# The Identification of Success Factors for E-Government Implementation In Indonesia: a Systematic Review

*Abstract*—E-Government in Indonesia has started with presidential instruction (Inpres) No.3/ 2003 as a guidance for governments to develop and implement it, however there are number of failures of e-government development in Indonesia. In addition, based on the existing researches, most of the researches only focus on several problems or issues such as the adoption and implementation of e-government in various provinces in Indonesia and only from a certain point of views or theories. Thus, this research will be conducted to find out more about e-government by identifying factors of e-government development in Indonesia. The aim of this study was to build a framework or concept for development of e-government in Indonesia based on the previous studies. This study is conducted by reviewing 200 of the national and international articles related to e-government in Indonesia. A Systematic review is used as a method to choose the qualified previous research in order to find out the success factors of e-government in Indonesia. The research findings shows that IT infrastructure, IT human resources, political will, IT services, social and budgets are the success factors that influence the e-government development in Indonesia.

*keywords: Systematic review, e-government, the success factors, Indonesia*

## I. INTRODUCTION

Today, government services are based on electronic government or known as electronic government (e-government) are growing rapidly along with the development of information technology. The quality of services can increased rapidly by using information technology. The world Bank Group (2011) has defined e-government as the use of various information technology by the government agencies to build a relationship with citizens, businesses, and other government agencies Presidential Instruction Number 3 / 2003 regarding the national policies and the national strategies. Development of e-government is a government effort to improve the efficiency, effectiveness, transparency and accountability of governmental administration based on information and communication technology, and Government Regulation of Republic Indonesia Number 82 / 2012 concerning the implementation of Electronic Systems and Transactions. Therefore, with implementation of e-government, the working process in the government environment by optimizing the utilization of information technology can improve citizen's services.

While there are many regulations, policies, strategies as guidelines to develop e-government in Indonesia, It is insufficient to provide significant results to the development of e-government. This can be demonstrated by the number of failures in the implementation of e-government. For example, Mulyono [1] states that 40 government in developing countries and the transitions finds some facts that 35% of government implementation can be categorized as total failure and 50% of government have failed in implementing e-government. In addition, there are only 15% of successful government to adopt it. Furthermore, based on the results of e-government survey conducted by United Nations in 2010, Indonesia only ranked 109 in southeast of asia, Indonesia has decreased 3 ranks from the previos year is ranked 106 in 2008.

According Kumorotomo [2] the failure of e-government development in Indonesia is determined by infrastructure, leadership and community culture. Infrastructure includes : digital ineguality, lack of the number of Information Technology (IT) infrastructure and lack of service systems. The availability of IT infrastructure is one of significant issues in developing countries. E-government is demanding the existence of computer network technology, computer equipments in government institutions and supporting infrastructure that is reliable and evenly distributed throughout the region. This shows the role of IT infrastructure in providing the internet network eith adeguate bandwith and distributed throughout the country so the digital ineguality can be overcome immediately.

In Addition, this research will examine further about the role of e-government, which is focused on the influential success factors of e-government implementation in Indonesia. By identifying the influential success factors, It can be expected to help Indonesian government to develop e-government. This research is conducted based on several prior researches that has been done before, such as Hasibuan [3] who examine the strategic and tactical stages of e-government development in Indonesia. This research is emphasized on the roles of e-government to help the communication between the government and the citizens. Prihanto [4] conducts a study on the analysis of e-government in the provincial level government of Indonesia. This study emphasizes on measuring the success rate of e-government (government to citizens) in Indonesia.

## II. LITERATURE REVIEW

### A. E-government concept

E-government is defined as the relationship between government, their stakeholders (businesses, other government, and citizens), and their suppliers by the use of electronic means [5, 6]

According to Sari and Winarno (2012), e-government consists of Government to Citizen, Government to Government, Government to Business, and Government to Employee.

- Government to Citizens (G to C),
  Government to Citizen is a relationship between the government and the people (citizen) so that there is an access to information that can be utilized / obtained by the community for its sake. Example of this type of application the citizen can access the online tax application to submit the tax report.

- Government to Governments (G to G)
  Government to Governments that connect between government and government. What is meant by the government and the government is between the central government within a country and the local government. Example : reporting, communication between the central government in Jakarta and the local government in surabaya using on-line facility (internet).

- Government to Business (G to B)
  Government to business is a relationship between the government and the perpetrators both domestic and international. It consists of electronic transactions where the government provides the various information reeded for business to do transaction with the government. Examples of this relationship is that business can access the information, licensing procedures from government regulation. With the ease of procedure there will be many invenst their capital in Indonesia

- Government to Employees (G to E)
  Government to Employees is a relationship between government and employees both civil servants and as employees / government workes. With the aims to improve the welfare performance of civil servants or government employess. For example : a government employee career development system to ensure quality improvement of human resource, mutation process supporting, rotation and promotion of all government employees. The four concepts of e-government interaction have their own goals. But in general, the main goals of them are the same to provide access of information and efficiently service to others both between the local government to people and government employees to the bussinesman [7].

### B. E-Government in Indonesia

Government in Indonesia has implemented e-government both at central and local government level. Presidential instruction of the Republic of Indonesia Number 3 /2003 issued to regulate about the National policy and strategy related to the development of e-government with the following consideration [8]:

1. *The utilization of communication and information technology in the e-government process will improve the efficiency, effectiveness, transparency and accountability of government;*

2. *In order to conduct good government and improve the effective and efficient public services it is necessary to have e-government policy and development strategy;*

3. *In the implementation needs the equality of understanding synchronization of action and the steps of integration from all elements of government institutions, so it is deemed necessary to issue a presidential instruction for the implementation of policies and strategies for the development of e-government nationally*

Although the government had already issued the presidential instructions in 2003, the implementation of e-government in Indonesian has not felt yet its benefits to the people. It can be seen that Indonesia is still under neighboring countries such as Singapore and Malaysia. As illustrated in table 1. The United Nations (UN) e-government development index, which describes the e-government ranking in the region of southeast Asia (UN-E-government knowledge database, 2016). Indonesia is positioned 7 below Vietnam, Brunei, Thailand, Philippines, Malaysia and Singapore.

TABLE 1. E-GOVERNMENT DEVELOPMENT INDEX IN ASEAN IN YEAR 2016

| No | Country Name | E-Government World Rank | E-Government Index |
|---|---|---|---|
| 1 | Singapore | 4 | 0.8828 |
| 2 | Malaysia | 60 | 0.61749 |
| 3 | Philippines | 71 | 0.57655 |
| 4 | Thailand | 77 | 0.55222 |
| 5 | Brunei Darussalam | 83 | 0.52981 |
| 6 | Viet Nam | 89 | 0.51426 |
| 7 | Indonesia | 116 | 0.44784 |
| 8 | Lao People's Democratic Republic | 148 | 0.309 |
| 9 | Cambodia | 158 | 0.25927 |
| 10 | Timor-Leste | 160 | 0.25817 |
| 11 | Myanmar | 169 | 0.23619 |

source : *UN-E-Government Knowledge DataBase, 2016*

Table 1 shows that e-government development index in Indonesia is 0.44784 which means that it is under the average of world e-government development which is estimated in 0.4922. If it is compared with the results of the internet user surley in 2016, the number of internet users in Indonesia reached 132,7 million [9]. From this number exceeded by the development of e-government in Indonesia. Indonesia should be able to implement e-government better because the internet user in Indonesia is quite large. Furthermore, the government, in this case the source KEMKOMINFO [10] through its data stated that of 34 provinces in Indonesia there are 7 provinces that have no value on e-government ranking issued by KOMINFO RI (2012-2014). the highest level of ministry is in the ministry of finance in the period 2012-2014.

There are many research of e-government in Indonesia, which is limited in three perspectives. First perspective is purposed to the activities of e-government such as transfer of government information and services among governments, their customers and suppliers [11, 12]. Second, several research of e-government are emphasized on technology use, provider of the service/ information, or clear-cut activities of the related actors [13, 14]. Third, the research is focused on part of e-government as e-service delivery, e-democracy, and e-governance [8, 15, 16].

While there is a number of e-government research in Indonesia, what success factors of e-government to aid Indonesia Government to improve their services are not unclear. In particular how and how extent the success factors are used to help government have not investigated so far. This is because there is no much research that identify the influential success factors of e-government in Indonesia. To address this issue, this study will attempt to identify the influential success factors of e-government to help Indonesia government to develop and improve their services to citizen. To facilitate identifying the influential factors, this research will utilize systematic review method to review previous journals and papers related to e-government in Indonesia in order to develop a concept of e-government.

## 2.1 Research Methodology

### A. Systematic Review Method

This study uses systematic review method that is conducted identification, evaluation, and interpretation towards all the relevant reseach result related to the certain research, topic or phenomenon which is concerned [17]. The aim of this study is to identify the success factor of e-government in Indonesia: what are the success factors of e-government in Indonesia based on the existing literature review?

### B. The Article Searching Process

The article searching process of this study is conducted by identifiying the source of article which is relevant to the topic of this research.

- National Resources
  The Indonesian Publication Index IPI (portalgaruda.org)
  > Indonesian Publication Index (IPI) is a database, which is designed to browse the articles, indexes, abstract, monitor and improve the scientific publication standards in Indonesia. Nowadays, there are more than 2.500 Indonesian journals submitted to the IPI database. The journals are intentionally made visible globally, so that Indonesian academics and researchers can identify the areass of expertise, collaboration, the use of stimulation and quotation. The establishment of the Indonesia Publication Index (formerly the Garuda Indonesia Publication Index Portal) was initiated by the Institute of Advanced Engineering and Science Indonesia Section (IAES) with 2.700 journals and 250.000 articles.
  > Lapan Online Journal (jurnal.lapan.go.id)
  > Journal of National Aeronautics and Space Agency (LAPAN) consists of Aerospace Technology Journal, Journal of Aerospace analysis and Information Remote Sensing and Earth Sciences (IJReSES), Sciences Magazines and Aerospace Technology, Aerospace News, News LAPAN, LAPAN Magazines, Scientific Oration Professor of LAPAN research, and proceedings.
  > Garuda Dikti (garuda.dikti.go.id)
  > Garuda (Garba Referral Digital) is a portal of the discovery scientific and general reference to the work of the Indonesian nation, which enables to access the domestic e-journal and e-book, students' final assignment, research reports and public wordks. This portal was developed by the Directorate of Research and Community Service Society of Directorate Publich Higher Education of Republic Indonesia.
- International Resources
  Scopus is a quotation database and the biggest abstract of peer-reviewed literature: scientific journal, book and conference of proceeding. Scopus can give comprehensive illustration about the result of world research in science, technology, medical, social, art and humanity.
  Science Direct is a database of complete scientific texts that provide journal articles and book chapters from nearly 2.500 journals and 26.000 books. Science Direct is Elsevier's leading information solution for researchers, teachers, students, professional health care and professional information. ScienceDirect combines authoritative, full text scientific, technical and health publications.

IEEE is a source for searching and accessing scientific and technical content published by the IEEE (Institute of Electrical and Electronics Engineers) and its publishing partners. IEEE Explore provides Web Access to over 3 millions sull-text documents from some of the publication quotation in the field of electrical engineering, computer science and electronics. The content of IEEE Explore comprises over 160 journals, over 300 educational courses and about 25.000 new documents addedd to IEEE Explore every month.

Google Scholar or well known as Google Cendekia is a source to search academic literature widely which is covered the whole subjects and reference in a place: peer-reviewed paper, thesis, books, abstracts, and articles, from the academic publisher, professional community, data center printing, university, and other academic organization. Google Cendekia will help to identify the most relevant research from all the academic research.

From the resources above, it is completed to the query searching to get the specific database differences. The literature selection above is based on (1) in the research has a high impact towards the technology development, especially in e-government technology in Indonesia (2) journal sources or conference paper which is able to to download directly due to limitation access in Indonesia. After the initialization of the article, researchers look for the related articles by looking the title, abstract, keyword, reference, and the use of supporting method. The searching process uses 2 basic words namely e-government Indonesia dan Indonesia e-government. Additionally, the researchers expended the basic words into electronic government, e-government in Indonesia, e-government of Indonesia, and Indonesian government.

*C. The Selection of Articles*

After getting the relevant articles, the next step is to select articles that are really relevant to the topic of this research. At the article selection step, the researcher used inclusion criteria (included), such as:

- Related topics to the success factors
- Related topics to G to C e-government in Indonesia

And it is also used exclusion criteria (which are not included), such as:

- Studies that have been done (duplication)
- Studies that are not related to the research question.

From the first selection result, it is obtained the article data that is related to the e-government in Indonesia from 2000-2015, after that, it is doing selection based on exclusion criteria, and the next

selection to the relevant title from 2010-2015, then selecting the method, result, and the conclusion.

## III. RESEARCH FINDINGS

After doing identification based on certain keyword from the previous target, there were 200 articles, in fact it is only found 142 e-government research in Indonesia from 2000-2015 which is qualified. But after doing next identification, there are so many articles which has no years totally 32 articles.

TABLE II. THE TOTAL ARTICLES BASED ON A YEAR

| No | Year(s) | Total Journals |
|----|---------|----------------|
| 1  | 2000    | 1              |
| 2  | 2001    | 1              |
| 3  | 2003    | 1              |
| 4  | 2004    | 2              |
| 5  | 2005    | 2              |
| 6  | 2006    | 13             |
| 7  | 2007    | 3              |
| 8  | 2008    | 12             |
| 9  | 2009    | 5              |
| 10 | 2010    | 10             |
| 11 | 2011    | 13             |
| 12 | 2012    | 14             |
| 13 | 2013    | 11             |
| 14 | 2014    | 12             |
| 15 | 2015    | 10             |
| 16 | Unknown | 32             |
|    | Total   | 142            |

And after doing identification based on kinds of databases, there are 96 articles articles from Google Scholar database.

TABLE III. THE TOTAL ARTICLES BASED ON A DATABASE

| No | Database(s)    | Total Articles |
|----|----------------|----------------|
| 1  | Google Scholar | 96             |
| 2  | IEE Explore    | 29             |
| 3  | IPI            | 12             |
| 4  | ScienceDirect  | 5              |
|    | Total          | 142            |

The next selection process is based on inclusion and exclusion criteria so that the articles obtained are relevant to the aim of the research and research question. The results are decreasing from 142 articles to 106 articles. And then from 106 articles are selected again

based on the year between 2010 and 2015 so that the results are decreasing again from 106 articles to 68 articles. Furthermore, from 68 of the selected articles are re-related to the G to C e-government and those related to the success factors, so the filtered article is 42 articles.

TABLE IV. THE TOTAL ARTICLE BASED ON A YEAR AFTER SELECTION

| No | Year (s) | Total Articles |
|---|---|---|
| 1 | 2010 | 3 |
| 2 | 2011 | 10 |
| 3 | 2012 | 9 |
| 4 | 2013 | 7 |
| 5 | 2014 | 7 |
| 6 | 2015 | 6 |
| **Total** | | **42** |

From 42 filtered articles, identification of factors related to succesful implementation of G to C e-government in Indonesia started. The identification technique is done by reading and understanding in order to get the success factors of the e-government in article. The factors gained were then grouped into 63 factors in 42 articles (see table 5)

TABLE V. THE SUCCESS FACTORS OF E-GOVERNMENT G TO C IN INDONESIA FROM 42 ARTICLES

| No | Factors | Total | No | Factors | Total |
|---|---|---|---|---|---|
| 1 | Human Resources | 19 | 33 | Performance | 1 |
| 2 | Infrastruktur | 19 | 34 | Ketelitian Pegawai | 1 |
| 3 | Social/citizen | 13 | 35 | Facility | 1 |
| 4 | Budget | 12 | 36 | Hardware | 1 |
| 5 | Political Will | 10 | 37 | Usability | 1 |
| 6 | Culture | 9 | 38 | Economic | 1 |
| 7 | Policy | 8 | 39 | Debt | 1 |
| 8 | Leadership | 7 | 40 | Technical | 1 |
| 9 | Blue Print / Plan | 6 | 41 | Integrity | 1 |
| 10 | interactivity/Interaction | 6 | 42 | Correctness | 1 |
| 11 | Wifi/Internet | 6 | 43 | Confidentially | 1 |
| 12 | Law | 6 | 44 | Affiliation | 1 |
| 13 | Trust | 5 | 45 | Identity | 1 |
| 14 | Transparency | 5 | 46 | Kebutuhan Masyarakat | 1 |
| 15 | Management | 5 | 47 | Karakteristik pengguna | 1 |
| 16 | Technology | 5 | 48 | Business led urban development | 1 |
| 17 | Design/web | 5 | 49 | Digital divide | 1 |
| 18 | Aplikasi / software | 5 | 50 | Data system | 1 |
| 19 | Cooporation | 5 | 51 | Communication | 1 |
| 20 | Security | 4 | 52 | Keberhasilan | 1 |
| 21 | The richness information & services | 4 | 53 | Implementation | 1 |
| 22 | Motivation | 4 | 54 | Language | 1 |
| 23 | Accessibility | 3 | 55 | Capacity | 1 |
| 24 | Organisasi/Organoware/Institutional | 3 | 56 | Attitude | 1 |
| 25 | Effectiveness | 3 | 57 | Innovation | 1 |
| 26 | Environment | 3 | 58 | Stadarisasi | 1 |
| 27 | Availability | 2 | 59 | Commitment | 1 |
| 28 | Openess | 2 | 60 | Consistency | 1 |
| 29 | Anggota Dewan | 2 | 61 | Satisfaction | 1 |
| 30 | Efficiency | 2 | 62 | Resposibility | 1 |
| 31 | Value | 2 | 63 | Accountability | 1 |
| 32 | Reliability | 1 | | **Total** | 222 |

Table 5 is the result factors from idenntification of 42 articles which is read or understood. The grouping is done by getting the word equation and still needs some filtering towards those words that have the same meaning or purpose. The process of filtering the meaning equation is done by comparing the meaning of the word with the dictionary. The dictionary is used the Great Dictionary of Indonesian Language (KBBI) and Oxford Learner's Pocket Dictionary in Fourth Edition. From 63 factors, the process combining is based on the equation of meaning and the goal of equation that is obtained 22 factors as shown in table 6.

TABLE VI. THE FILTERING RESULT OF THE SUCCESS FACTORS OF E-GOVERNMENT G TO C IN INDONESIA

| No | Factor(s) | The toal Articles refer to the factors |
|---|---|---|
| 1 | IT Infrastructure | 28 |
| 2 | IT Human Resources | 19 |
| 3 | Political Will | 17 |
| 4 | IT Services | 17 |
| 5 | Social | 15 |
| 6 | Budget | 13 |
| 7 | Affiliation | 10 |
| 8 | Culture | 9 |
| 9 | Design | 9 |
| 10 | Leadership | 8 |
| 11 | Blue Print | 5 |
| 12 | Trust | 5 |
| 13 | Reliability | 4 |
| 14 | Usability | 4 |
| 15 | Motivation | 4 |

| 16 | Environment | 4 |
|----|-------------|---|
| 17 | Openess | 3 |
| 18 | Organisasi | 3 |
| 19 | Availability | 2 |
| 20 | Value | 2 |
| 21 | Economic | 2 |
| 22 | Language | 1 |
| **Total** | | 184 |

## IV. CONCLUSION

This research produces the success factors of e-government in Indonesia with systematic review method, so the writer can draw some conclusions as follows:

1. The factors of e-government to citizen in Indonesia were identified as many as 22 factors by using systematic review method, so the writer can draw some conclusions as follows:

   IT Infrastructure is 28 articles, IT Human Resources is 19 articles, Political Will is 17 articles, IT Services is 17 articles, Social is 15 articles, Budget is 13 articles, Affiliation is 10 articles, Culture is 9 articles, Design is 9 articles, Leadership is 8 articles, Blue Print is 5 articles, Trust is 5 articles, Reliability is 4 articles, Usability is 4 articles, Motivation is 4 articles, Environment is 4 articles, Openess is 3 articles, Organization is 3 articles, Availability is 2 articles, Value is 2 articles, Economic is 2 articles, and Language is 1 article.

2. The factors of E-government to Citizen can be used as a reference for Indonesian government even local or central government to improve the quality of e-government in Indonesia.

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