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Is It Still in the Works? Comprehending the Achievements of E-government in the Context of Democratization

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Abstract
Democracy operates through the mechanisms of society. Today, technology has become an integral part of societal development, has permeated many aspects of life, and is expected to play an important role in democracy. The government, activists, and academics have all advocated for the use of technology in government, known as e-government. While there is academic debate about its impact on democracy, this article believes it is critical to place impact after development. This viewpoint is useful for engaging in academic debate. Assuming that each stage has its own timetable, this article asks, "What stage is e-government at right now?" Looking at the indicators measured by various agencies and positioning them as shared awareness of e-government; it is possible to conclude that today is the stage of e-government development. The answer may serve as a reminder to academics researching the impact of e-government.

Keywords:
e-Government; Democracy; Stages; Development

INTRODUCTION

Few years before Indonesian Independence Day, Ilka Chase (1942) offered a view on democracy. Democracy is not an easy form of government, because it is never final, it is a living, changing organism, with a continuous shifting and adjusting of balance between individual freedom and general order. Nowadays in the advancement of science, democracy is associated with technology. Technology has changed life so democracy needs to adapt. When many companies used internet technology to introduce their products and services in the last decades of the 20th century (Anerousis et al., 2021; Fernández-Rovira et al., 2021; Chen, 2021). The private sector quickly embraced the technology, and altered the environment in which businesses, governments, and communities are intertwined (Carter et al., 2022). The use of technology in the public sector emerged as a phenomenon following the use of internet technology in the private sector.

Many governments set up e-government to make information exchange between governments and citizens easier. Initially, the use of internet technology in the public sector was simple; however, it has since evolved and influenced governance. As a tool. MacLean and Titah (2022) defined e-government as a service provided by the government to clients using IT, and

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especially through the Internet and related technologies. Lanvin (2002) described it as the use of information technology to reorganize government by increasing accessibility, effectiveness, and accountability. According to the European Commission (2003), e-government can be a tool that encourages the combination of adaptability and novelty of skills in order to optimize public sector achievements, increase democratic participation, and strengthen public policy implementation. According to the International Center for Policy Studies (2005), e-government has the potential to alter the scale and level of the relationship between government officials and citizens. Thus, the benefits of implementing e-government are determined not only by technological advances, but also by the expansion of resources and strategies in government organizations.

The United Nations (2003) provided a similar understanding; e-government is a government that uses information technology to change external and internal interactions. Public administration, through the use of information technology, not only focuses on formal, accountable, functional, and transparent aspects, but also on increasing public expectations for better governance in all sectors. The most obvious advantage of e-Government is that it allows national governments to communicate with their citizens. As is well known, the greatest chasm between public officials and citizens exists between the central government in the capital and residents spread across the region.

E-government, in addition to shortening distances, provides numerous opportunities for improving government quality (Karkin & Janssen, 2014; Rose et al., 2015a), such as training government employees to achieve electronic readiness (Zeebaree, 2021; Gfrerer et al., 2021; Altemh, 2021; Alqudah, 2021). In contrast to the past, interactions between the government and citizens can now take place in a short period of time thanks to e-government. The interaction takes place directly, with no intermediaries. This will make it easier for government employees to carry out and improve their duties by using electronic devices (Pang et al., 2014; Bannister & Connolly, 2014), though the outcomes will also be determined by the value perceived by the actors (Savoldelli et al. ., 2013; Jun et al., 2014; Rose et al., 2015b; Scott et al., 2016; Twizeyimana & Andersson, 2019). Choosing the right strategy for implementing e-government can improve democratization and services, such as citizens easily receiving services, a short bureaucratic flow, easy access to information, simple processes, the ability to reduce the budget burden, and the speed with which citizens' needs are met (Lili, 2021; Vogels, Rainie, & Anderson, 2020; Ghapanchi, 2008).

Their arguments have informed us that there are, at least, two stages inherent in e-government; development and its impact. Development refers to how e-government is managed, while impact refers to what the benefits are. Many politicians believed that e-government to not only manage government but also to drive democracy. Given the opportunities and benefits that can be realized, many governments are focusing on developing e-government in order to improve public

services and democratize, though some scholars still doubt it (see Goh and Arenas 2020; Gil-Garcia et al., 2018; Stanimirovic and Vintar 2013). Regardless of the impact debate, I believe in the spirit of e-government that it should make an impact, especially democracy, and propose a question for this article, what stage is e-government at now? The answer can provide an overview for activists or scientist to be more realistic in seeing the achievements of e-government.

These questions can be answered by looking at the trend of measuring e-government by various agencies. The assumption is, what aspect is measured more means that it reflects an agreement about what stage it is now. Various international agencies have evaluated the e-government, particularly in developing democracy, based on the numerous benefits and the number of countries that have implemented it. The evaluation takes the form of various indexations. The Open Knowledge Foundation, which manages The Global Open Data Index (GODI), the e-Governance Academy Foundation, which initiates The National Cyber Security Index, the United Nations (UN), which evaluates e-government through The E-Government Index, the European Commission, which manages The E-government Benchmark, and the Organization for Economic Co-operation and Development (OECD), which organizes Digital Government Index (DGI) are among these institutions. In the context of Indonesia, the government conducts an assessment of e-government at the central and regional levels through the Indonesian E-Government Rating (PeGI), which is administered by the Ministry of Communication and Information. The use of PeGI in this article is meant for a little viewing. as well as for example, measurement at the national level.

RESEARCH METHOD

The information or data used in this article was obtained from reports published on the websites or reports of the following institutions, as well as literature relevant to indexation. The Open Knowledge Foundation manages the Global Open Data Index (GODI) (https://index.okfn.org/). Second, the e-Governance Academy Foundation manages the National Cyber Security Index (NCSI) (https://ncsi.ega.ee). Third, the United Nations manages the E-Government Index (UNDESA). Fourth, the European Commission manages The E-government Benchmark (https://digital-strategy.ec.europa.eu). Fifth, the Organisation for Economic Co-operation and Development (OECD) organizes Digital Government Index (DGI) (https://www.oecd.org). Sixth, the Ministry of Communication and Information manages the E-Government Indonesia Rating (PeGI) (https://pegi.jasa.go.id). This article is divided into three sections to provide a thorough understanding. The background, objectives, and methods are presented first. Second, explain the index's indicators and methodology. Third, in the conclusion section which is also a discussion, these stages will be highlighted.

Parade of Indicators among Indexations

I start the discussion by showing the indicators and methods of measuring e-

government by each agency. This is important as a baseline for mapping the most measured components, as a path to the final argument. First, the National Cyber Security Index (NCSI) measures a country's ability to anticipate and defend against cyber-attacks or threats, as well as manage incidents resulting from cyber activity. This index provides data that can be used to build cyber security capacity. NCSI employs indicators based on national cyber security frameworks. According to the framework, the most dangerous threats are denial of e-services, data integrity breach, and data confidentiality breach. Denial of e-services is a condition in which the website manager or user is unable to access the website. A data integrity breach occurs when the website manager is unable to make changes to the website. A data confidentiality breach occurs when the confidentiality of data is revealed.

This indexation program employs five steps to create the index. First, at the national government level, identify cyber threats. Second, assess the security capability. Third, select important aspects that can be quantified. Fourth, create indicators of cyber security. Finally, there is a collection of security indicators. This index focuses on several aspects of cyber security that national governments have implemented. These factors include relevant legislation, established units, cooperation formats, and impact. Legislation encompasses all types of regulations, both laws and regulations. Existing departments, organizations, and other units are examples of established units. The collaboration in question takes the form of a working group, committee, and so on. Policies, websites, technology, exercises, programs, and so on all have an impact.

These aspects are divided into 12 capacities: cyber security policy development, analyzing cyber information and threats, professional development and education, contribution to international cyber security, protection of digital services, protection of essential services, services and electronic identification, protection of personal data, response to cyber incidents, cyber crisis management, combating cyber-crime, and military operations in cyberspace. The twelve capacities are divided into 46 indicators. Each indicator has a value that indicates its significance in relation to this index. This indexation entails a group of experts providing a value by taking into account several factors, including 1 point for regulation that focuses on a specific area, 2-3 points for special units, 2 points for the official cooperation format and 1-3 points for the product/outcome/impact.

In addition to NCSI, this institution published the Digital Development Level (DDL). The Digital Development Level (DDL) assesses aspects of the Networked Readiness Index (NRI) and the ICT Development Index (IDI). Essentially, this DDL is the average percentage that the country receives from the maximum value of the two indexes.

Second, the Global Open Data Index (GODI) is an independent assessment of citizens' perceptions of government openness. This index informs stakeholders about the government's commitment to publishing information. Stakeholders provide immediate feedback through The GODI. The central

question in GODI is how the government publishes data openly. The following questions outline these fundamental questions. Which government is ready to publish open data? Which government still needs to improve open data disclosure? What information is most vulnerable? What information is the most obscure? What aspects of data disclosure were the simplest or most difficult to implement?

GODI focuses on data on budgets, election results, spending, procurement, land ownership, company lists, national maps, national statistics, administrative boundaries, draft laws, locations, national regulations, air quality, and water quality in particular. In terms of the budget, this indexation focuses on data disclosure on government spending plans for the following year rather than this year. This indexation examines past or current government spending, including government transactions. This indexation examines all procurement projects and procurement winners. This indexation examines data that presents the results of previous and recent elections, including the results and process. In terms of the company list, this indexation examines the list of publicly traded companies but does not examine detailed financial data. In terms of land ownership, this indexation examines a land map that shows details and views of land boundaries.

This indexation looks at a map of the entire country that shows the length of water, national traffic routes, and elevation markings on a national map. In terms of administrative boundaries, this index examines data on units or regions that represent the goals of local government administration. In terms of location, this indexation considers all country data that includes postal code/zip code, latitude/longitude. National Statistics examines data from all countries that provide economic and demographic statistical indicators such as GDP, population, and unemployment. In terms of the bill, this indexation examines the data that presents the bill that is currently being processed in the legislature, as well as all supporting information. In terms of legislation, this indexation examines data that presents all national laws and regulations. In terms of air quality, this indexation examines data that shows the average concentration of pollutants every day, particularly pollutants that can harm health. In terms of water quality, this indexation examines data presenting sources of drinking water quality. If no information on the source of drinking water is available, this indexation refers to the source of water in the environment.

Questions involving the open definition method and the open data charter were used to investigate these aspects. They evaluate the aforementioned aspects using these questions. The scores and questions are as follows. 15 points if users can access information online without registering or obtaining permission. 15 points if the information is free and unpaid. 15 points if the information can be downloaded concurrently. 20 points for whether the information is licensed or in the public domain?. 15 points if the information is renewable. 20 points if the information is in a common format that is easy to open.

Third, the United Nations Department of Economic and Social Affairs (UNDESA) organize the E-

Government Index. The indexation provides information on the implementation of e-government. The E-Government Index is the only existing type of indexation that assesses the status of e-government development and covers many countries. In general, the E-Government Index examines the effectiveness of providing public services that use information technology and identifies patterns in the development and performance of e-government. The implementation of this indexation program is expected to provide a means for countries to learn from one another, as well as an overview of the strengths and challenges in e-government, which can be used as a reference for shaping policies and strategies.

The E-Government Index is intended primarily for policymakers, government offices, academia, civil society, the private sector, practitioners, and other e-government and public administration experts. A survey is used to collect the data that is used to create the e-government index. The survey examines the evolution of e-government through all aspects of e-government, including three major dimensions of people's ability to benefit from information and services. The three dimensions are the sufficiency of telecommunications infrastructure, the quality of human resources required to operate and promote technology, and the availability of information and services. In order to provide an assessment, the E-government Index published the E-Government Development Index (EGDI). EGDI is composed of three components: Telecommunications Infrastructure Index (TII), Online Service Index (OSI), and Human Capital Index (HCI).

Each of these components uses a unique data source. The International Telecommunications Union provides data for the Telecommunications Infrastructure Index (TII). The TII is made up of five indicators: the number of people who subscribe to fixed broadband, the number of people who use the internet, the number of people who subscribe to cellular, the number of people who subscribe to wireless broadband, the number of telephone lines owned by residents. The United Nations Educational, Scientific, and Cultural Organization publish the data for the Human Capital Index (HCI) (UNESCO). HCI is made up of four components: Population ratio with primary, secondary, and higher education; average years of schooling; expected school period/year; adult literacy rate.

The data for the Online Service Index (OSI) is obtained from UNDESA via an online survey of UN experts and volunteers. They are drawn from over 60 countries and speak 66 languages in order to comprehend each country's portals, which include national portals, e-participation portals, e-service portals, and ministry portals. Each component's combination is then assigned a score ranging from 0 to 1. This indexation survey employs a questionnaire to evaluate various aspects of online service delivery, including the government's approach, open government data disclosure, multi-channel service provision, electronic participation, mobile service, utilization absorption, and innovative collaboration. UNDESA provides an E-Participation Index in addition to the E-Government Index (EPI). This indexation is concerned with

how e-government is used. The level of online services used to provide information (e-information sharing), communication between the government and stakeholders (e-consultation), and citizen involvement in decision-making are all aspects of the index (e-decision-making).

Fourth, the e-Government Benchmark measures up how European governments distribute digital government services. The e-government Benchmark assesses the supply and service of e-government infrastructure in 35 European countries, including the 27 EU member states, Iceland, Norway, Switzerland, Albania, Montenegro, North Macedonia, Serbia, and Turkey. Citizens from countries involved evaluated digital public infrastructure by viewing and rating more than 14,000 internet sites.

The e-government Benchmark is split into four main components. Each significant component is the sum of several indicators. Each factor is composed of multiple sub indicators. The overarching metric relating to e-government policy priorities is referred to as the main components. User centricity, transparency, key enablers, and cross-border services are the four main components involved. The degree to which services and applications are publicly available, supported online, and suitable with mobile platforms is referred to as user centricity. Transparency is defined as the degree to which operational processes are open, operations are developed with clients input, and clients can manage their accounts. The key enabler is defined as the extent to which key IT enablers are available during service processes, which can be used to assess the quality of the service. The extent to which information and services are available online, usable, and integrated with e-ids and e-documents for users from other European countries is referred to as cross-border service.

There are three indicators of user centricity. First, online availability describes the degree to which systems of data and transactions, as well as information about these services, are available online and can be accessed through an internet browser. Second, the availability of online support, assist features, and feedback procedures is referred to as user support. Third, the degree to which services are provided via a smartphone device is referred to as mobile friendliness.

There are three indicators of transparency. First, delivering services transparency describes the degree to which the entire program and demands are explained. Second, The degree to which clients are informed about and involved in service and policy making stages is referred to as service design transparency. Third, personal data transparency refers to the degree to which a clients can organize their own personal data held by government agencies.

There are five indicators for key enabler. First, e-ID describes the degree to which digital Identification, such a means acknowledged by electronic government infrastructure for online identification (e.g. smartcards, id and password), should be used throughout service operations. Second, e-Document, it is the degree to which electronic documents, any digital document that the user is required to submit/upload in needed to

finalize an e-government service, or that the user obtains as proof or as an outcome of the service (e.g. certificate, diploma, proof of registration), can be used throughout service processes. Third, the degree to which government agencies can use authentic sources, which are base directories used by government agencies to automatically verify or come and collect information related to citizens or enterprises, throughout operation process. Fourth, digital post describes the degree to which government agencies allow citizens to obtain interactions just digitally and prefer out of document mailings. Digital Post refers to the possibility of governments communicating with citizens or businessmen solely through electronic means, such as private mailboxes or other digital postal alternatives. Fifth, security describes the degree to which government sites have applied basic security measures and internet principles.

There are four indicators of cross-border service. First, cross-border online availability describes the degree to which informational and interactive services, as well as information about these services, are made accessible to the public in other countries in Europe via the internet. Second, cross-border user support refers to the extent to which online facilitate, assist features, and responses from other European countries are available to the public. Third, e-id is a policy document for digital verification and identification that specifies the extent to which digital identification should be used throughout service operations by clients from other countries in Europe. Fourth, e-documents, it is the degree to which electronic documents can be used throughout service operations by clients from other European countries, documents that were validated by its issuer using any mechanism regarded under the legal system, specifically, electronic signatures, rather than a standard PDF or Word file, are used.

Fifth, the OECD Study on Digital Government was developed to measure the implementation of Digital Government guideline. The Guideline is the world's first document on digital governance. The Guideline advocates for a paradigm shift from e-government to Digital Government, with the goal of bringing governments closer to citizens and businesses through the implementation of strategic approaches to technology use to foster more transparent, interactive, and creative government agencies. The Guideline defines digital government as using digitalization to create public value as part of government modernization techniques.

The current situation has highlighted the significance of digital maturity in ensuring preventative, cost effective, and client-centric programs and strategies. Governments worldwide are now being pushed more than ever to acclimate to, organize, and accept the problems caused by digitalization. By going digital, the public sector is prepared to face citizens' evolving needs, remain viable, and greatly enhance decision-making and public utility delivery with in 21st era. Falling behind in a context where clients' demand is rapidly evolving could lead to government inability as well as the delivery of useless and irrelevant infrastructure.

In ability to adjust to such a dynamic scenario, the guideline was embraced. The guideline aims to help policymakers embrace more initiatives to digital use throughout order to encourage more transparent, interactive, and creative policymakers. Thus, the guideline advocate for such a change in culture within the government sector, after using technology to facilitate improved government sector activities to combining decisions on digitalization in the innovation of government policies for public sector reformation.

The Guideline delivers an all technique to the importance of technology in the structure and enforcement of regulations, and also in the delivery of effects. It provides guidance to countries depending upon the level of maturity in e - government implementation, legal mechanisms, or level of decentralization. This is fulfilled through the implementation of 12 guidelines grouped into three main principles: openness and involvement, governance and collaboration, and implementation capabilities.

To monitor the application of the Guideline and support governments in monitoring their development to e - government implementation, the OECD developed the Digital Government survey. Government performance can be evaluated using a "6 by 6" theoretical strategy that incorporates the parameters that identify digital government cited above. The framework is based on a guideline and each component describes several of the 12 guidelines.

The Digital Government survey is a new initiative that aims to translate the Digital Government Policy Framework (DGPF) into a concrete set of sectors and indicators that can be used to evaluate and compare the growth of digital government initiatives across OECD Member and important allied countries. This is the only survey that has so far measured progress toward digital government.

The Digital Government survey emphasizes the critical impact of innovation as a strategic pilot in transparent, creative, interactive, and credible government institutions, enhancing social inclusion and public accountability, and introducing government and non-government actors together and actively participate in development and long-term sustained development. It is critical to understand their progress on the path to digital government because it encourages the critical functions and use of digitalization and data toward more creative, allow access, and productive governments, thereby enhancing the situations for confidence, strength, and flexibility to adapt to and arrange social and economic instabilities.

Sixth, in national level, as an example, the Directorate of e-Government of the Ministry of Communication and Information Technology is in charge of the Indonesian E-Government Rating (PeGI). This ranking assesses Indonesian local governments' e-government achievements. The purpose of this indexation is to obtain an overview of the use of information and communication technology (ICT) in the government environment, to provide a sufficient foundation for the development and application of technology in the government environment, and to

evaluate the achievements of technology application at various levels and government units.

This assessment considers five aspects: policy aspects, institutional aspects, infrastructure aspects, application aspects, and planning aspects. Each aspect has several indicators. The policy aspect entails an evaluation of legally binding official documents, such as documents that explain the objectives or directions, procedures, programs, or documents that govern the implementation and development of e-government in government offices. Documents are usually in the form of regulations, decisions, guidelines, or other official documents. One aspect of policy that is evaluated is the allocation of adequate funding to properly develop and implement ICT.

Institutional indicators include the presence of a complete organizational structure capable of carrying out the functions of ICT development, governance, operations, ICT service provision, and other functions properly. Another indicator is a document that explains the unit's formulation and function, as well as its human resources for information technology implementation. The final indicator is the level of authority required for the institution's duties and functions to be carried out effectively.

Data center availability (software and computer hardware), availability of communication networks (internet access, WAN, LAN), availability of devices (hardware and software) for managers and residents, availability of message channels (SMS, telephone, and internet access), and facilities that support it, such as special rooms, air conditioners, generators, UPS, and other security facilities, are indicators on the infrastructure aspect. The level of installation and utilization of applications that are directly or indirectly related to e-government, as well as the accuracy of the application to fulfill the duties of a government office, are indicators on the application aspect.

This indexation also considers application. This indexation ranks applications in nine categories. First, service application. This application includes tax, population, business and investment, registration and licensing, complaints, public information, and other forms. Second, management and administration application. These applications include e-mail, e-document management, decision-making management, reports, and others. Third, implementation of legislation. This application includes administration in council agencies, election applications, statutory access applications, and similar applications that support legislative performance. Fourth, application development. This application includes development-related applications such as planning applications, procurement applications, project management applications, and others. Fifth, financial application Budget applications, treasury applications, accounting applications, and other applications that support the financial reporting process are examples of these applications.

Sixth, job application. Employee recruitment applications, salary applications, attendance applications, training applications, assessment applications, and other staffing-related

applications are included in this application. Seventh, governance implementation. This application includes applications for managing property owned by the local government, managing revenue, and managing corporate governance owned by the local government. Eight, territorial applicability. Spatial planning applications, applications that inform regional potential, livestock and plantation applications, forestry applications, fisheries and marine applications, agricultural applications, tourism applications, mining and energy applications, and applications related to small and medium-sized industries are examples of these applications. Ninth, community involvement. Social safety net applications, employment applications, health applications, educational applications, and industrial and trade applications are examples of these applications. Tenth, use of facilities and infrastructure. Public facilities applications, transportation applications, terminal and port applications, and road and bridge applications are examples of these applications.

This indexation evaluates the accuracy with which institutions and stakeholders meet their priority needs, the accuracy with which existing conditions (infrastructure, human resources, etc.) are met, the level of efficiency and effectiveness in services, the ability to adapt when changes occur, and the minimum authority they have. The next indicator is planning. The planning aspect is seen through a series of procedures that become the mechanism for planning in developing and implementing technology, a complete assessment of the needs and strategies for implementing ICT, decision-making implementation, and development implementation that refers to the development plan.

This indexation's assessment method was obtained in seven stages. First, explain the process to the participants. Then, participants completed a questionnaire. Finally, the questionnaire is checked by the assessors. Fourth, assessors provide clarification on answers (if needed). Fifth, these indicators are graded by assessors. Sixth, assessors carry out standardization. Seventh, assessors hold a research audience. This indexation has the following rating values: If the institution receives a score between 3.60 and 4.00, this is a very good category. If the institution receives a score of 2.60 to 3.59, this is a good category. If the institution receives a score of 1.60 - 2.59, it will be placed in the lower category. If the institution receives a score of 1.00 - 1.59, the category is very low.

CONCLUSION: *The Awareness of the Stages around Indicators*

Many indicators are measured, but they can be classified as e-government management, human resource management and users, and e-government democracy. E-government management is an assessment of how the government develops and maintains e-government. It is released in the following measurement. Telecommunication Infrastructure Index (TII), which discusses estimates of internet users, the number of primary fixed telephone connections, broadband subscriptions, wireless broadband subscribers, and cellular subscribers. The Online Service Index (OSI) discusses

national portals, e-services portals, and e-participation portals, as well as related ministry websites. The National Cyber Security Index (NCSI) discusses electronic denial of service, data integrity violations, and data confidentiality violations. Digital Development Level (DDL), which discusses the Networked Readiness Index (NRI) and the ICT Development Index (IDI). E-government benchmark talks about e-government infrastructure, including user centricity, transparency, key enablers, and cross-border services. The OECD Digital Government Index describes the maturity of e-government development, regulatory frameworks, and level of decentralization. It accomplishes this through 12 guidelines grouped into three main guiding principles: Openness and Engagement, Governance and Coordination, and Operational Capabilities. Indonesian e-government rating (PeGI), which discusses various aspects of planning, policy, institutional and infrastructure.

The assessment of the actors' ability to operate and accept e-government is referred to as e-government human resource. There is only one indexation that can be classified as a human resource indexation, and that is the Human Capital Index (HCI), which discusses the population's education level, adult literacy rate, average school year, and expected study period/year. While e-government democracy indexation refers to an assessment of how e-government serves as a channel of interaction between the government and citizens. The following indexation can be classified as a democracy index. The E-Participation Index (EPI) discusses information provision (e-information sharing), communication between government and stakeholders (e-consultation), and citizen involvement in decision-making (e-decision-making). The Global Open Data Index (GODI) addresses how to publish budgets, procurement, spending, election results, land ownership, company registers, national maps, locations, administrative boundaries, national statistics, national regulations, draft laws, water quality, and air quality.

As stated at the outset of this article, the measurement of specific indicators by agencies can be viewed as awareness of today's stage of e-government. According to the classification above, e-government indexation activists track more e-government development. There are at least four indexations that focus on development, but only one indexation that focuses on human resources who are actors in e-government. This implies that activists continue to place e-government in the development stage, rather than the impact stage. This conclusion can be used to call academics' arguments on impact into question (see Goh and Arenas 2020; Gil-Garcia et al., 2018; Stanimirovic and Vintar 2013). Impact testing is perceived to be rushed, which can result in incomplete results. While questioning them is sufficient, this article is based on only four indexations. More indexation is required to support or refute this argument. There are opportunities to trace the literature and compare findings about e-government development issues and e-government impacts.

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