager was used to drive the project team; astute HR strategies were employed coupled with internal re-organisation, and decentralisation facilitated by ICT (O'Donnel *et al.*,

2003). Internal government transformation through the development of digital technologies in government is explained by co-evolution of technology, organization networks and institutional arrangements (Reyes and Garcia, 2014).

H1 : Vision and policy on ICT initiative is associated with bureaucratic transformation.

ORGANIZATION STRUCTURE

By theoretical point of view, ICT implementation encourages a flat structure of government organization (Blievink and Jassen, 2009). They defined the highest stage of government organizational structure as a joint up government. To reach this level, mechanisms have to be in place to manage and orchestrate service delivery across the entire government, and possibly even beyond. Private parties may provide elements of the overall service (Blievink and Jassen, 2009). The application of ICT means profound organizational challenges to government agencies especially in two crucial respects:

1. restructuring of administrative functions and processes, and
2. coordination and cooperation between different departments and different levels of government (Aichholzer and Schmutzer, 2000).

However, many *e*-government projects are not good stories, not only in developing countries, but also in developed country. Chadwick (2011) found in the failure of the online citizen project in US, “TechCounty” due to the institutional variables: the *e*-government team was free-floating rather than embedded in the county executive’s office and was therefore unable to drive change; departmental rivalry and different decision-making cultures; ambivalence of the elected representatives; technologically aware leadership was lacking and an eagerness to avoid bad publicity. Managers want models that help them realize the transformation, whereas policymakers are more interested in models that help them shape the right direction and identify relevant elements (Blievink and Janssen, 2009). However, Norris and Reddick (2012) found in American cities that there is little or no evidence from these data that *e*-government has transformed information and service delivery, has transformed the governments themselves, or has changed relationships between the governments and the governed.

Meanwhile, there are very limited number of research on the relationship between technology and organizational form and function. Between 1996 and 2005, only 2.8% of 1,187 the research published in these four leading journals focused on the relationship between technology and organizational form and function (Zammuto *et al.*, 2007). In their research article, Zammuto *et al.* (2007) concluded that it is very important to study how information is socially and organizationally made sense of because organizing takes place around those understandings and subsequent actions, not only around information acquisition and transmission and to study how affordances emerge and evolve with changing technological and organizational features (Majchrzak *et al.*, 2007), and to understand the impact of affordances on boundary conditions. Zammuto *et al.* (2007) use the term “affordance” which refers to the kind of organizing that does not depend only on the functionality characterizing the information technology, but also on the expertise, organizational processes and procedures, controls, boundary-spanning approaches, and other social capacities present in the organization. In short, ICT initiative has impact on organizational restructuring of administrative functions and processes, and coordination between different departments and different levels of government.

H2 : ICT initiative is associated with organizational restructuring and process.

CULTURE

Culture can influence actual behaviour through its influence on attitudes and subjective norms and consequently enhance the adoption and use of ICT or may provide important barriers for using them, through enhancing or inhibiting individual innovation (Erumban and de Jong, 2006). However, adoption of *e-government* is not straightforward and cannot be done in a limited period of time, rather it requires to change and reengineer their business process to adapt new strategies and culture of *e-government* (Ebrahim and Irani, 2005). According to an earlier IT project implementation study which replicated this study in high uncertainty avoidance culture in order to determine whether the results obtained in South Korea still hold (Kim *et al.*, 2007). To implement *e-government* is to create a cultural change in which it was aimed at creating a customer-centric culture in which the customer is the pivotal instead of the areas of expertise as was pointed out (Weerakkody *et. al.*, 2012).

The power distance and uncertainty avoidance dimensions are the most significant cultural factors that can explain some of the differences in ICT adoption rates between countries (Erumban and de Jong, 2006). This study has some practical insights that are relevant to management strategies for ICT adoption, based on national culture and adoption stages (Lee *et al.*, 2013). The cultural barriers to ICT integration identified in this study call for a reformulation of the institutional culture into one that fosters teachers' ICT adoption and development of change (Li 2014). Zhao *et al.* (2014) found that as countries with future orientation, culture tend to have a longer vision and a more forward-thinking mentality, this makes them more willing to take up *e-government* because they see it as their country's future and they value the long-term benefits that *e-government* will bring to them (Zhao *et al.*, 2014).

H3 : Culture of ICT initiative is associated with bureaucratic transformation.

RESEARCH METHOD

This research utilizes mixed comparative method in two local governments namely Yogyakarta City and Bantul Regency. Researchers aimed to compare two local government according to the impact of the ICT initiative on internal organization transformation. Yogyakarta has initiated government digitalization project since 2003 whereas Bantul Regency has just started the ICT project since 2008. The sample for this research are the top and middle managers from two local governments with around 260 respondents or 130 respondents from each local government. We distributed questionnaires to 260 respondents and only 210 filled questionnaires were returned after validity and reliability test undertaken. In-depth interview was deployed also in order to have more understanding on internal transformation in both local governments. Primary data were analyzed by using AMOS.

RESEARCH FINDINGS

The ICT initiative at table below indicates that Yogyakarta City has developed web-based relation between city government and citizen for complaint and information analysis management. Meanwhile in Bantul local government, citizen could complain to government via SMS center.

Structural equation modelling (SEM) using AMOS was employed to test the effect of New ICT system on the organizational change and the effect of the change on bureaucracy transformation. To test the effect, path models were constructed from the covariance matrices of variables. The baseline model

Table 1
ICT Initiative in Bantul District and Yogyakarta City

<i>No. Application of ICT</i>	<i>Bantul District</i>	<i>Yogyakarta City</i>
1. Installation of Internet network	33 agencies; 17 district.; 75 villages; 27 community health services; public service area	30 agencies, 14 district; 45 subdistricts; 18 community health services; 19 sub-community health services ; public area.
2. Public service system	15 public information systems 18 information system application	31 ICT based public service and 1500 public service instruments
3. ICT-based information channels	SMS center	Web - based citizen complaint and information system
4. E-mail addresses of service	184 e-mail	142 e-mail

The descriptive statistics presented below describes the distribution of the minimum value, maximum value, mean value, and standard deviation.

Table 2
Statistic Descriptive and Correlations

<i>Variables</i>	<i>Yogyakarta city (Experiment Case)</i>							<i>Bantul (Control Case)</i>						
	<i>M</i>	<i>Sd</i>	<i>New ICT (Z)</i>	<i>Vision and Policy (X₁)</i>	<i>Structure (X₂)</i>	<i>Culture (X₃)</i>	<i>Bureaucracy Transformation (Y)</i>	<i>M</i>	<i>Sd</i>	<i>Z</i>	<i>New ICT (Z)</i>	<i>Vision and Policy (X₁)</i>	<i>Structure (X₂)</i>	<i>Culture (X₃)</i>
New ICT (Z)	48.17	4.163	1	-,012	,003	-,078	-,06	48,17	4,16	1	,10	-,10	-,02	-,18
Vision and Policy (X ₁)	36.45	3.958		1	,55**	,35**	0,50**	36,45	3,95		1	,29**	-,13	,028
Structure (X ₂)	36.76	3.833			1	,59**	0,64**	36,76	3,83			1	,29**	,029
Culture (X ₃)	39.70	4.133				1	0,35**	39,70	4,13				1	-,06
Bureau- cracy Transfor- mation (Y)	27.77	2.224					1	27,77	2,22					1

** . Correlation is significant at the 0.01 level (2-tailed).

provided the good fit to the data, with the goodness-of-fit statistics as follows: for the Yogyakarta City as the case inexperiment, $X_2 = , p = 0.64$, CFI (comparative fit index) = 1.00 , goodness –of-fit index GFI = GFI 0.99, RMSEA (root mean square error of approximation) = 0.01; for for the Bantul Regency as the case incontrol, $X_2 = , p = 0.64$, CFI (comparative fit index) = 1.00, goodness –of-fit index GFI = GFI 0.99,

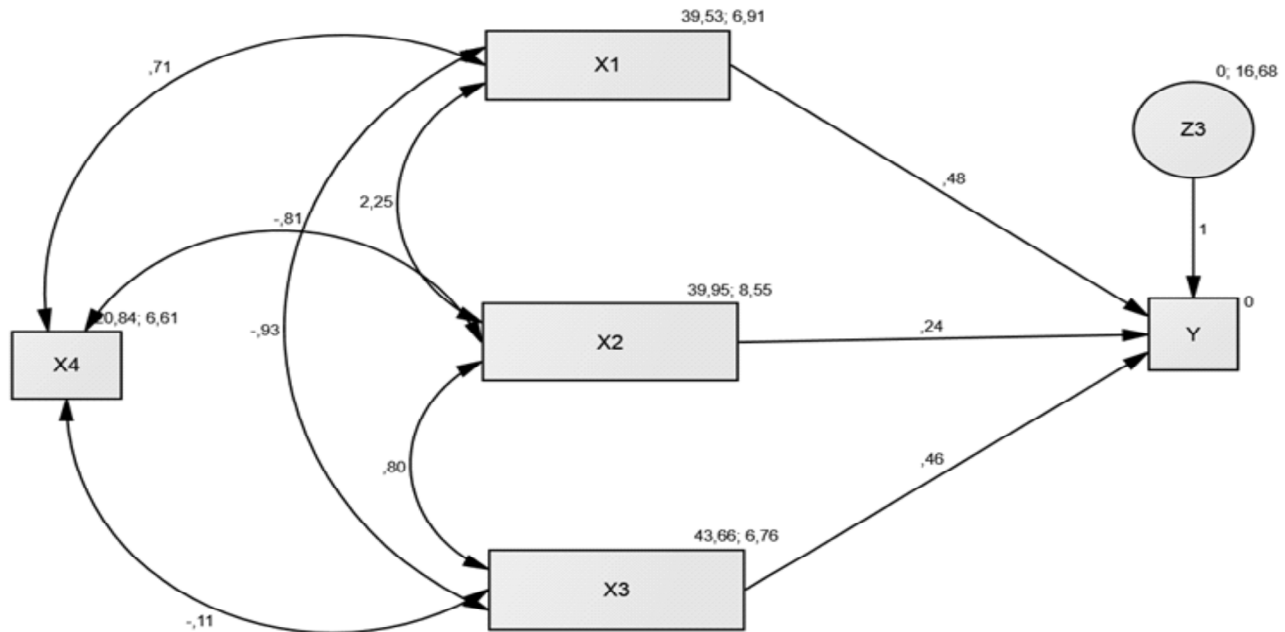


Figure 1: Structural Model of ICT Transformation

RMSEA (root mean square error of approximation) = 0.00. Figure 2. represents the parameter estimates for the new ICT effect model standardized regression weights. The total effect of all independent variables on bureaucracy transformation is 44.6% in Yogyakarta City and only 4.1% in Bantul regency. Specifically, the results do not confirm our all hypotheses, indicating different results from two local governments.

Yogyakarta City has longer experience of ICT initiative, but the new ICT initiative has no impact on structure with $p < .05$. Then, those intervening variables have impact on bureaucracy transformation. In Bantul local government, with the newer ICT initiative, all hypotheses were rejected. The table below shows a summary of the hypotheses and introduces each hypothesis by independent variables, dependent variable and relationship between independent variable and dependent variable, and whether the hypothesis is supported by statistical result.

There are some lessons learned from these cases. First, ICT projects do not lead to internal organizational change in Indonesia's local government. Although Indonesia has implemented decentralization policy since 2001, yet the homogeneous local government structure policy is carried out based on Government Regulation stipulated by Central Government.

ICT INITIATIVE AND POLICY OF LOCAL GOVERNMENT STRUCTURE

The local government structure in Indonesia is regulated homogeneously based on the central government policy on structuring local government organizations (PP 8/2000, PP 38/2004, PP 41/2007, PP 10/2014). Under current regulation, local governments do not have authority to set up their own organization structure. In other words, there is no organization restructuring after ICT has been implemented in two local governments. ICT initiatives as a local government decision under decentralization propose the concept of "decision space" as the range of effective choice that is allowed by the central authorities (the principal) to be utilized by local authorities (the agents) (Bossert, 1998, 2011). The Senior executive government officer of Yogyakarta stated that:

Tabel 3
Summary of Hypotheses and Findings

<i>Hypothesis</i>	<i>Independent Variable</i>	<i>Dependent Variables</i>	<i>Proposed Relationship</i>		<i>Findings</i>	
			<i>Bantul</i>	<i>Yogya</i>	<i>Bantul</i>	<i>Yogyakarta</i>
Hypothesis 1	New ICT	Vision and Policy	+	+	Rejected	Rejected
Hypothesis 2	New ICT	Structure	+	+	Rejected	Rejected
Hypothesis 3	New ICT	Culture	+	+	Rejected	Rejected
Hypothesis 4	Vision and Policy	Structure	+	+	Supported	Supported
Hypothesis 5	Vision and Policy	Culture			Rejected	Supported
Hypothesis 6	Vision and Policy	Bureaucracy Transformation	+	+	Rejected	Supported
Hypothesis 7	Structure	Bureaucracy Transformation	+	+	Rejected	Supported
Hypothesis 8	Culture	Bureaucracy Transformation	+	+	Rejected	Supported

“We do not have authority to set up our organization structure according to our condition. Central government has set up homogenous local government structure according to the number of population, and local budget capacity”.

The following impact of central designed-structure on local government is the lack of initiative of middle range leader in Yogyakarta and Bantul. They were likely just technician to collect information from the citizen and not Chief Information Officer. It is clear that the CIO position could be key for local governments in which Indonesian local government structure, position of government chief information officer depend on local condition or not strategic one (Putera *et al.*, 2015).

The characteristics of this model are as follows:

1. some functions and authorities involve national, state, and local government;
2. there is no area of autonomy that is fully independent and having full discretion without considering other jurisdictions; and
3. the power relation is based on bargaining.

The descriptions are based on the law on local governments (Law 22/1999 and Law 32/2004), the law on financial balance between central and local governments (Law 25/2000 and Law 34/2004), and government regulations on structuring local government organizations (PP 8/2000, PP 38/2004, PP 41/2007). In a hierarchical organizational model there are clear procedures determining who is responsible for what, and when a higher hierarchical level is needed (Jassen and de Hoort, 2016).

ICT CULTURE

The absence of impact of ICT initiative on organizational culture is consistent with prior study in Yogyakarta City. Wibowo *et al.* (2014) in their research in Yogyakarta City also found that the presence of online administration is not accompanied by the personnel's readiness as confirmed by some staffs, including the ones on the Public Unit, Development Control Unit, and the Agency of Industry, Trade, Cooperatives, and Agriculture (Dinas Perindagkoptan), and in Gondokusuman Sub-district. Yogyakarta City has long

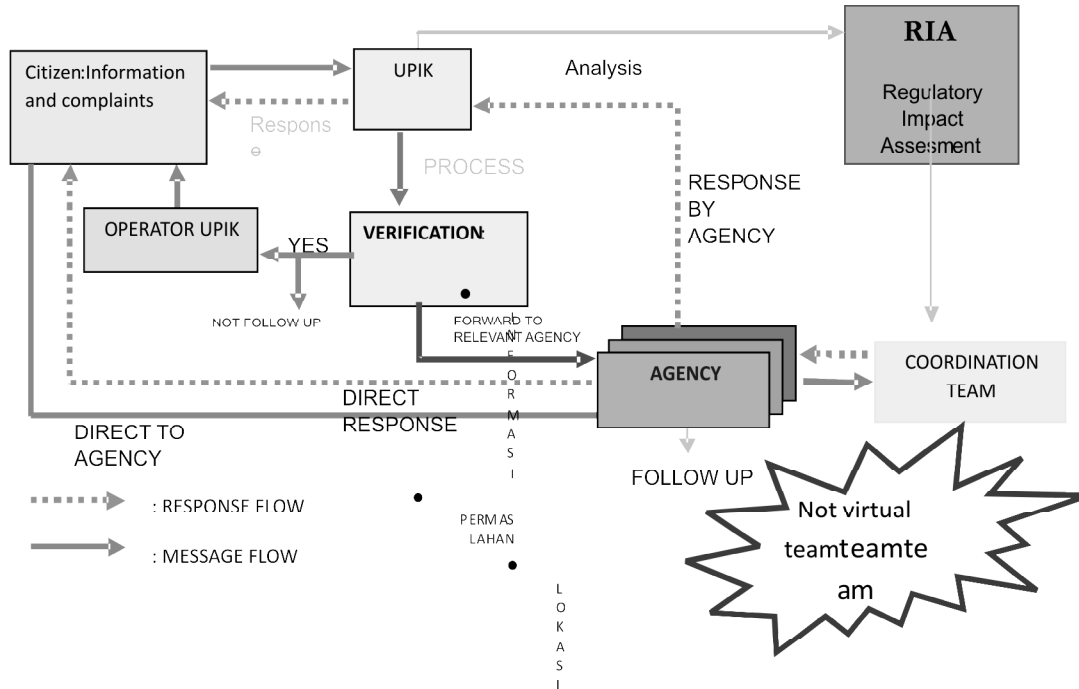


Figure 2: Flowchart of Complaint System in Yogyakarta City

experiences in web-based complaint processing since 2003, however, the information that are collected by Information Unit have to be report to Head of Agency and conventional coordination team or not virtual team, as described by the following flowchart.

The organizational culture for Indonesian Government resembles more to be a hierarchical culture and clan culture rather than market culture and adhocracy culture (Sensuse *et al.*, 2015). This findings is in contrast with the Government's Ducht and British experience in the introduction of radical change and then followed by incremental improvements to service provisioning (Weerakkody *et al.*, 2012).

E-GOVERNMENT POLICY IS A PIVOTAL FACTOR

In Indonesia, the term “e-Government” was officially introduced to public administration through the Presidential Instruction No.6/2001 regarding Information and Communication Technology (ICT) that addressed the government of Indonesia’s need to use ICT to support the practices of good governance. When the State Ministry of Communications and Information was established in 2001, there was a specific national policy on e-Government stipulated on Presidential Instruction No. 3/2003 concerning National Policy on e-Government Development. In Indonesia, e-Government is required due to the following reasons:

1. to support the government’s change towards democratic governance practices;
2. to support the application of authority balances between central and local government;
3. to facilitate communication between central and local governments;
4. to gain openness and transparency; and
5. to enable transformation towards the era of an information-led society.

The *e*-government project started in 2003 based on Presidential Instruction No. 3 of 2003. Since then, various information and communication Ministers' decisions revolved around the *e*-government program. The position of presidential instruction is legally not strong enough to run an *e*-government program. Indonesia needs strategic and integrative policies to improve their *e*-government systems (Rahman, 2014).

Table 4
Policies and Guidelines on *e*-Government

<i>No</i>	<i>Name</i>	<i>Number</i>
1.	National strategy and policy for <i>e</i> -Government development	Presidential Instruction No.3 /2003
2.	Guidelines on infrastructure standard for government portal	No.55/KEP/M.KOMINFO/12/2003
3.	Guidelines on management electronic document system	No.56/KEP/M.KOMINFO/12/2003
4.	Guidelines on master plan <i>e</i> -government institution development	No.57/KEP/M.KOMINFO/12/2003
5.	Guidelines on ICT training program for <i>e</i> -Government	No.47A/KEP/M.KOMINFO/12/2003
6.	Guidelines for establishment local government website	2003
7.	Guidelines for government information system network development	69A/KEP/M.KOMINFO/10/2004
8.	Guidelines information system development for central-government	69A/KEP/M.KOMINFO/10/2004
9.	Guidelines information system development for Province	69A/KEP/M.KOMINFO/10/2004
10.	Guidelines information system development for municipality /regency	69A/KEP/M.KOMINFO/10/2004
11.	Guidelines for data, information and government information system organization management	69A/KEP/M.KOMINFO/10/2004
12.	Guidelines <i>e</i> -government project planning and budgeting	2004
13.	Guidelines for good government and change management	2004
14.	Standard competence for <i>e</i> -government management	2005
15.	Blueprint <i>e</i> -government application for local government	2005
16.	Blueprint <i>e</i> -government application for central government	2005
17.	<i>E</i> -government interoperability framework	2005
18.	Go.id domain management for central and local government	No.28/PER/M.KOMINFO/9/2006
19.	The Electronic Information and transaction Bill	No.11/2008
20.	Draft Government Decree on <i>e</i> -Government	2009

Source: Boni Pudjianto and Zo Hangjung, Understanding Factors Affecting *e*-Government Assimilation in Indonesia, 2012.

DISCUSSION

Our goal in this study is to examine whether local governments with the longer experience new ICT system has as advantage over the new ICT-initiatives of local government in fostering bureaucratic transformation. Overall, our analysis and the results did not support this thesis. In both local governments, Yogyakarta and Bantul, the new ICT system has no impact on policy, structure and culture. However, in Indonesia, the central government has designed homogeneous local government structure in which ICT initiative has consequently not much impact on local government transformation. Insufficient departmental collaboration is inherently in bureaucratic model of local government (Ho 2002). This findings is consistent

with the ICT initiative in Chile and Malaysia in which ICT project was affected by central government policy and clear policy and the formalization of these processes and the human capital development required (Valdes *et al.*, 2011; Wong and Abdullah, 2013). Also Jun *et al.*, (2014) found similar findings that development of local *e*-government in China is still at the information-provision stage.

The findings is consistent with the previous research in government organization, although ICT initiative has been implemented, however leadership and culture as significant challenges need to be addressed (Weerakkoddy *et al.*, 2011). We find the similarity with other country, like Mexico (Almazan and Garzia, 2012) that most cities, towns, and counties have an IT department, but the individual responsible for this department is a low-level staff member who does not have decision-making power and is not in charge of the enterprise-wide IT strategy. Clearly, the “collaboratist system” approach demands leadership and management acumen profoundly more sophisticated than traditional forms of organization (Styen, 2016). There is little or no evidence from these data that *e*-government has transformed information and service delivery, has transformed the governments themselves, or has changed relationships between the governments and the governed. The *e*-government team was free-floating rather than embedded in the country’s executive office as implied by the departmental rivalry as well as the culture of different decision-making. (Chadwick 2011).

CONCLUSION

The total effect of all independent variables on bureaucratic transformation is 44.6% in Yogyakarta City and only 4.1% in Bantul Regency. This results do not confirm our hypotheses. This study reveals that longer experience in ICT implementation has stronger effect on bureaucracy transformation than the shorter one. However, the ICT effect on bureaucracy transformation is not strong. The long time process of bureaucratic transformation is mainly affected by the central designed-structure on local government in which the Chief Information Officer is not strategic. The ICT initiative in the local government do not affect cultural change. However, ICT implementation needs the decentralized decision-making or bottom-up decision-making in order to deal with the uncertainties of public issue. Organization needs a virtual team that run on trust rather than on control (Handy in Mezgar, 2006) which requires lateral communication and active involvement from each individuals under a flat organizational structure, participatory management practices and novel schemes of shared responsibility (Mezgar, 2006).

From central government’s perspective, ICT initiative of local government is not supported by legal and coherent policy. ICT project works in virtual and flat team rather than conventional or hierarchy model. The findings of this study reveal that decision making process does not lead the shift from the conventional mode to the virtual one. The homogeneous central government’s policy on local government structure do not give “room” for virtual team or prefers the hierarchy mode of decision making.

LIMITATIONS AND IMPLICATIONS

The cases in study are only two local governments. Hence, the results do not generalize the experiences of other local governments. Based on the prior study, this findings may also contribute to the understanding of ICT initiative on government transformation. In short, the practical implication of this study proposes that local *e*-government is one of the Indonesia government’s core administrative reform strategies for moving from a regulation orientation to a service orientation. However, the Indonesian central government

does not consistently promulgate a coherent and strong central regulation or policy that would lead a fundamental legal transformation through *e*-government. Other changes in administrative culture are required however, *e*-government system should be more than a symbolic gesture for change, supporting the interests of the existing dominant coalitions in the government and its agencies (Coursey and Norris, 2008; Kraemer and King, 2006; Roy, 2003). Whether *e*-government can play its potential role in developing a service-oriented government is dependent on the changes in the administrative and political culture.

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