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To cite this article: Muhammad Rais Rahmat Razak *et al* 2021 *IOP Conf. Ser.: Earth Environ. Sci.* **717** 012003

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Effects of ICT Application (Information Communication and Technology) Towards the Transformation of Regional Bureaucracy

Muhammad Rais Rahmat Razak¹, Jamaluddin Ahmad², Ahmad Mustanir³, Muhlis Madani⁴ and Andi Idhan⁵

¹⁻³Universitas Muhammadiyah Sidenreng Rappang, Rappang, Indonesia

⁴Universitas Muhammadiyah Makassar, Makassar, Indonesia

⁵Universitas Negeri Makassar, Makassar, Indonesia

E-mail: mraisrahmat@gmail.com

Abstract. Digital-based government has become an interesting issue when the expectations of the 2019 presidential and vice presidential elections, both the 01 Jokowi-Ma'ruf and 02 Prabowo-Sandi pair have the same passion for carrying out digital-based government programs. The presence of digital government should not only be selling campaigns, but must be able to be present in the midst of society by encouraging the application of Information, communication and technology (hereinafter abbreviated as ICT) in various public services, especially during the Covid-19 pandemic. The rapid development of technology has changed the paradigm of public service and governance, from being hierarchical to open and flexible, so that it has an impact on organizational culture and the acceleration of bureaucratic transformation in government. This study aims to find out how ICT plays a role in building organizational culture, making organizational structures, formulating regional policy visions and their influence on bureaucratic transformation, and also aims to look at the factors that influence indicators and bureaucratic transformation. The results showed that the application of ICT in the government of Sidenreng Rappang Regency had a real and significant effect on organizational culture and organizational structure only while vision and policies had not yet been influential but together had an impact on the acceleration of the bureaucratic transformation process. The dominant factor that affects is project-shaped activities, where structural officials have high responsiveness so that they can have a positive influence on bureaucratic transformation.

Keywords: ICT, Information, Communication, Technology, Bureaucratic transformation

1. Introduction

The implementation of bureaucratic transformation is an important thing and homework for every leader in ministries and institutions, from the central level to the regional level. Changes in mindset and work patterns are essential in carrying out bureaucratic transformation, including the use of information technology applications. And furthermore, it will encourage the development of artificial intelligence (AI) in the government system [1]. In its development, information communication technology (ICT) based bureaucratic transformation will be important and absolutely necessary to use and implement. This is proven to provide improvements in various types of public services [2]. The ICT-based public service model will provide various conveniences to the wider community because it can be accessed directly and quickly.

The application of ICT in governance using various online system applications will encourage and provide improvements in increasing participation. The use of ICT in every work process and governance management both at the central and regional levels will be an important and urgent need in order to realize good governance [3]. The implementation and use of communication information technology applications in Sidenreng Rappang Regency have long been used, both by building infrastructure and using various social media applications such as whatsapp, line, facebook, twitter



and other media by officials and employees. It is proven that this media has contributed significantly to the change in the communication and work system of government officials in Sidenreng Rappang Regency. The application of an ICT-based management information system by utilizing social media such as WhatsApp, Facebook, Twitter as a strategic communication channel has been an aspiration channel for a long time along with the development of world information technology. This is in line with Presidential Instruction No. 3 of 2003 concerning National Policy and Strategy for e-Government development, which is a clear evidence of government support for running ICT-based governance. In principle, the district government of Sidenreng Rappang has implemented various management information systems in providing services, namely the application of an ICT-based service system. However, the implementation has not been able to run optimally.

Previous research [4], which examined the Implementation of Management Information Systems in Decision Making at the Baranti District Office, Sidenreng Rappang Regency, concluded that, with computer-based MIS activities, leaders can be more efficient and effective in decision-making efforts, including in perform management functions, such as planning, organizing, mobilizing, and monitoring. This research describes the existence of ICT integration in work, but the problems of readiness and ability of the apparatus are still limited in their mastery of ICT so that the application of technology in work is not optimal. The results of other research [5] illustrate that the regional financial information system (SIKD) in presenting financial information and management implementation is not in accordance with the expectations that can support the development of these offices, because regional financial information systems have not fully assisted regional heads in formulating policies and financial management at every work program that will be and has been implemented.

Several previous studies have shown that there is a research gap regarding various facts that arise regarding the response of the bureaucracy to the application of ICT in the bureaucratic transformation process. This is due to the lack of previous research specifically examining the application of the ICT system and its effects on bureaucratic transformation. This study uses a case study of the application of ICT in Sidenreng Rappang Regency and its effects on bureaucratic transformation. The e-government policy in Sidenreng Rappang Regency along with the development of information technology will give a new face and hope for the creation of better governance.

2. Method

The research was conducted at the SKPD Office of Sidenreng Rappang Regency from April 30 to July 1 2019, with the location of the research being carried out purposively with the consideration that Sidenreng Rappang Regency is one of the areas where ICT users are. Sampling was 100 structural officials from 1000 officials in Sidenreng Rappang Regency. The data were collected by distributing questionnaires to 100 respondents who were drawn randomly per office.

Data analysis used in this research is Structural Equation Modeling (SEM), as has been done by previous researchers, [6] conducted a study on the effect of entrepreneurial orientation on business performance in industry in Makassar City.

3. Basic Theory

Previous research related to the application of the ICT system in government management, it is known that the use of ICT aims to assist governance. One of them is through increasing government services to citizens [4][7][8]. The results showed that the application of the ICT system aims to improve public services that are fast, cheap and effective, efficient, and responsive. Besides that, the application of the ICT system can also create a transparent government, so that government activities can be accessed by all citizens. In other studies that are focused on efforts to achieve transparent government [9]. The results show that the application of ICT in local governments can lead to transparent governance. Other studies focus on efforts to increase citizen participation in government administration, thereby forcing the government to adopt it, [10][11]. Researchers believe that an

ICT system such as a website will make it easier for citizens to channel their aspirations and demands to the government so that it can encourage increased citizen participation.

Other ICT application research is focused on realizing bureaucratic transformation in the context of improving public services [12]. The results show that the implementation of the ICT system is able to change the organizational structure from a vertical to a horizontal one, change organizational culture, and redesign government policies.

3.1. *Electronic government*

ICT-based government or electronic government is not only limited to the use of web technology, but also includes the socio-political and cultural systems involved in it [13]. The development of information technology and communication through online-based social media and optimizing the website will encourage increased citizen participation in government. According to [14], E-Government is an activity carried out by the government by using Information Technology (IT) to provide services to the public. E-government is not only a website in general that contains information but also has a very broad function such as all kinds of processes and structures that facilitate all forms of interaction between government and society and also a form of e-business in the government sector, namely electronic public services to the public. and businessmen. E-Government includes three things, namely Government to Citizen (G2C), Government to Business (G2B) and Government to Government (G2G). By using the e-commerce analogy, G2C aims to make the interaction between the government and its citizens tighter and more efficient [15].

To ensure the implementation of E-Government, several groupings were carried out. According to [16] E-Government can be divided into 5 levels, the higher the level, the more complex the problems faced by the government are as follows: The first level, e-government is limited to information about everything that is in the institution, and information provided to the wider community, is still one-way and aims to show a good face of government, this is indicated by the emergence of various attractive websites at almost all government institutions. The second level is marked by online transactions or interactions between a government institution and the community. The third level namely the existence of an online work process between several institutions and the community. For example, in online *Citizen Id* extension, people no longer need to attach their *CITIZEN ID* to take care of a passport or make a SIM. The 4th level, in this level, a person can update the information concerning himself with only one process in one agency and changes to the data are connected directly to other agencies. The fifth level, at this level the government has provided packaged information according to community needs. The community feels excellent service from the government.

3.2. *Bureaucratic Transformation.*

The bureaucratic reform that the public demands is not only limited to structures or procedures, but also involves reforming the morals and attitudes of the bureaucrats. In order to develop bureaucratic duties, it is necessary to apply the ICT system in public services. So that a visionary leader is needed, able to develop effective leadership that can shape the vision and mission, can raise enthusiasm and inspire subordinates to develop initiative and creativity, and maintain their responsibilities. A visionary leader can do a lot for the organization, among others, by organizing the organization according to the needs and challenges of the times by reforming the structure, personnel, and systems and procedures of the organization[1].

3.3. *Organizational structure*

The application of ICT in government management will encourage a broad or horizontal organizational structure model. The application of ICT means that there are challenges for organizations, especially in restructuring administrative functions and processes, as well as systems of coordination and cooperation between different departments at various levels of government. In fact, information and communication technology (ICT) can be used as a whole in an organization both at the operational level and in providing decision-making support, and the strategic level of ICT

is seen as an opportunity to do something better for the bureaucracy, especially in providing Standard Operating Procedures (SOP). by following ICT.

3.4 Organizational culture

The application of ICT in various public services is one form of innovation strategy in the management of government organizations as applied to business organizations that always prioritize appropriate change management in order to achieve the desired targets. Implementing ICT means making various changes or cultural reforms (cultural change). Management of change that continues to roll and has now entered modern management, from conventional management to information technology-based government management. This condition demands changes in the personal bureaucracy and institutions formed by the government and the community, such as Village-Owned Enterprises (Bumdes), which until now have not played much role in empowering the community [17]. The implementation of e-Government will encourage cultural changes that emphasize aspects of transparency and openness so that information related to government will be easily obtained by both the private sector and economic institutions formed by the village government together with communities such as Bumdes, which until now have not played much role in improving community economy, as well as government information will quickly spread to local governments. So that this condition emphasizes the need for mental readiness of officials and bureaucrats, but changes in cultural change in every organization cannot be separated from the habits of each organization.

3.5. New ICT System

The new ICT system or New ICT system is a system-enabled process transformation, social innovation and digital inclusion in the public sector [18]. The new ICT system is an effort to improvise the application of IT in the official system in order to improve public services. Changes towards technological renewal are part of an effort to achieve increased quality and professionalism of organizational members. In institutional theory, it is known that the normative isomorphism approach is often associated with professionalization and captures the normative pressures that arise in certain fields. Norms or something that is right for an organization is based on the existence of formal education and the socialization of formal knowledge that can provide support to the organization.

According to [19] that there are three dimensions that must be considered in an effort to implement ICT in e-government. Namely the dimension of Information Technology; human resources and organizations. The mistake so far has been to view e-government from information technology alone, so that the picture is that it requires high costs, complex, changes in work patterns. It continues to be regarded as the cause of inhibition of e-government without realizing that there are important factors that have not been given attention, namely human resource readiness and organizational flexibility.

3.6 Hypothesis

The hypothesis built in this study is that the application of New ICT will affect the vision and policies, organizational structure and organizational culture which in turn will affect the transformation of the bureaucracy.

4. Finding and Discussion

4.1 The Influence of ICT on Bureaucratic Transformation

Assessment of the outer model is done by comparing the loading factor. The loading factor value is an individual reflective measure that has a standard value between 0.6 to 0.7 (Ghozali 2001). This means that not all indicators in this study are valid to explain the latent variables used. Then re-validation is needed to get the best final model at the next stage, namely by issuing the loading factor value below 0.5, then carrying out the PLS-SEM (Structural Equation Model) algorithm process that has been improved and provides valid results based on the research results that have been done.

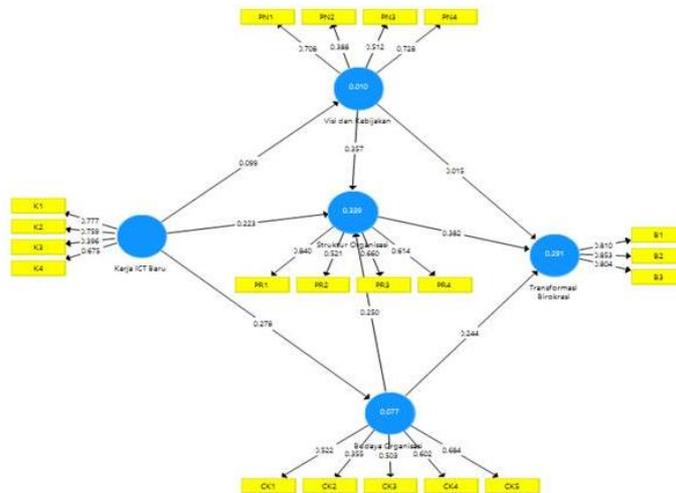


Figure 1. The results of data processing using SEM

The results of the loading factor above indicate that bureaucratic transformation is not directly influenced by ICT but there are variables that influence it, namely the organizational structure variable, the organizational culture variable and the vision and policy. To observe the relationship between variables in this study, it can be done by testing the T-value and P-value from the structural model evaluation table that has been obtained from SEM. (see table 1)

The results of the structural model evaluation table used the criteria that if T-count \Rightarrow 1.96 is considered to have a significant effect and if the P-value = <0.05 is considered significant, it can be concluded that,

- The work of new ICT has a significant effect on organizational culture and organizational structure, while the vision and policies have no effect. This can be seen from the widespread use of email and artificial intelligence in the implementation of work, as stated by the Head of the Sidenreng Rappang District Education Office, Nurkanaah Ismail, that: "the use of email and internet applications quickly changes the work culture, where coordination is mostly done through whatshap."
- Bureaucratic transformation is significantly affected only by the organizational structure, while the policy vision and organizational culture have no effect. The addition of an IT unit in the organizational structure has a positive influence in fostering a transparent and accountable work procedure, so that it can accelerate the bureaucratic transformation in the regional government of Sidenreng Rappang Regency.

Table 1. Structural Model Evaluation (SEM)

Latent Variable			T-count	P-Value	Information
New ICT Work	to	Vision and Policy	0.622	0.534	Not significant
New ICT Work	to	Org. culture	2.814	0.005	Significant
Vision and Policy	to	Bureaucratic Transformation	0.112	0.911	Not significant
Organizational culture	to	Bureaucratic Transformation	1.642	0.101	Not significant
New ICT Work	to	Organizational structure	2.335	0.020	Significant

Organizational structure	to	Bureaucratic Transformation	2.827	0.005	Significant
Organizational culture	to	Organizational structure	2.531	0.012	Significant
Vision and Policy	to	Organizational structure	3.277	0.001	Significant

T-count => 1.96 → Significant Effect
P-Value = <0.05 → Significant (Source: Ghozali, 2001)

4.2. *The factors that influence the transformation of the bureaucracy.*

To understand the influencing factors, it can be seen from the loading factor value of each indicator variable against the latent variable.

Table 2. Loading Factor Value

Latent Variables	Sidenreng Rappang Regency			
	Symbol	Score	Manifest Variable/Indicator	
New Work	ICT	K1	0.777	Organizational culture
		K2	0.759	Availability of Adequate ICT
		K4	0.675	ICT Minded
Vision and Policy	and	PN1	0.708	Rules of laws
		PN4	0.728	Instrumentality
Organizational culture		CK5	0.684	Objects processing symbolic value
Organizational structure		PR1	0.84	Value Expectations
		PR3	0.66	Jobs roles obedience to duty
Bureaucratic Transformation		B1	0.81	Organizational change and change management (reframing)
		B2	0.853	Project, program and portfolio management (restructuring)
		B3	0.804	Development according to stage of growth models(revitalizing)

4.2.1. *New ICT Work*

Meanwhile, the indicator variable for the availability of IT human resources has a loading factor of less than 0.5, which indicates that this indicator variable is still not contributing to the acceleration of the bureaucratic transformation process in Sidenreng Rappang Regency. Government officials, especially structural officials in Sidenreng Rappang Regency, have a strong desire to implement ICT and are accustomed to using ICT in their work but are often constrained due to limited IT human resources who are responsible for maintaining, repairing and upgrading existing network capabilities, so that the application of ICT cannot be maximized well in running the government bureaucracy.

4.2.2. Vision and policy

In the table above, the highest loading factor value on the instrumentality indicator variable is 0.728. This shows that the apparatus and structural officials know well the organizational instruments and have a high level of compliance with the organization. This is because employees in the Sidenreng Rappang Regency government still have high kinship relations and the level of knowledge of government organizations is better in line with the number of Employees who work while studying at several colleges and universities that operate in this area.

4.2.3. Culture and Organization

The loading factor value on the indicator variable is 0.684, while other variables such as categories typifications schema or category typification schemes within organizations, structural isomorphism identities (identity of structural change tendencies) in organizations, scripts or reference documents within the organization that guide organizational officials, whether or not Orthodoxy or a kind of protocol provision in the organization as a culture that is already running, all of the loading factor values are still below 0.5, this shows that the symbols and jargon built in the organization still have a significant influence in building organizational culture, while other things that are procedural have not provided much influence on bureaucratic transformation.

4.2.4. Organizational structure

The organizational structure has two influencing indicators, namely value expectations and jobs roles obedience to duty. The indicator that greatly influences the latent variable of organizational structure is the indicator of value expectations or whether or not the organization has an expected value with the highest loading factor value of 0.84. and jobs roles obedience to duty or whether or not there are provisions for compliance with obligations in carrying out organizational roles with a loading factor of 0.66. While other variables such as the presence or absence of a regime power system in the organization, whether there is special attention from the apparatus in the implementation of organizational tasks, and whether there is a standard meeting agreement in determining the actions and objects of the organization has a loading factor of less than 0.5 or is deemed not to have much influence on organizational structure. For employees and structural officials in Sidenreng Rappang District, promises and hopes for a better future work are still very influential compared to other variables.

4.2.5. Bureaucratic Transformation

The latent variables of bureaucratic transformation show that there are several indicator variables that have a direct effect, namely Organizational change and change management (reframing), Project, program and portfolio management (restructuring), Development according to stage of growth models (revitalizing). The indicators that most influence the bureaucratic transformation activities in the new ICT treatment are Project, program and portfolio management (restructuring) with a loading factor value of 0.853. This shows that structural officials have good responsiveness to any changes that promise good things. Structural officials in Sidenreng Rappang Regency have basic characters, namely dynamic, energetic and like innovative and creative things.

5. Conclusion

- The application of ICT has had a significant effect on organizational culture and organizational structure in Sidenreng Rappang District. This shows that the application of ICT in Sidenreng Rappang Regency has given a change to the work culture and work structure.
- Organizational structure has a real and significant effect on bureaucratic transformation, while organizational culture and policy vision have not shown a real and significant effect on bureaucratic transformation. This means that the application of ICT in Sidenreng Rappang Regency has influenced the organizational pattern that previously tended to be vertical to a bureaucracy that was wider and more flexible.

- The dominant factor that affects bureaucratic transformation, the existence of activities in the form of programs or projects, where structural officials have good responsiveness so that they can have a positive influence on employees, this cannot be separated from the basic character of structural officials in Sidenreng Rappang Regency who are dynamic, energetic and like. on things that are innovative and creative.

6. Acknolegment

The author would like to thank the constructive cooperation between fellow authors, the district government of Sidenreng Rappang. Also to the Management of Muhammadiyah University Sidenreng Rappang, University of Muhammadiyah Makassar and Makassar State University for their involvement so that this writing collaboration can be realized properly. Our appreciation to the organizers of the Iconpo international level conference, even though in the atmosphere of the Covid-19 pandemic, they can still carry out this activity well. Hopefully this research can provide benefits for the advancement of science.

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