

# Determining Critical Factors of E-Government Use

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**Abstract:** *Anticipating the impact of globalization and to improve national competitiveness, the government in Indonesia has de-regulated and de-bureaucratized for the simplification of public services. The simplification aims to accelerate service performance in order to compete with other countries, so that manual services turn into electronic services or e-Government. The purpose of this study was to determine what factors must be considered so that e-Government can be successful in its implementation. Furthermore, researchers create a framework on these factors. The researcher used meta-analysis to integrate the findings of previous studies. The meta-analysis method used is sourced from 37 previous studies journals. Based on the literature review, the factors of organizational factors, perceived ease of use, perceived usefulness and informational quality have significantly affected the achievement of success of e-Government adoption. The achievement of e-government succeeded will raise the level of government performance in general.*

**Keywords:** e-Government, Organizational Factors, Ease of Use, Usefulness, Informational Quality

## 1. Introduction

Globalization, in addition to having an impact on the social culture of a country also has an impact on the economy of a nation. With the advent of technology, communication and information, the economy of a country is demanded to be more productive, effective and efficient so as to make domestic production able to compete in the international market. To improve national competitiveness, the government under the leadership of Joko Widodo has de-regulated and de-bureaucratized for the simplification of public services.

De-regulation and de-bureaucratization of public services aims to make the bureaucracy more effective, efficient and public service oriented. The requirements become simpler, the procedure cuts and the length of service time becomes much faster which of course is accompanied by electronic public services or e-Government. With e-Government it is expected that the performance of public services will be faster so that it can compete with other countries.

The realization of the development of e-Government in Indonesia faces many challenges both in terms of geography, economics, technology, politics and culture. According to Sosiawan (2008) the implementation of e-Government in Indonesia is still half way, so it is necessary to improve the concept and strategy of implementing e-Government. Wardiningsih (2009) found that e-Government was still limited in supporting administration and also the information public was still far from expected. Sari (2012) states that the development of e-government systems in Indonesia has begun to increase in quantity, but the quality is still inadequate because the implementation of e-Government is not evenly distributed in all regions and still functions as a provider of static information.

The development of e-Government must pay attention to several factors in order to implement it as expected. The purpose of this study was to analyze the factors that influence the achievement of e-Government success in public services. With successful e-Government can improve the nation's competitiveness in the international arena.

## 2. Problem

Many challenges must be faced in the implementation of e-Government such as how citizens have the desire to use e-Government services. In order to improve the development of e-Government in Indonesia both in terms of quantity and quality, the need for government commitment in improving the development of e-Government, especially in terms of infrastructure, human resources, application, regulation and socialization within the government and the community (Sari, 2012). There are several factors that can be used as an assessment of whether the implementation of e-Government has been achieved such as organizational factors, perceived ease of use, perceived of usefulness and information quality. In answering the challenge, then the required of e-Government implementation that can help meet the needs is desired by effective and efficient public services.

## 3. Methodology

In order to fulfill the objective of this research to explain the critical factors of e-Government use, an extensive review of literature was carried out. A total of three international databases and Google Scholar were selected as the major source of data comprising article related to e-Government. The database we accessed online via the Web site of Gunadarma University library. The keywords search of the three major online database Science Direct, Springer Link, ELSEVIER. These databases were chosen as they embody extensive literary coverage on various issues related to e-Government adoption. 37 articles were selected consisting of empirical and non-empirical studies.

## 4. Literature Review

### E-Government

The term e-Government comes from a foreign language which is a shortening of electronic government. There are several definitions of e-Government in various countries according to the point of view of the government system:

- a) The United States government defines e-Government as a reference for delivering government information and online services through the internet or other digital

media. While one of the states of the United States, Nevada defines e-Government as:

- Online services eliminate traditional barriers to provide easy access to communities and businesses in using government services
  - Government operations for the internal constitution can simplify the demand for operas for all government agents and their employees.
- b) The New Zealand Government states that e-Government is a way for the government to use a new technology to serve the community by providing easy access for the government in terms of services and information and also to increase the quality of services and provide opportunities to participate in democratic processes and institutions.
- c) The Italian government defines e-Government as the use of modern information and communication technology in state administration, through the application:
- Computerized design for additional operational efficiency with individuals in each department and division,
  - Computerized services for communities and companies, often implementing employee integration in different departments and divisions,
  - ICT access provision for end users from government information services.

There are multiple definition of e-Government, but most of them agreed to define e-Government as government use of information communication technologies to offer for citizens and business the opportunity to interact and conduct business with government by using different electronic media. It is about how government organizes itself: its administration, rules, regulations and frameworks set out to carry out service delivery and to co-ordinate, communicate dan integrate processes within itself.

### Organizational Factors

Organizational factors can be defined as (King & Teo, 1996):

- a) Factors that positively influence the ability of an organization to exploit information resources; information resources include both information technology and information, or
- b) Factors that positively influence an organization's decision to use IT applicatons for strategy purpose.

The impact of the organizational dimension on IS success has continued to be researched using multiple perspectives. Some of the reseaches have used different termonologies including contexts, varibales, and factors when refereing to organizationa dimension. Ang et al. (2001) identified

organizational factors that influence IT usage as organizational structure, organizational size, managerial IT knowledge, top management support, financial resources, goal alignment and budgeting method. Hussein (2007) used six factors to identify organizational factors that influence IS. The six factors are decision-making structure, top management support, goal alignment, managerial IT knowledge, management style, and resources allocation. In addition, Ziemba (2013) used many perspectives to identify organizational factors such as coordination of public ICT investments, e-Government leaderships and visionaries, top management support, and electronic communication between government units.

The many dimensions used to measure organizational factors, but there are two factors that are very significant to use representing organizational factors (Ang et al., 2001; Hussein, 2007; Ziemba, 2013), namely:

#### a) Top management Support

Top management support is conceptualized as the involvement and participation of the executive or top-level management of the organization in IT/IS activities (Jervanpaa & Ives, 1991). King & Teo (1996) clearly pointed out that top management support facilitated the successful deployment of strategic IS applications, while lack of top management support inhibited the strategic use of IT/IS.

#### b) Goal Alignment

Goal alignment involves the linking together of the business goals and the corporate IT goals (Hessein, 2007). According to Saunders and Jones (1992), to promote the achievement of organizational golas the IS plans must be tied to the overall organizational plans.

### The Technology Acceptance Model (TAM)

TAM is specifically meant to explain computer usage behavior (Davis et al., 1989). The goal of TAM is to [be] capable of explaining user behavior across a broad range of end-user computing technologies and user populations, while at the same time being both parsimonious and theoretically justified.

TAM widely used to study user accpetance of technology. The measures present in David's study target employee acceptance of organizational software, but these measures have been tested and validated for various users, experienced and inexperienced, type of systems, word processing, spreadsheet, email, voice mail, etc., and gender (Chau, 1996; Jackson et al., 1997; Doll et al., 1998; Carter et al., 2005; Wang et al., 2007; Teo et al., 2014).

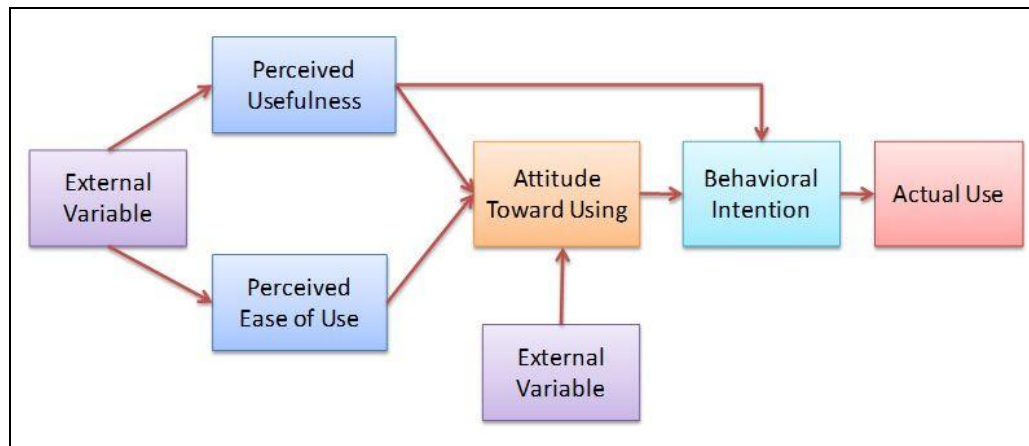


Figure 1: Technology Acceptance Model

According to TAM, perceived ease of use (PEOU) and perceived usefulness (PU) influence one’s attitude towards system usage. Ease of Use (EOU) is the degree to which the . . . user expects the target system to be free of effort (Davis et al., 1989). Usefulness (U) is the user’s subjective probability that using a specific application system will increase his or her job performance within an organizational context (David et al., 1989). TAM assumes that beliefs about usefulness and ease of use are always the primary determinants of use decisions (Mathieson, 1991).

Warkentin et al. (2002) suggested that citizen’s intention to engage in e-Government is effected by factors such as trust in e-government, perceived usefulness, and perceive ease of use. Kumar et al. (2007) found that perceived usefulness and perceived ease of use can significantly increase the adoption of e-Government rate. Perceived ease of use and perceived

usefulness are indicators of citizens’ intention to use state e-Government services (Carter et al., 2005).

**Information Quality of DeLone & McLean Model**

In accordance with DeLone and McLean (2003), this study proposes an information quality is success variable in e-Government systems. Information quality has proven to be strongly associated with system use and net benefits in recent empirical studies and especially in the context of e-Government adoption (Wang et al., 2007; Teo et al., 2014; Lin et al., 2011). Information quality captures the e-commerce content issue. Web content should be personalized, complete, relevant, ease to understand, and secure if we expect prospective buyers or suppliers to initiate transactions via the internet and return to our site on a regular basis (DeLone & McLean, 2003).

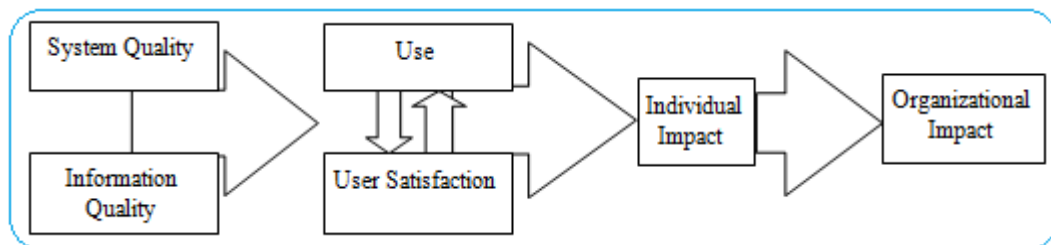


Figure 2: DeLone and McLean Model

Information quality denotes citizen’s assessment of whether the information on the Web site is accurate, valid, and timely (Teo et al., 2008). Information quality of a government Web site is the quality of the content provided on the Web site (Teo et al., 2008). Accordance to Lin et al. (2011) information quality of the e-Government service will enable the people to research for the information and look the news through online TVs and radio online.

**5. Discussion**

Telecommunications and information technology bring changes to the process of public service by the government. The process of public service that was previously still manually turned into a public servant electorally or e-Government. E-Government as government use of information communication technologies to offer for citizens

and business opportunities to interact and conduct business with government by using different electronic media.

The use of information technology then produces a new form of relationship, namely G2C (Government to Citizen), G2B (Government to Business), G2G (Government to Government), and G2E (Government to Employee). Better service by the government for the general public, business people and intergovernmental organizations results in information disclosure that eliminates mutual suspicion and resentment from all parties. This is in line with Bertot et al. (2010) although the social and ICT technologies can be disruptive, promote transparency, and create significant change, the cultural, social, and technology access factors likely require incremental and demonstrated successful change.

Table 1: Selected Finding from Literature

Authors (Year)	Significant Findings
Rana, N. P., Dwivedi, Y. K., Williams, M. D., and Weerakkody, V. (2014)	All quality based constructs including information quality, system quality, and service quality were found significant on perceived satisfaction at the 0.1% significant level.
Thi, Lip-Sam., Lim, Hock-Eam., and Al-Zoubi, Mohammad. Issa., (2014)	The technology, organizational and external factors are found to have significant influence on these basic adopters. This finding implies that future studies on e-government adoption should be conducted at disaggregates level and the focus should be on the high level usage.
Authors (Year)	Significant Findings
Ziamba, Ewa., Papaj, P., and Zelazny, R. (2013)	This research puts an effort to make some contribution to the development of studies on e-government, especially on CSFs for successful e-government adoption. The research findings showed that economic, socio-cultural, technological and organizational factors matter in accelerating country's ability and willingness to implement e-governmnet successfully.
Sari, Kusuma Dwi Arum., and Wahyu Agus Winarno (2012)	The development of e-government systems in Indonesia has begun to increase in quantity, but the quality is still inadequate because e-government implementation has not been evenly distributed in all regions and still functions as a provider of static information. In order to improve the development of e-government in Indonesia both in terms of quantity and quality, the commitment of the government in improving the development of e-government is needed in terms of infrastructure, human resources, application, regulation and socialization within the government and the public.
Lin, F., Fofanah, S. S., and Liang, D. (2011)	TAM explains an acceptable percentage of the variance in citizen's intention to use e-government services in Gambia. Hypothesis 1 examines the link between "attitude toward using" to "behavioral intention". Perceived ease of use has a significant impact on attitude. Perceived ease of use and information quality have strong impact on perceived usefulness toward using e-governement.
Bertot, John C., Paul T. Jaeger, and Justin M. Grimes (2010)	The social and ICT technologies can be disruptive, promote, transparency, and create significant change, the cultural, social and technology access factors likely require incremental and demonstrated successful change.
Lai, Caro. Sio. Kuan., and Pires. Guilherme (2010)	IQ, SQ, and SI were confirmed as determinants of the adoptioan of, ad satisfaction wiht the e-Government portal. IQ is the most important element of SAT in Macao while SAT is a significant predictor of IU.
Almarabeh, Tamara., and Amer Abu Ali (2010)	For successful e-government endeavor, two critical requirements are needed: availability and accessibility. With the inclusion of websites for e-government, an e-government website needs to satisfy this "high availability" requirement. Also, the e-government endeavor is critically dependent on the accessibility of its integral website.
Teo, S. H. Thompson., Srivastava. C. Shirish., and Jiang Li (2008)	Trust in government is found to be positively related to trust in e-government Website. Citizen's trust in e-government Web site is found to be significantly related to informasiton quality, system quality, and service quality. System quality and service quality are significantly related to user satisfaction. Only information quality is found significantly related to "intention to continue" usig the Web site. In addition, user satisfaction is significantly related to user's intention to continue using the e-govermnet Web sit. Authors also tested the direct affect of trust in e-government Web site on satisfaction and intention to continue using. The results indicate that trust in e-goverment has a direct realtionship with satisfaction and intention to continue using.
Hessein, Ramlah., Karim. N. S. A., Mohamed Norshidah, and Ahlan Abdul Rahman (2007)	This study is used to investogate the relationship between the identified organizational factors and IS seccess dimensions within the scope of the selected e-government agencies. The results indicates that decision-making structure has significant
Authors (Year)	Significant Findings
	impact on system success. A higher level top management suupport significantly relates to a higher degree of satisfaction in system quality, information quality, system quality and overall user satisfaction. Higher level goal alighent practices correlate to higher levels of perception towards the four dimensons of the IS success. Managerial IT knowledge is significantly and positively related with IS success dimensions. Management style is highly correlated with system quality, information quality, perceived usefulness and user satisfaction. Moreover, there is positive significant relationship between resource allocation and system quality, information quality, perceived usefulness and user satisfaction.
Kumar, Vinod., Bhasker Mukerji, Irfan Butt, and Ajaz Persaud (2007)	User characteristics and website design directly influence e-governmet adoption. Online satisfaction has primarily been measured into the litrature as overall satisfaction spanning a long period of the time and satisfaviton with the most recent service encounter.
Wang, Yi-Shun., and Yi-Wen Liao (2007)	This study provides the first empirical test of an adaptation of DeLone and McLean's IS success model in the context of G2C e-government. The findings showed that information quality had significant influence on use and user satisfaction. System quality had a significant impact on user satisfaction, but had no significant effect on use. In addition, use had a significant influence on both user satisfaction and perceived net benefit. Finally, user satisfaction appeared to be a significant determinant of perceived net benefit.
Altameem, Torki., Mohamed Zairi, and Sarmad Alshawu (2006)	The paper identifies and reviews the framework of government implementation and indicates the factors affecting its successful implementation. Factors of governing, technical and organizational are proposed for e-government adoption as an enabler of a practive and participative approach to implement and deliver government services effectively to beneficiaries.

Hung, S.-Y., Chang, C.-M., and Yu, T.-J. (2006)	An empirical study was conducted to identify determinants of users acceptance for e-government services. The critical factors included perceived usefulness, ease of use, perceived risk, trust, compatibility, external influence, interpersonal influence, self-efficacy, and facilitating condition. The results demonstrated that e-government services acceptance can be explained in terms of attitude, subjective norm, and perceived behavior control.
Carter, Lemuria., and France Belanger, (2005)	This study integrates constructs from the Technology Acceptance Model, Diffusion of Innovation and trustworthiness models, into an insightful model of e-government adoption. The results indicate that perceived ease of use, compatibility and trustworthiness are significant indicators of citizens' intention to use state e-government services.
Lee, Jin-Kyu., Braynov, Sviatoslav., and Rao, Raghav. (2003)	The study examines relationships between citizens' intention to use e-government services and factors that can influence those intentions in the context of a public emergency. Perceived usefulness of e-Government has significant influence to use e-Government services.
Huang, Wayne., D'Ambra, John., and Bhalla, Vikrant (2003)	Key factors influencing e-Government adoption in public sectors in Australia were: PU, PUOE, accessibility, facilitating
<b>Authors (Year)</b>	<b>Significant Findings</b>
	conditions, and perceived attractive value.
Ang, C.-L., Davies, M. A., and Finlay, P. N. (2001)	The independent variables that showed a significant effect on the IT usage in the previous three regressions, six independent variable were entered simultaneously in the four regression. Four out of the six independent variables yield a significant relationship with the IT usage. They are IT experience, top management support and public accountability at significant level.
Howrad, Mark (2001)	One of the primary vehicles governments are building to provide services is Internet "portals" that give citizens a single, easy access point to services. For portals to be effective, though, the must not be just a listing of organizations: the portal must incorporate the principles of "intentions-based design". Without such a design, citizens will get frustrated and not use the site, and the government will lose the benefits of using electronic technology to provide the service.

Source: Data processed of Author

Changes in the strategic environment and technological advances encourage the government to anticipate a new paradigm by increasing the performance of the bureaucracy and improving services towards the realization of good governance. The thing that must be considered is the role of the government in the success of various development activities, therefore the success of development must be supported by the speed of data and information flows between agencies so that there is an integrated system between the government and other users.

E-Government in Indonesia itself began in 2000 marked by Presidential Decree No. 50 about the Indonesian Telemetric Coordination Team. Since then, the development of e-Government in Indonesia from year to year has increased. However, until 2012 (Sari and Warno) it was found that quality e-Government was still inadequate because the implementation of e-Government was not evenly distributed in all regions and still functioned as a provider of static information. In order to improve e-government development both in terms of quantity and quality, the government's commitment is needed to improve e-Government development, especially in terms of infrastructure, human resources, applications, regulations and socialization within the government and the public (Sari and Warno). To achieve the strategic goals of e-Government in Indonesia, in 2016 the government has set an e-Government roadmap to realize government digitalization in the 2016-2019 range. The target direction includes public services for the community or business people such as health, licensing, taxes, etc.; government capability in terms of education, tax system, education system and others; government functions in terms of procurement, finance, asset management, regulation, and governance.

According to a study conducted by Becket et al. (2004) good public services not only provide information or provide information contact but offer opportunities to transact and then become e-Service. Whereas according to Almarabeh and Ali (2010) the implementation of e-government aims to improve government performance in general, where the right application leads to an increase in public services provided to citizens and the private sector and to increase the effectiveness of government work internally, in addition to expanding participation citizens in the decision making process. Therefore, a management model and management of the contents of government websites is needed to support the achievement of optimal e-government (Sosiawan, 2008). The most important factors in the implementation of e-government are related to organizational factors. According to Ziemba et al. (2013) it is reasonable to expect that where e-government leaders to drive e-government initiatives exist; there will be little or no problems in adopting e-government. In addition, top management support and Gola alignment were identified as the main factors.

Research conducted by King & Teo (1996) clearly pointed out that top management support facilitated the successful deployment of strategic IS applications, while lack of top management support inhibited the strategic use of IT / IS. According to a study conducted by Ang et al. (2001) there is a very strong influence on the use of IT in an organization as indicated by the presence of top management support. The level of IT use in organizations will increase when there is strong support from top management. Hussein et. Al. (2007) in his research on the influence of organizational factors on information systems success in e-government agencies in Malaysia found that top management support played a very important role in supporting IS activities and ultimately facilitating success in organizations including public

organizations. More importantly, commitment and support from top management is likely to encourage better use of IS. Forms of support from top management help overcome resistance and facilitate acceptance of new IS applications.

The second component of organizational factors is goal alignment. According to Saunders and Jones (1992), to promote the achievement of organizational goals the IS plans must be tied to overall organizational plans. Higher levels of target alignment correlate with higher perceptions of the dimensions of IT success (Hussein et al., 2007). Commitment and practice of e-government implementation by the government in realizing an ICT-based country helps public officials to realign and improve the strategic role of IS in each institution. The level of IS usage in organizations will increase when there is appropriate and coherent planning for IT strategies and business objectives (Ang et al., 2001). With aligned goals will bring e-government services to a high level, highly qualified e-government services and front-and-back-office information system integration increase exponential e-government use.

The success of implementing e-government can be assessed also with model acceptance technologies that have two components, namely perceived ease of use and perceived usefulness. Howard (2001) states that one of the primary vehicles is building to provide services is internet "portals" that give citizens a single, easy access point to services. Davis (1989) has defined perceived ease of use as a person who believes that using a paretic system will be free of effort.

**Table 2: Perception of PU & PEOU**

Perceived Usefulness	Perceived Easy of Use
The online tax filling would enable me to complete transactions more quickly	Learning to interact with the online tax filling would be easy for me.
I think the online tax filling would provide a valuable service for me	I believe interacting with the online tax filling would be a clear and understandable process.
The content of online tax filling would be useless to me	I would find the online tax filling to be flexible to interact with.
The online tax filling would enhance my effectiveness in searching for and using tax services.	It would be easy for me to become skilful at using the online tax filling.
I would find the online tax filling useful.	I would find an online tax filling difficult to use.

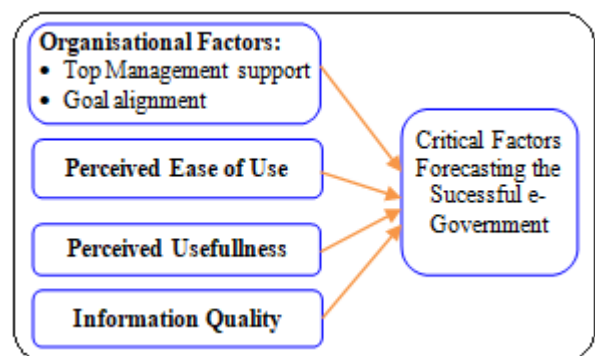
Perceived usefulness refers to the belief that a new technology will help one accomplish a task more easily than he or she can currently (Cartet et al., 2005). In the context of Davis's (1989) definition, perceived usefulness is defined as the degree to which the citizen believes that the website would provide all the required information. He has operationalised perceived usefulness as the extent to which the work can be done more quickly, an enhancement in job performance, and an increase in productivity and effectiveness. User perception as to the usefulness of the online information or services provided by the government could significantly increase the adoption rate (Kumar et al., 2007). However, the perceived usefulness goes hand in hand with perceived ease of use, i.e., how easy it is for users to access, navigate, and consume the information.

The success of the implementation of e-Government will not be separated from the quality of information displayed on government websites. Research conducted by Wang et al. (2008) stated that in order to increase citizen-perceived net benefits, e-Government authorities need to develop G2C e-Government systems with good information quality which in turn will influence citizen usage behavior and satisfaction systems, and the corresponding perceived net benefit. It is of paramount importance to develop e-Government systems that provide high-quality information and services including sufficient and up-to-date information, security and privacy protection, and personalized service. Teo et al. (2008) found that among the quality perceptions, only information quality is found on the Web site. This finding can be explained by the nature of e-government web site usage. Searching for information is the reason for citizens visiting e-Government Web site in Singapore. Hence, citizens use e-government web site for checking personal statements, etc., generated by the government, such as the Central Provident Fund (CPF) statement and balance sheets so that citizens can exercise their options of using or not using these Web sites for future similar interactions with the government.

**Table 3: Perception of Information Quality**

Information Quality
This web site provides sufficient infomation
Through this Web site, I get the information I need in time
I am satisfied wit the accuracy of this Web site
Information provided by this Web site meets my needs
Information provided by this Web site is in a useful format
Information provided by this Web site is clear
Information provided by this Web site is accurate
Information provided by this Web site is up-to-date
Information provided by this Web site is reliable

Based on table of significant findings, in outline researchers took four significant factors in this discussion theme. These factors are organizational factors, ease of use, perceived usefulness, and information quality. By implementing e-Government, government can raising the level of government performance in general, where the proper application of these e-Goverment lead to upgrade the governmental services provided to citizens and the private sector and enhance the effectiveness of government work internally, in addition to broadening the participation of citizens in decision-making process. Here is the model of research.



**Figure 3: Research Model**  
Source: Data processed of Author

## 6. Conclusion

This paper contributes to Indonesia e-Government by identifying critical factors of success implementation. E-Government has an important role in addressing the challenges that exist in the globalization and certainly affect to improve the nation's competitiveness in the international arena. To be able to achieve the desired goals, the government should pay attention to several things such as organizational factors, perceived ease of use, perceived usefulness and information quality in the implementation of e-Government. Organizational factors have an influence on the implementation of e-Government because if a government organization supports the implementation of e-Government, there will be little or no problems in its adoption. In addition, the implementation of e-government should consider the ease and usefulness of the media used so that people want to use electronic services. Good electronic services should have reliable information quality.

The model proposed in this paper is based on existing theories but needs to be empirically tested to determine its validity and reliability. The next phase in the current stream of study would be to operationalise the constructs based on the measure identified in this paper and propose refinements in the model, if any, on the basis of empirical findings.

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