UNDERSTANDING INFORMATION TECHNOLOGY CULTURE IN DIGITAL-BASED PUBLIC SERVICES

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Abstract

The increasing enthusiasm of government agencies to implement e-government can be seen as the government's commitment to anticipating the current development of science and technology (Gupta, Singh, & Bhaskar, 2018; Wang, Wang, & Liu, 2016). The present study was designed to investigate the information technology culture of public organizations in the context of public services in the Magelang City Government, Indonesia, and identify the driving and inhibiting factors of e-government based public services in the city. A mixed method with a sequential explanatory design was employed in the study. Data were garnered through questionnaire surveys, documentation, observation, and interviews. A descriptive statistic was used for the quantitative data analysis, while for the qualitative data analysis, a thematic process was conducted. Findings from the study suggest that the information technology culture in the city's governance is mainly influenced by five factors: technocratic utopianism, anarchy, feudalism, dictatorship, and federalism. The findings are crucial as they contribute to the discovery of the root cause of the problem that the implementation of e-government based public services in Indonesia is not yet optimal.

Keywords: Digitalization, E-Government, Information Culture, Public Service

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1. INTRODUCTION

Recently, the effort of developing e-government has been massively carried out by the public bureaucracy. The tendency of public bureaucracy, such as ministries, non-ministerial government agencies, provincial local governments, city and district governments, to implement e-government in the governance systems is noteworthy and interesting to study for policymakers and academicians (Brewer, Neubauer, & Geiselhart, 2006; Rashid, Othman, & Narehan, 2011). Increasing enthusiasm of government agencies in implementing e-government can be seen as a commitment of the government (both the central and regional) to anticipate changes and developments in science and technology currently occur, particularly the use of information technology to support better governance and public services (Kalsi, Kiran, & Vaidya, 2008, 2009; Kalsi & Kiran, 2013; Luna-Reyes & Gil-Garcia, 2011; Johnson, 2012).

In some developing countries, the application of e-government brings advantages to the citizens and provides benefits to the national development of a country (Evans & Yen, 2006; Rehman, Esichaikul, & Kamal, 2011; Srivastava & Teo, 2010). To support the implementation of e-government, the Indonesian government in 2003 issued guidelines for regional portal infrastructure development. These were then complemented by guidelines issued in 2004 covering: quality standards and a range of services and application e-services. In 2006, the government formed the National Board of Information and Communication Technology through Presidential Decree No. 20 of 2006. The finding also indicates that through the development of information technology advancements digital connectivity in both public and private organizations will increase (Rana, Dwivedi, Lal, Williams, & Clement, 2017; Zahid & Din, 2019; Sijabat, 2020). Since the issuance of Presidential Instruction No. 3 of 2003 concerning National Policies and Strategies of E-Government Development, and Presidential Regulation No. 95 of 2018 concerning Electronic-Based Government Systems, implementation of e-government in Indonesia began to reverberate. The implementation of e-government for the government has advantages, including being more effective and efficient, reducing the level of error in providing services to citizens, and improving the government's reputation (Sharma, 2016; Gupta et al., 2018).

Previous studies have also shown the implementation of e-government has the potential to improve organizational performance in the public sector (Al-Masaeed & Love, 2014; Lau, Aboulhoson, Lin, & Atkin, 2008; Olasina, 2014; Amegavi, Bawole, & Buabeng, 2018), improve the quality of policymaking through information sharing, increase interaction with citizens, and also increase private sector interaction with government (Xu, 2012; Gupta, Dasgupta, & Gupta, 2008; Gilbert, Balestrini, & Littleboy, 2004). In addition, the implementation of e-government also helps the government apply new public management principles (Elbahnasawy, 2014). Even though Information and Communication Technology (ICT) is currently becoming a commodity much talked about, it does not mean that all are successful in practicing the e-government (Ho, 2002; Moon, 2002). In Indonesia, some local government and municipalities agencies are pushing themselves to implement e-government. However, there are also numbers of other agencies or regions with no guarantee of e-government implementation yet.

Although most areas in Indonesia are already connected to telecommunications networks, optimizing the utilization of ICT infrastructure is still an obstacle. The United Nations conducts an assessment of the implementation of the E-Government System by issuing the E-Government Development Index (EGDI)[1]. The EGDI is a composite measure of three important dimensions of e-government, namely: provision of online services (Online Service Index, OSI), telecommunication connectivity (Telecommunication Infrastructure Index, TII) and human capacity (Human Capital Index, HCI).

As shown in Appendix A, the EGDI Indonesia in 2018 has an index value of 0.5258. The low EGDI value is a significant contribution from the low TII which has an index value of 0.3222. Furthermore, judging from the development of TII from 2012 to 2018, Indonesia's TII did not show a significant increase.

In addition, residents have not yet optimally utilized ICT infrastructure, especially broadband networks, which is described by the low penetration of Internet users in Indonesia. Based on the results of the survey conducted by Indonesian Internet Service Providers Association (APJII, 2017), the penetration rate of Internet usage in Indonesia is 54.68% (143.26 million Internet users out of a total 262 million population). Meanwhile, the distribution of Internet user penetration rate by region is 57.70% in Java; 54.23% in Bali and Nusa Tenggara; 47.20% in Sumatra; 72.19% in Kalimantan; 46.70 % in Sulawesi and; 41.98% in Maluku and Papua. The low penetration rate of Internet users in several parts of Indonesia is due to the low quality and limited capacity of the available broadband network.

Although in 2014 the city of Magelang has compiled a grand design for the development of telematics for the city government, most of the current e-government activities are still in the form of providing websites and information services. Based on the final report of Bappeda[2] (2020), several problems were found that need to be considered in the application of ICT in Magelang City, including: 1) lack of readiness from the government, both in terms of human resources and facilities; 2) technology and information infrastructure is not adequate, the wide area network (WAN) system has not been implemented optimally; 3) the information system is developed with various technology platforms, making it difficult to integrate; 4) obstacles in the pattern of electronic data management (in the form of a database), so that it will be difficult for the data entry process; 5) there is no clear bureaucratic policy regarding the authority for data ownership and access by other parties; 6) lack of understanding of the principles of IPR so that some work units use pirated software (illegal or without a license); 7) IT control in several work units is still limited to operators, not at the system analyst/programmer level, so there is still a need to improve the quality of HR in the IT field; 8) not yet optimal cooperation between Local Government Work Unit (*Satuan Kerja Perangkat Daerah*, SKPD) in the management and provision of data; 9) public information has not been managed properly; and 10) lack of awareness of SKPD in managing websites and information systems.

One of the most influential factors on the success of the e-government implementation is information culture, in addition to the human resources, infrastructure, and funding factors (Kalsi & Kiran, 2013; Kalsi, Kiran, & Vaidya, 2008, 2009), it is essential to study such a topic. Human resources do play a pivotal role and are a success factor of public services based on e-government because human resources are the one that drives other resources (Luna-Reyes & Gil-Garcia, 2011; Johnson, 2012). However, no matter how good the e-government infrastructure is if there is no awareness concerning information culture, all

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[1] https://publicadministration.un.org/egovkb/en-us/About/Methodology

[2] Magelang Municipal Development Planning Agency

investments carried out will be in vain without maximum results (Khamis & van der Weide, 2017; Oni, Okunoye, & Mbarika, 2016; Pederson, 2016; Urbina & Abe, 2017).

Within this context, this paper presents the concept of information culture in the city of Magelang, Indonesia, identifies the types of information culture, discusses some of the main challenges and opportunities in providing e-services. The objectives of this paper are, to discuss the information culture challenges and key opportunities of e-government and to identify information culture which has a high strategic impact in developing countries. This research contributes to finding the root cause of the not yet optimal implementation of digital-based public services in Indonesia.

This paper is organized as follows. Section 1 presents an overview of the problems of implementing e-government in developing countries, especially the city of Magelang, Indonesia. Section 2 provides an overview of e-government and types of information culture. Section 3 contains the research methods used. Section 4 presents the results of the research on the types of information culture. Section 5 contains a brief discussion of the factors that influence information culture in developing countries as well as recommendations for city governments in Indonesia to improve the quality of digital-based services. Finally, in Section 6 the conclusions of this study are presented.

2. LITERATURE REVIEW

2.1. E-government concept

Various theoretical meanings have been put forward either by non-government institutions or government institutions towards the concept of e-government. United Nations Development Programme (UNDP) has defined, "E-Government is the application of Information and Communication Technology (ICT) by government agencies" (Indrajit, 2002, p. 2). One of the goals of using information technology in government agencies is to improve better services that are an advantage for citizens to get better public services, which are more transparent, accountable, reduce time and costs, empower people through information and reduce the level of corruption (Borah, 2013; Saxena, 2005; Abbassy & Mesbah, 2016; Gupta, Bhaskar, & Singh, 2016a; Gupta, Singh, & Bhaskar, 2016b).

Earlier, Berryman (2004) defines e-government as an online service process, e-service, e-administration, and e-democracy. E-government is intended to provide ease of communication and transactions between the government and its citizens (Government-to-Citizen, G2C), the government with business organizations (Government-to-Business, G2B), and among government institutions (Government-to-Government, G2G; Government-to-Nonprofit, G2N) and also the government and its staff (Government-to-Employee, G2E) (Fang, 2002; Fang & Wang, 2006; Basu, 2004; Javidian & Mollayaaghobi, 2011; Ganapati & Reddick, 2012).

If these four concepts are concluded, then e-government is a government system process using ICT as a tool to provide ease of communication and transaction processes to citizens, business organizations, and among government agencies and their staff. So that efficiency, effectiveness, transparency, and accountability of government can be achieved for the people (Slamet, Hamdan, & Deraman, 2007; Al-Sarabi & Khanfar, 2010).

This e-government can be implemented in various ways including 1) providing information sources, especially information often sought after by the public; 2) provision of access mechanisms through information kiosks available at government offices and also in public places; and 3) e-procurement where the government can conduct tenders online and transparent (Raharjo, 2001).

Development efforts for e-government can be done through several stages or levels. One way to categorize these types of services is to look at them from two main aspects, namely: 1) aspect of complexity, which concerns how complicated the anatomy of an e-government application which is about to be built and applied and 2) aspect of benefits, which involves matters relating to the magnitude of the benefits felt by its users (Indrajit, 2002, 2005).

2.2. Information culture in the context of public organizations

Information culture is a relatively recent concept but has attracted the interest of researchers from around the world. The term information culture was first introduced by a researcher from Finland, Mariam Ginman (Oliver, 2017). Several decades ago, Ginman (1987) contend that the concept of information culture as one that is open to change and innovation, where management is responsive to information about the external environment. In other words, information culture is presented as a necessary and desirable state if the organization is to be successful and competitive. Ginman's research becomes the basis for research by other researchers (Hansen & Widén, 2016; Widén-Wulff, 2000; Widén & Hansen, 2012). However, this perspective on information culture has been broadened by other researchers (Oliver & Foscarini, 2014) to include all cultural settings, i.e., where information can be poorly managed as well as very positive situations where systems and processes have been implemented successfully and effectively used appropriately by all stakeholders.

To summarise, there are two groups of definitions of information culture reflected in the literature (Oliver, 2017). One cluster considers information culture to be "information culture", that is, an environment in which information is well managed and used effectively and efficiently. Another cluster considers the concept to reflect cultural values, attitudes, and behaviors related to information, whether it is positive or negative, effective or ineffective. It is this latest, more holistic, and comprehensive articulation of an information culture that is the subject of this paper. In this way, all organizations and communities, no matter where they are in the world, will have an information culture. Furthermore, the more complex the entity, the more likely it is to be characterized by multiple information cultures. In archival storage (i.e., activities that include the current management of records and short-term records), this conception of information culture has been recognized as

an important feature that needs to be taken into account when developing and implementing a records retention strategy. Evidence of this recognition is provided by the fact that information culture is one of three aspects for analysis identified in record-keeping informatics, a new approach to records management that has been developed by Australasia authors (see Upward, Reed, Oliver, and Evans, 2013 for an outline of features recordkeeping informatics and a motivator for its development).

Sociologists define culture as interactive patterns and collective behavior that are recognized and practiced by a group of actors (Turner, 1998). In society, culture only builds social relationships and reflects how community members live their daily lives (Altman & Baruch, 1998). Such a reflection is largely based on a set of shared values that distinguish members of one group from another (Hofstede, 1981). These shared values help members of the same group deal with their social relationships with whom I am and how I should behave. Actors with the same cultural values can recognize each other and build their social identity in a group (Thompson & Wildavsky, 1986). In an organization, the collective behavior of actors and social identity will shape the overall organizational culture.

Theoretically, organizational culture as a pattern of shared basic assumptions learned by groups in an organization as a tool to solve problems with adjusting external factors and integration of internal factors and has been proven valid and is therefore taught to new organizational members as a correct way to perceive, think, and feel in relation to the problems at hand (Schein, 1992). A previous study by Lubbad and Bohari (2016) found an interaction between the influence of organizational characteristics (management support, information technology readiness, government strategy) and organizational culture, so as to explain how information technology innovations emerged in an organization.

Similarly, Winarsih (2008) distinguishes the existence of four kinds of organizational culture, namely:

1) *Apathetic culture:* In this type, the attention of the organization members towards the relationship between humans and the attention to the performance in carrying out tasks are both low.

2) *Caring culture:* This type of organizational culture is characterized by low attention to performance and high attention to human relations.

3) *Exacting culture:* The main characteristic of exacting culture is that attention to people is very low, but attention to performance is very high.

4) *Integrative culture:* In organizations that have integrative culture, attention to people and attention to performance are both very high.

For such organizations, companies, and public organizations, information is everything. Not only because the information is part of the process of creating goods and services, but almost every important decision-making management needs quality information. But in reality, there are still organizations that are very rigid in applying management principles information in their possession, so it is very difficult for anyone just to access it (Indrajit, 2012). In the information technology domain, cultural studies have paid great attention to the impact of culture on business practices and technology development (Kass, 1991; Balsamo, 1996; Katz & Townsend, 2000). For example, cultural norms in Europe were found to affect all aspects of ICT strategies including product development, sales strategies, sales cycles, and product deployments (Tse, Tiong, & Kangaslahti, 2004); virtual team decision-making was found to be significantly influenced by cultural diversity and the communication process was hindered by it (Shachaf, 2008); organizational culture also plays a distinctive role in the organization's decision to adopt high-tech products (Sharma, 1994); more specifically, elements of people-oriented organizational culture such as trust, teamwork, autonomy, flexibility, and information sharing, seem to have more positive influence on successful IT implementation (Harper & Utley, 2001).

At an extreme point, there are organizations that are extremely rigid in applying management principles to the information they have, which makes it very difficult for anyone to access it. While on the other hand, there are quite a number of more moderate organizations, where these organizations are free and open, for anyone and anywhere who wants to obtain information for the needs of the organization's daily activities can easily obtain and access it (Chen & Bennett, 2010; Da Veiga, 2016).

Boisot (as cited in Canals, Boisot, & MacMillan, 2005, p. 5; Indrajit, 2012, p. 2; Wang et al., 2016, pp. 1–2) defines information culture as a conducive system that supports the occurrence of information exchange behavior both among individuals and groups in organizations. In his famous work, viz Boisot's Model, he stated that the structure of information management will be closely related to the characteristics of information along with the context of the organization's existence, hence, it can be categorized into two matrix coordinates as follows. 1) Codified vs. uncodified, meaning information is considered as codified if needed a categorization mechanism based on a certain standard code as like substances in chemical reactions, variables in physical formulas, rank in the military, and so forth. While uncodified information is often found in representations such as magazines, newspapers, television, radio, and so on. 2) Diffused vs. undiffused, meaning information is considered as diffused if freely accessible by the public. While categorized as undiffused if only allowed to be accessed by certain groups of individuals or communities.

Several previous studies have explained that organizational culture is an important and influential part of the success or failure of implementing an information system (Bulinska-Stangrecka, 2016; Mardiana, Tjakraatmadja, & Aprianingsih, 2018; Oliver, 2017). Based on the results of his research, which was inspired by Max Boisot's theory, Keen (as cited in Indrajit, 2012, p. 2) found that there are five types of information management structure models that are strongly influenced by the organization information culture. The five models and their characteristics are as follows:

1) Technocratic utopianism, a system in which the organization is strict, in detail, and consistently regulates the creation, distribution, and use of each category of information available in the organization.

2) Anarchy, is a condition where the organization has no policies and procedures at all related to information management.

3) Feudalism, occurs when the information management needs and governance are held or monopolized by one or several specific organizational functions. These organizational units that in fact determine the models, categories, and information standards that need to be managed by the organization and they will provide it for all individuals.

4) Dictatorship, places the position of the leader of the organization or commonly called the head of the office/work unit who decides and controls the existence of information in the organization.

5) Federalism, is seen as a fairly democratic management system because a number of interested parties hold a joint consensus regarding the management of existing information and flow in the organization.

There are several factors that cause an organization to become more competitive, including organizational structure, decision-making model, and managerial style. Based on the results of his study, the focus of organizational culture and knowledge about the organization are factors that require attention (Indrajit, 2012). In line with the development of the concept of governance, in the science of public administration, there is also the development of new concepts. In the 1980s and early 1990s, a new managerial approach emerged in the public sector as a response to the shortcomings of the traditional public administration model. This approach is called the new public management (Hughes, 1994). In the new public management, there are fundamental changes, both in terms of strategic aspects, internal management, and in terms of the relationship between the bureaucracy, politicians, and the public. Hoods (as cited by Hughes, 1994) says that in essence there are four types of changes proposed by the new public management approach, namely: focusing the organization on output, managing organizational

inputs through contracts, reducing the scope of government work, and change the accountability relationship between the bureaucracy and politicians and the public. Changes in the life of the nation and state fundamentally demand clean, transparent government governance that can respond to the demands of change. Information technology provides an opportunity for structuring various aspects of the life of the nation and state which are increasingly open, where the interests of citizens have a central position. E-government provides opportunities for structuring various aspects of national and state life that are increasingly open, where the interests of citizens have a central position (Batara, Nurmandi, Warsito, & Pribadi, 2017; Hooda & Singla, 2021; Hung, Chang, & Kuo, 2013; Stemberger & Jaklic, 2007; Weerakkody, Janssen, & Dwivedi, 2011).

3. METHODOLOGY

The present study employed a mixed method with a mixed design partially dominant in sequence (Leech & Onwuegbuzie, 2007, 2009). The dominant sequential mix design is research with two phases that occur sequentially, but one of the quantitative phases has a more dominant emphasis. The survey technique used in this study employed a sequential explanatory design that occurs in two different interactive phases (Bowen, Rose, & Pilkington, 2017; Côté-Leclerc et al., 2017; Creswell & Creswell, 2018; Creswell & Piano Clark, 2018; Ivankova, Creswell, & Stick, 2006; Jenkins, 2019; Muhaimin et al., 2019). In this design, quantitative numerical data were collected and analyzed in the first phase. Meanwhile, qualitative text data were collected and analyzed in the second phase to help explain or describe the quantitative results obtained in the first phase (Bungin, 2020; Krohwinkel, 2015; Maleku, Kim, Kagotho, & Lim, 2021; McKim, 2017; Morren, Gelissen, & Vermunt, 2013). The basic procedure for applying the explanatory sequential design in the study can be seen in Table 1.

Table 1. The research design and process undertaken

Research design	*Research approach*
Theoretical paradigm	A pragmatic, explanatory, systematic approach. Quantitative research using Statistical Package for Social Sciences (SPSS). Qualitative research (interviews).
Methodology	Explanatory sequential approach. Questionnaire/survey, case studies (interviews). A mixed method.
Participants	Website manager in each regional apparatus organization (Organisasi Perangkat Daerah, OPD).
Data collection method	Questionnaire/survey offline. Interviews carried out; one to one with web managers in each OPD.
Data analysis	Questionnaire/survey analyzed and evaluated using SPSS. Thematic analysis of qualitative data gathered, analyzed using manual method.
Validity, reliability	Measures and factors will be taken into consideration to ensure that the research is as valid and reliable as possible.

3.1. Design of the study

A mixed method study with a sequential explanatory design was conducted to explore research phenomena involving multiple data sources and establish the findings' reliability and validity (Creswell & Creswell, 2018). The sequential explanatory design relies on quantitative data supported by qualitative data to achieve the research objectives (Creswell & Creswell, 2018). Through this

method, we investigated the type of information culture in the Magelang City Government. The research was conducted for eight months from November 2017 to June 2018 in the city of Magelang, Indonesia. We used two types of data sources, surveys, and interviews to answer the research questions. In mixed method design, several data methods such as surveys, observations, interviews, and document analysis are significant (Stake, 1995). Data collection methods should be

linked to the research approach. Both methods of data collection are important to provide complete and detailed information in this study. This research begins with a quantitative process followed by the collection and analysis of qualitative data.

3.2. Quantitative data

We first surveyed all website managers of regional apparatus organizations (OPD) in the city of Magelang, Indonesia. However, the sample is 30 who manage websites in each OPD. We distributed the printed survey instruments to 30 respondents of which 30 instruments were returned and all 27 question items were answered by the respondents. Based on construct validity, several words were used to capture respondents' perceptions, such as "Magelang City Government held training for website managers". The final survey of this study consisted of 27 items for information culture-type questions. The questionnaire also contains five items for respondent information (among others, gender, age, last education, years of service and agency). We distributed survey questionnaires assisted by two research assistants. After data collection, we entered the data into the computer and saved it into a Microsoft Excel file. Then we computed the data and measured frequency, percentage, mean, and standard deviation (descriptive statistics) to describe the type of information culture.

The sampling technique used in this study is a simple random sampling approach, where the researcher takes 30 sample members from the population at random without regard to the existing strata in the population from each OPD managing e-government in the city of Magelang. The data is taken from four categories of institutions within the Magelang City Government, Indonesia, including:

1) The secretariat, consisting of the regional secretariat office and the secretariat office of the Regional People's Representative Council (DPRD).

2) The agency, consisting of the Office of the Inspectorate; the Office of the Regional Planning Agency (Bappeda); the Office of the Research and Development Agency (Balitbang); the Office of the Personnel, Education and Training Agency (BKPP); the Office of the Regional Financial and Asset Management Agency (BPKAD); the Office of the Unity of the Nation and Politics (Kesbang); and Regional General Hospital (RSUD).

3) The service, consisting of the Department of Education and Culture (Dikbud); the City Health Office (DKK); the Department of Public Works and Spatial Planning (DPUPR); the Department of Housing and Settlements (Perkim); Social Service (Dinsos); the Department of Manpower (Disnaker); Office of Community Empowerment, Women, Child Protection, Population Control and Family Planning (DPMPPAPKB); the Department of Agriculture (Dipertan); Environmental Service (DLH); the Department of Population and Civil Registration (Disdukcapil); the Department of Transportation (Dishub); the Office of Communication, Information and Statistics (Diskominsta); One-Stop Integrated Service and Investment Service (DPMPTSP); the Youth, Sports and Tourism Office (Disporapar); Library Service (Library), Industry and Trade Service (Disperindag); Service of the Civil Service Police Supervision Unit (Satpol).

4) Sub-districts, consisting of North Magelang sub-district, a district of Central Magelang and South Magelang district.

3.3. Qualitative data

In order to better understand the understanding of the types of information culture in each of the Magelang City Government agencies, we interviewed eight participants who filled out "yes" in the statement of agreement in the survey. The semi-structured interview questions were adapted from the survey items. These questions are listed to understand how the information culture exists in each agency and how they understand the policies of leaders in developing information technology. This method allows the interviewer to talk about issues that may not be addressed in other study data collection methods (Creswell & Creswell, 2018). Interviews were conducted to obtain in-depth information on the integration of technology in science subjects. The interviews were conducted in Indonesian and lasted from 50 to 60 minutes. We masked participants' identities using pseudonyms for ethical considerations to safeguard human rights protection. For data analysis, we applied case analysis (Miles & Huberman, 1994). We interviewed eight participants individually using interview notes. We analyzed and categorized transcripts of interview notes into thematic items. This process was repeated until the last participant, eight participants. We marked the relevant statement pieces, putting the relevant statement pieces into the permanent category (Creswell & Creswell, 2018). For trustworthiness (Miles & Huberman, 1994) from this research, we discussed verbatim statements of interview transcripts followed by member examination procedures (Creswell & Creswell, 2018). We carried out the screening procedure with all interview participants and all research members. We provided interview data to participants for their feedback and consent. This step was taken to reduce research bias. Participants agreed on the research data to be presented.

4. FINDINGS

4.1. Dimension of technocratic utopianism

The dimension of technocratic utopianism consists of 8 indicators. In the first statement (see Appendix C, Table C.1), 15 (50.0%) respondents agreed that technology-based services are more effective and efficient. While the remaining 14 (46.6%) respondents strongly agree with the statement. The number represents that half of the respondents agree on the efficiency and effectiveness of technology-based services.

In the second statement (see Appendix C, Table C.2), 20 (66.6%) respondents agree that the Magelang City Government has formulated regulations on digital-based services. Meanwhile, 8 (26.6%) respondents mention that the Magelang City Government has provided regulation on digital-based services, and 2 (6.6%) respondents giving no opinion.

The third statement (see Appendix C, Table C.3) mentions that the Magelang City Government held website training for administrators attains agreement from 15 (50.0%) respondents. Twelve (40.0%) respondents said that the Magelang City Government held training for website administrators. While the remaining 3 (10.0%) respondents gave no opinion. Thus, half of the respondents agreed that the Magelang City Government held training for administrators of the website.

The fourth statement (see Appendix C, Table C.4) specifying that administrators of the website in OPD have ICT competency gathered agreement from 16 (53.3%) respondents. Simultaneously, 12 (40.0%) respondents expressed their strong agreement with the statement, while the remaining 2 (6.6%) respondents gave no opinion. Thus, more than half of the respondents agreed that the administrators of the website in OPD have ICT competency.

The fifth statement (see Appendix C, Table C.5) saying that the Magelang City Government is allocating funds for e-government application development obtains strong agreement and concession from 10 (33.3%) and 18 (60.0 %) respondents, while 2 (6.6 %) respondents gave no opinion.

Similarly, 5 (16.6 %) and 22 (73.3 %) respondents strongly agree and agree, respectively, with the sixth statement (see Appendix C, Table C.6) explaining that Magelang City Government held cooperation with third parties in developing e-government services. While the remaining 3 (10.0%) respondents gave no opinion.

The seventh statement (see Appendix C, Table C.7) stating that the Magelang City Government has built the infrastructure for the development of e-government applications has gathered strong agreement and agreement from 9 (30.0%) and 20 (66.6%) respondents, respectively. The eighth statement (see Appendix C, Table C.8) that states the respondent's nescience on the benefits of e-government based public services attains disagreement from 20 (66.6%) respondents and strong disagreement from 8 (26.6%) respondents. While the remaining 2 (6.6%) of respondents gave no opinion. Thus, almost all of the dimensions of technocratic utopianism have attained agreement from more than half of the respondents.

From the frequency distribution data above, every individual in the organization must have information technology literacy which is a valuable asset that is inseparable from the existence of the organization. The following is an excerpt from an interview with one of the informants.

"Does the Magelang City Government regularly hold information technology training?", the informant (Ang) was asked. The answer was as follows:

"The Magelang City Government regularly conducts IT training, but our difficulty is that there is still limited staff with an IT education background. Not all employees are able to operate information technology. So far, the Magelang municipal government has also collaborated with third parties in providing information technology-based services".

4.2. Dimension of anarchy

In order to perceive the anarchy dimension side, this study uses 5 indicators. The first statement of the anarchy dimension (see Appendix D, Table D.1)

is leaders establish a special policy regarding information management. Twenty-one (70.0%) respondents agree with this statement, while 6 (20.0%) respondents strongly agree with the statement. The remaining 3 (10.0%) respondents gave no opinion.

The second statement (see Appendix D, Table D.2) is the presence of an standard operation procedure (SOP) on information management in every OPD. Frequent distribution of SOP concerning information management in every OPD gathered agreement from 22 (73.3%) respondents and strong agreement from 6 (20.0%) of respondents, with the remaining 2 (6.6%) of respondents giving no opinion.

The third statement (see Appendix D, Table D.3) states that the Magelang City Government enables the public to access information via website indicates 18 (60.0%) respondents agree that the office open access to public information via the website, while 11 (36.6%) respondents strongly agree that the office opening access to public information via the website. Further, 14 (46.6%) and 3 (10.0%) respondents agree and strongly agree with the fourth statement (see Appendix D, Table D.4) mentioning that the office should involve outsourcing manpower in website management.

The last statement (see Appendix D, Table D.5) states that not all vital information is accessible to the public. Eighteen (60.0%) and 4 (13.3%) respondents agree and strongly agree to the statement. Meanwhile, 4 (13.3%) respondents disagree that not all vital information is accessible to the public, and the remaining 1 (3.3%) respondent strongly disagreed with the statement. Therefore, more than half of the respondents agree with all of the indicators of the anarchy dimension.

From the data above, in this dimension, there is individual freedom to access information in accordance with the main tasks of their respective functions. The following is an excerpt from an interview with one of the informants.

"Are there any rules or SOPs for managing information in each OPD?", the informant (Yn) was asked. The answer was as follows:

"Regarding the rules or SOPs for managing information systems, they actually already exist, however, their implementation is still constrained by infrastructure limitations so that between OPDs cannot be maximized in sharing information".

4.3. Dimension of feudalism

In the cultural side of feudalism, this study uses 6 indicators. The first statement (see Appendix E, Table E.1) illustrating the substantial importance of implementing digital technology in public services obtains strong agreement from 13 (43.3%) respondents and agreement from 16 (53.3%) respondents. Thus, more than half of the respondents agreed that implementing digital technology in public services is extremely important.

The second statement (see Appendix E, Table E.2) stating that the website managers in respective OPD must comprehend information technology gains strong agreement from 14 (46.6%) respondents and agreement from 15 (50.0%) respondents. The third statement (see Appendix E, Table E.3) states that digital technology will facilitate task completion, which is agreed by 16 (53.3%)

respondents. Meanwhile, 12 (40.0%) respondents express their strong agreement with this statement.

The fourth statement (see Appendix E, Table E.4) explains that web managers in every OPD had an education background is agreed by 16 (53.3%) respondents and strongly agreed by 8 (26.6%) respondents. Meanwhile, 2 (6.9%) respondents gave no opinion and the remaining 2 (6.6%) respondents disagree that web managers in every OPD had education in information technology.

As for the fifth statement (see Appendix E, Table E.5) that every employee of the Magelang City Government is capable of operating computers indicates, attains strong agreement from 5 (16.6%) respondents and agreement from 13 (43.3%) of respondents. Whereas the remaining 6 (20.0%) gave no opinion.

The sixth statement (see Appendix E, Table E.6) choosing to do tasks manually instead of using a computer obtain agreement from 17 (56.6%) respondents and strong agreement from 7 (23.3%) respondents. Meanwhile, 4 (13.3%) respondents gave no opinion and 1 (3.3%) respondent disagreed that choosing to do tasks manually instead of using a computer. Thus, more than half of the respondents agree on every indicator of the feudalism dimension.

From the above, in this dimension, the need and governance of information management are held by one or more specific organizational functions. The following is an excerpt from an interview with one of the informants.

"Because the governance of information management is held by one or several specialized organizations, what is the level of e-literacy of the website managers in each OPD?", the informant (Dn) was asked. The answer was as follows:

"In general, the literacy level of website managers is good, however, we are still constrained by inadequate information and technology infrastructure, the WAN system has not been implemented optimally and mastery of information technology in several work units is still limited to the operator level. Not yet at the system analyst/programmer level, so there is still a need to improve the quality of human resources (HR) in the field of information technology".

4.4. Dimension of dictatorship

There are 4 indicators used to investigate the cultural side of dictatorship. The first indicator (see Appendix F, Table F.1) states that all information in OPD is passed through the chairperson first. It gains strong agreement from 7 (23.3%) respondents and agreement from 17 (56.6%) respondents. Three (10.0%) respondents give no opinion and the remaining 3 (10.0%) respondents disagree that every information in OPD is passed through the chairperson first.

The second statement (see Appendix F, Table F.2) explains that OPD leaders decide which information is accessible to the public attain strong agreement from 9 (30.0%) respondents and agreement from 18 (60.0%) respondents. Two (6.6%) respondents gave no opinion and another 1 (3.3%) respondent disagree that OPD leaders decide which information is accessible to the public.

The third statement (see Appendix F, Table F.3) states the presence of a special unit (division) of information management in every OPD has been agreed by 19 (63.3%) respondents and strongly agreed by 6 (20.0%) respondents. Three (10.0%) respondents give no opinion, while 2 (6.6%) respondents disagree with the statement.

The fourth statement (see Appendix F, Table F.4) states that leaders create the flow of information distribution system. This indicator has been agreed by 22 (73.3%) respondents and strongly agreed by 6 (20.0%) respondents, while 2 (6.6%) respondents gave no opinion. Thus, more than half of the respondents agree with all indicators of dictatorship cultural side.

In this dictatorship dimension, it is usually the head of the office or the regional work unit[3] who decides and controls the existence of information in the organization. The following is an excerpt from an interview with one of the informants.

"Since the head of the office decides the existence of the information, what is the structure of information access control in each OPD?", the informant (Wln) was asked. The answer was as follows.

"Formally in each OPD, there is an office head or satker who will determine the policy whether the information is accessible to the public or not. In addition, at our OPD there are obstacles in the pattern of electronic data management (which is still in the form of a database) so it will be difficult for the data entry process. Meanwhile, another obstacle is the absence of a clear bureaucratic policy (SOP) regarding the authority for data ownership and access by other parties that support the disclosure of public information".

4.5. Dimension of federalism

To examine the cultural side of federalism, this study uses 4 indicators. The first statement (see Appendix G, Table G.1) illustrates that the leaders open the flow of information accessible to all employees obtain agreement from 19 (63.3%) respondents and strong agreement from 6 (20.0%) respondents. Two (6.6%) respondents gave no opinion and 3 (10.0%) respondents disagree that leaders open the flow of information accessible to all employees.

The second statement (see Appendix G, Table G.2) states that leaders always share information and discuss it with all employees. Twenty-one (70.0%) respondents agree and 6 (20.0%) respondents strongly agree with this statement. Three (10.0%) respondents gave no opinion. The third statement (see Appendix G, Table G.3) that mentions that leaders should hold discussions regarding information management with employees attain agreement from 24 (80.0%) respondents and strong agreement from 6 (20.0%) respondents.

The fourth statement (see Appendix G, Table G.4) states the presence of a special unit of information managers in every OPD gather agreement from 22 (73.3%) respondents and strong agreement from 6 (20.0%) respondents. One (3.3%) respondent gives no opinion and another 1 (3.3%) respondent disagrees with the presence of a special unit of information managers in every OPD. Thus, more than half of the respondents agree with all indicators of the federalism cultural side.

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[3] *Satuan Kerja Perangkat Daerah (Satker).*

In this dimension, there is a consensus about the governance of information that exists and flows in the organization. The following is an excerpt from an interview with one of the informants.

"Is there a special information management unit in each OPD?", the informant (Brt) was asked. The answer was as follows.

"In every OPD there is already an information management unit. However, currently, it is still constrained by the condition of broadband infrastructure in Magelang City. Currently, the work units in the mayor's office complex are connected to a local network (LAN) using fiberoptic cables. Meanwhile, the work units outside the mayor's office complex are not yet connected to the intranet network. For WAN connections, most OPDs go through Internet connection lines by subscribing independently. With a WAN configuration like this, it is relatively difficult to control ICT activities in each OPD, because each OPD is very independent to manage its own network. Each OPD unit is directly connected to the international Internet network. The existing network is that every OPD is free to interact with the Internet so that the security of data and information transactions is not maintained, so it is very vulnerable to interference because every point is in an open area that is directly dealing with the public".

5. DISCUSSION

5.1. Inhibiting factors in building an information culture in the Magelang City Government

Generally, government organizations around the world present massive investments in the development of e-government. Meanwhile, the failure in implementing e-government is mainly caused by human resources (Nugraha, 2018; Sheth & Sarma, 2007). Our findings in several OPD units of the Magelang City Government are still short of employees with information technology backgrounds so that the existing employees are still only at the operator level, not at the system analyst/programmer level, so there is still a need to improve the quality of human resources by recruiting new employees.

Human resource factors, especially those related to literacy and culture, remain to be an inhibiting factor in the Magelang City Government e-government application. E-literacy is defined as the ability to use information technology, including the ability to use the Internet (Internet literacy). Meanwhile, the IT culture has not been extensively developed within the Magelang City Government itself and in the wider community. Consequently, Magelang City Government officials, as service providers, tend to use offline services, because they prefer traditional direct services, such as face-to-face, correspondence, and using the telephone. Sheth and Sarma (2007) identify challenges in the implementation of e-government-based public services, including: 1) minimum ICT advancement in developing countries; 2) Internet fraud, estimated to cost USD 2.8 billion; 3) privacy issues; 4) intrusive services (such as cell-phone-based) since customers may not like to be contacted by phone at any time and any place.

The first and primary challenge of e-government applications is the low Internet development, primarily in the city of Magelang where Internet access and speed have not been expanded equally due to limited funds for infrastructure development. Besides, people's reluctance to use the Internet is correlated to fraud in transactions and Internet business. Meanwhile, the growing concern on privacy issues obligates all information, transactions, and communications between government agencies and the public to follow certain rules. The government must also ensure the data privacy of each person while guaranteeing that they provide the proper and trustworthy information. The presence of spyware and security holes in operating systems has expanded people's idea that Internet transaction is equal to compromising their privacy. Therefore, it is necessary to have a security, information, and privacy act to implement an e-government system. Lastly, e-services demand people choose the time wisely, as some people are not happy to be contacted at a specific time (Evanschitzky & Iyer, 2007).

Furthermore, Rahardjo (2001) discover the obstacles and challenges of e-government implementation in the city of Magelang. The culture of sharing does not yet exist. The culture of sharing is the sharing of information to ease human activities. It has not been entrenched in Indonesia, even in the public bureaucratic service there is the adage *"If you can make it difficult… why make it easier"*. Many people take the opportunity to make it difficult to get this information. One more of such obstacles and challenges is the culture of documenting bureaucratic apparatus that is not commonly practiced. One of our biggest difficulties is the lack of documentation capabilities following ISO 9000 and software engineering standards. Another one is the scarcity of reliable human resources. As information technology is a new field, the government lacks reliable personnel in the ICT field. Most of the reliable human resources usually choose private business and industry, hindering the implementation of e-government. Further, this government's lack of capacity is often exploited by industrial companies to sell wrong and expensive solutions. Inadequate and expensive infrastructure has caused inequal advancement of telecommunications infrastructure in Indonesia. Many areas in Indonesia have no telephone lines or even electricity lines, while some of them have expensive access to the telecommunication infrastructure. Unlike, other countries governments and communities work together to create many affordable access points, for example, in public libraries, the Indonesian government only provides minimum access points. As for the city of Magelang, the access point can be provided at the post office, government office, and other public places.

E-government realizes transparency and accountability of public services, increases efficiency, productivity, and effectiveness of government administration, and can improve the quality of services to the community. However, the early-stage implementation of e-government in the city of Magelang encounters a number of challenges, such as limited extent and Internet network, hardware, and a low number of human resources with great ICT mastery.

5.2. Policy recommendations for the Magelang City Government

The need for reform in the public sector should be a pressing point for bureaucratic reform. The bureaucratic reformation process is not an easy job. It takes a clear and well-directed concept in the selection of target, strategy, approach, or model. In relation to efforts to improve the culture of e-government-based public services in the city of Magelang, several policy recommendations have been formulated, including: 1) preparation of a clear policy basis or special legal umbrella as a form of leadership commitment to the development of e-government in the city of Magelang so that it can be integrated into every OPD; 2) formulation of strategies related to the provision of Internet infrastructure and e-government applications for each OPD; 3) the Magelang City Government needs to allocate a number of resources, especially, financial, manpower, and time to build e-government in the framework of bureaucratic reform with a cross-sectoral spirit.

6. CONCLUSION

The present study sought to investigate the information technology culture of public organizations in the context of public services in the Magelang City Government, Indonesia, and identify the driving and inhibiting factors of e-government based public services in the city. Findings suggest that Magelang's readiness level in information culture is strongly influenced by several types of culture, such as technocratic utopianism, anarchy, feudalism, dictatorship, and federalism. The most dominant information culture in the Magelang City Government is a dictatorship, marked by the standing of working leaders who always decide and control the existence of information in the organization, determine who may gain access, and control structure and related management reporting. Aside from physical issues, the main obstacle in developing a fine information culture in Magelang is restricted Internet extend and network, along with minimum hardware and human resources with ICT mastery.

This study has limitations, only looking at the information culture in the Magelang City Government, Indonesia. In the future it is necessary to conduct further research on the level of readiness or e-readiness of the e-government implementation model in the city of Magelang. To reduce the dominance of the dictatorial type of information culture model in the city of Magelang, it is necessary to consider the use of a hybrid model, in which the processes and activities of information technology management are centralized, while others use a scattered model (decentralized) (Canals et al., 2005; Indrajit, 2012; Wang et al., 2016). Furthermore, to overcome the limitations of human resources, the Magelang City Government can carry out internships to several universities and vocational schools around the city of Magelang on an ongoing basis that have information technology qualifications, besides that it is necessary to optimize cooperation with third parties in the e-government development process.

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APPENDIX A. SPBE ASSESSMENT BY THE UNITED NATIONS 2012–2018 FOR INDONESIA

No.	Description	2012	2014	2016	2018
1.	Rank	97	106	116	107
2.	SPBE Development Index	0.4949	0.4487	0.4478	0.5258
3.	Online Services Index	0.4967	0.3622	0.3623	0.5694
4.	Telecommunication Connectivity Index	0.1897	0.3054	0.3016	0.3222
5.	Human Capital Index	0.7982	0.6786	0.6796	0.6857

APPENDIX B. STAGE OF IMPLEMENTING EXPLANATORY SEQUENTIAL DESIGN

Step	Phase	Procedure	Results
Step 1 Designing and implementing a quantitative strand: a. Quantitative research questions and selection of the quantitative approach; b. Obtaining permits; c. Identify quantitative samples; d. Collecting closed-ended data with the instrument; e. Analyze quantitative data using descriptive statistics, to answer quantitative research questions and facilitate participants for the second phase.	a. Quantitative data collection; b. Quantitative data analysis; c. Case selection: interview protocol development.	a. Survey (N=30); b. Screening data; c. Frequency snalysis; d. SPSS software; e. Selecting participants from each regional apparatus organization (OPD) based on unique answers and the principle of maximum variation; f. Develop interview questions.	a. Numerical data; b. Descriptive statistics; c. Factor loading; d. Presentation of data (tables, frequency distribution tables, graphs, diagrams); e. Central symptom measurement (mode, median, mean).
Step 2 Using strategies to move from quantitative results: a. Determine the results to be explained, for example, significant results, non-significant results, outliers, group differences; b. Use quantitative results to refine qualitative and mixed methods questions, determine which participants to select for the qualitative sample, and design qualitative data collection protocols.	Qualitative data analysis	a. Interview with participants; b. Interview materials; c. Documents.	a. Text data, interview transcripts, documents; b. Image data, photos.
Step 3 Designing and implementing qualitative strands: a. Stating the research questions following the quantitative results and defining the qualitative approach; b. Obtaining permits; c. Selecting a qualitative sample that can explain the quantitative results; d. Collecting open-ended data with quantitative results-guided protocols; e. Analyzing qualitative data using theme development procedures and specific procedures for qualitative approaches to answer qualitative questions and determine mixed methods.	Qualitative data collection	a. Theme analysis; b. In-case and cross-case theme development; c. Cross-theme analysis.	a. Multiple case analysis; b. Same and different themes and categories.
Step 4 Interpreting connected results: a. Summarizing and interpreting quantitative results; b. Summarizing and interpreting qualitative results; c. Discussing the extent and in what ways qualitative results help explain quantitative results.	Combination of quantitative and qualitative results	a. Interpretation and explanation of quantitative and qualitative results.	a. Discussion; b. Implications; c. Further research.

APPENDIX C. TECHNOCRATIC UTOPIANISM

Table C.1. Digital technology-based services will become more effective and efficient

No.	Respondent's perception	Frequency	Percentage	Valid percentage	Cumulative percentage
1	Agreement	15	50.0	50.0	50.0
2	Strongly agreement	14	46.6	46.6	96.6
3	No answer	1	3.33	0	100.0
4	Disagreement	0	0	0	
5	Strong disagreement	0	0	0	
	Total	30	100.0	100.0	

Table C.2. Magelang City Government makes rules regarding digital-based services

No.	Respondent's perception	Frequency	Percentage	Valid percentage	Cumulative percentage
1	Agreement	20	66.6	66.6	66.6
2	Strongly agreement	8	26.6	26.6	96.6
3	No answer	2	6.6	6.6	100.0
4	Disagreement	0	0	0	
5	Strong disagreement	0	0	0	
	Total	30	100.0	100.0	

Table C.3. Magelang City Government held training for website managers

No.	Respondent's perception	Frequency	Percentage	Valid percentage	Cumulative percentage
1	Agreement	15	50.0	50.0	50.0
2	Strongly agreement	12	40.0	40.0	90.0
3	No answer	3	10.0	10.0	100.0
4	Disagreement	0	0	0	
5	Strong disagreement	0	0	0	
	Total	30	100.0	100.0	

Table C.4. OPD website managers have ICT competence

No.	Respondent's perception	Frequency	Percentage	Valid percentage	Cumulative percentage
1	Agreement	16	53.3	53.3	53.3
2	Strongly agreement	12	40.0	40.0	96.6
3	No answer	2	6.6	6.6	100.0
4	Disagreement	0	0	0	
5	Strong disagreement	0	0	0	
	Total	30	100.0	100.0	

Table C.5. Allocation of funds for e-government development

No.	Respondent's perception	Frequency	Percentage	Valid percentage	Cumulative percentage
1	Agreement	18	60.0	60.0	60.0
2	Strongly agreement	10	33.3	33.3	93.3
3	No answer	2	6.6	6.6	100.0
4	Disagreement	0	0	0	
5	Strong disagreement	0	0	0	
	Total	30	100.0	100.0	

Table C.6. Cooperation with third parties in e-government development

No.	Respondent's perception	Frequency	Percentage	Valid percentage	Cumulative percentage
1	Agreement	22	73.3	73.3	73.3
2	Strongly agreement	5	16.6	16.6	89.9
3	No answer	3	10.0	10.0	100.0
4	Disagreement	0	0	0	
5	Strong disagreement	0	0	0	
	Total	30	100.0	100.0	

Table C.7. Building infrastructure for e-government development

No.	Respondent's perception	Frequency	Percentage	Valid percentage	Cumulative percentage
1	Agreement	20	66.6	66.6	66.6
2	Strongly agreement	9	30.0	30.0	96.6
3	No answer	1	3.3	3.3	100.0
4	Disagreement	0	0	0	
5	Strong disagreement	0	0	0	
	Total	30	100.0	100.0	

Table C.8. Respondent's nescience on the benefits of e-government in public services

No.	Respondent's perception	Frequency	Percentage	Valid percentage	Cumulative percentage
1	Agreement	0	0	0	0
2	Strongly agreement	0	0	0	0
3	No answer	2	6.6	6.6	6.6
4	Disagreement	20	66.6	66.6	73.2
5	Strong disagreement	8	26.6	26.6	100.0
	Total	30	100.0	100.0	

APPENDIX D. ANARCHY

Table D.1. Leaders make special policies on information management

No.	Respondent's perception	Frequency	Percentage	Valid percentage	Cumulative percentage
1	Agreement	21	70.0	70.0	70.0
2	Strongly agreement	6	20.0	20.0	90.0
3	No answer	3	10.0	10.0	100.0
4	Disagreement	0	0	0	
5	Strong disagreement	0	0	0	
	Total	30	100.0	100.0	

Table D.2. Standard operation procedure on information management in each OPD

No.	Respondent's perception	Frequency	Percentage	Valid percentage	Cumulative percentage
1	Agreement	22	73.3	73.3	73.3
2	Strongly agreement	6	20.0	20.0	93.3
3	No answer	2	6.6	6.6	100.0
4	Disagreement	0	0	0	
5	Strong disagreement	0	0	0	
	Total	30	100.0	100.0	

Table D.3. Access to public information through website

No.	Respondent's perception	Frequency	Percentage	Valid percentage	Cumulative percentage
1	Agreement	18	60.0	60.0	60.0
2	Strongly agreement	11	36.6	36.6	96.6
3	No answer	1	3.3	3.3	100.0
4	Disagreement	0	0	0	
5	Strong disagreement	0	0	0	
	Total	30	100.0	100.0	

Table D.4. Involving outourcing personnel in website management

No.	Respondent's perception	Frequency	Percentage	Valid percentage	Cumulative percentage
1	Agreement	14	46.6	46.6	46.6
2	Strongly agreement	3	10.0	10.0	56.6
3	No answer	6	20.0	20.0	76.6
4	Disagreement	7	23.3	23.3	100.0
5	Strong disagreement	0	0	0	
	Total	30	100.0	100.0	

Table D.5. Not all important information can be accessed by the public

No.	Respondent's perception	Frequency	Percentage	Valid percentage	Cumulative percentage
1	Agreement	18	60.0	60.0	60.0
2	Strongly agreement	4	13.3	13.3	73.3
3	No answer	3	10.0	10.0	83.3
4	Disagreement	4	13.3	13.3	96.6
5	Strong disagreement	1	3.3	3.3	100.0
	Total	30	100.0	100.0	

APPENDIX E. FEUDALISM

Table E.1. The application of digital technology in public services is very important

No.	Respondent's perception	Frequency	Percentage	Valid percentage	Cumulative percentage
1	Agreement	16	53.3	53.3	53.3
2	Strongly agreement	13	43.3	43.3	96.6
3	No answer	1	3.3	3.3	100.0
4	Disagreement	0	0	0	
5	Strong disagreement	0	0	0	
	Total	30	100.0	100.0	

Table E.2. Web managers in every OPD must know information technology

No.	Respondent's perception	Frequency	Percentage	Valid percentage	Cumulative percentage
1	Agreement	15	50.0	50.0	50.0
2	Strongly agreement	14	46.6	46.6	96.6
3	No answer	1	3.3	3.3	100.0
4	Disagreement	0	0	0	
5	Strong disagreement	0	0	0	
	Total	30	100.0	100.0	

Table E.3. Digital technology facilitates task completion

No.	Respondent's perception	Frequency	Percentage	Valid percentage	Cumulative percentage
1	Agreement	16	53.3	53.3	53.3
2	Strongly agreement	12	40.0	40.0	93.3
3	No answer	2	6.6	6.6	100.0
4	Disagreement	0	0	0	
5	Strong disagreement	0	0	0	
	Total	30	100.0	100.0	

Table E.4. Web manager in every OPD with information technology education

No.	Respondent's perception	Frequency	Percentage	Valid percentage	Cumulative percentage
1	Agreement	16	53.3	53.3	53.3
2	Strongly agreement	8	26.6	26.6	79.9
3	No answer	2	6.6	6.6	86.5
4	Disagreement	4	13.3	13.3	100
5	Strong disagreement	0	0	0	
	Total	30	100.0	100.0	

Table E.5. All Magelang City Government employees are able to operate computers

No.	Respondent's perception	Frequency	Percentage	Valid percentage	Cumulative percentage
1	Agreement	13	43.3	43.3	43.3
2	Strongly agreement	5	16.6	16.6	59.9
3	No answer	6	20.0	20.0	79.9
4	Disagreement	6	20.0	20.0	100.0
5	Strong disagreement	0	0	0	
	Total	30	100.0	100.0	

Table E.6. Choosing to do tasks manually instead of using a computer

No.	Respondent's perception	Frequency	Percentage	Valid percentage	Cumulative percentage
1	Agreement	17	56.6	56.6	56.6
2	Strongly agreement	7	23.3	23.3	79.9
3	No answer	4	13.3	13.3	93.2
4	Disagreement	1	3.3	3.3	96.5
5	Strong disagreement	1	3.3	3.3	100.0
	Total	30	100.0	100.0	

APPENDIX F. DICTATORSHIP

Table F.1. All information in the OPD must go through the leadership first

No.	Respondent's perception	Frequency	Percentage	Valid percentage	Cumulative percentage
1	Agreement	17	56.6	56.6	56.6
2	Strongly agreement	7	23.3	23.3	79.9
3	No answer	3	10.0	10.0	89.9
4	Disagreement	3	10.0	10.0	100.0
5	Strong disagreement	0	0	0	
	Total	30	100.0	100.0	

Table F.2. OPD leaders decide which information can be accessed by the public

No.	Respondent's perception	Frequency	Percentage	Valid percentage	Cumulative percentage
1	Agreement	18	60.0	60.0	60.0
2	Strongly agreement	9	30.0	30.0	90.0
3	No answer	2	6.6	6.6	96.6
4	Disagreement	1	3.3	3.3	100.0
5	Strong disagreement	0	0	0	
	Total	30	100.0	100.0	

Table F.3. There is a special information management unit in each OPD

No.	Respondent's perception	Frequency	Percentage	Valid percentage	Cumulative percentage
1	Agreement	19	63.3	63.3	63.3
2	Strongly agreement	6	20.0	20.0	83.3
3	No answer	3	10.0	10.0	93.3
4	Disagreement	2	6.6	6.6	100.0
5	Strong disagreement	0	0	0	
	Total	30	100.0	100.0	

Table F.4. Leaders create information distribution system flow

No.	Respondent's perception	Frequency	Percentage	Valid percentage	Cumulative percentage
1	Agreement	22	73.3	73.3	73.3
2	Strongly agreement	6	20.0	20.0	93.3
3	No answer	2	6.6	6.6	100.0
4	Disagreement	0	0	0	
5	Strong disagreement	0	0	0	
	Total	30	100.0	100.0	

APPENDIX G. FEDERALISM

Table G.1. Leaders open information access flows to all employees

No.	Respondent's perception	Frequency	Percentage	Valid percentage	Cumulative percentage
1	Agreement	19	63.3	63.3	63.3
2	Strongly agreement	6	20.0	20.0	86.2
3	No answer	2	6.6	6.6	89.6
4	Disagreement	3	10.0	10.0	100.0
5	Strong disagreement	0	0	0	
	Total	30	100.0	100.0	

Table G.2. Leaders always share information and discuss with all employees

No.	Respondent's perception	Frequency	Percentage	Valid percentage	Cumulative percentage
1	Agreement	21	70.0	70.0	70.0
2	Strongly agreement	6	20.0	20.0	90.0
3	No answer	3	10.0	10.0	100.0
4	Disagreement	0	0	0	
5	Strong disagreement	0	0	0	
	Total	30	100.0	100.0	

Table G.3. Leaders debate regarding information governance with employees

No.	Respondent's perception	Frequency	Percentage	Valid percentage	Cumulative percentage
1	Agreement	24	80.0	80.0	80.0
2	Strongly agreement	6	20.0	20.0	100.0
3	No answer	0	0	0	
4	Disagreement	0	0	0	
5	Strong disagreement	0	0	0	
	Total	30	100.0	100.0	

Table G.4. Creating a special unit for information management in each OPD

No.	Respondent's perception	Frequency	Percentage	Valid percentage	Cumulative percentage
1	Agreement	22	73.3	73.3	73.3
2	Strongly agreement	6	20.0	20.0	93.3
3	No answer	1	3.3	3.3	96.6
4	Disagreement	1	3.3	3.3	100.0
5	Strong disagreement	0	0	0	
	Total	30	100.0	100.0	