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# ASPECTUAL ANALYSIS OF E-GOVERNMENT ADOPTION BARRIERS: A CITIZENS PERSPECTIVE

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## **Abstract**

*Although many researches have tried to identify e-government challenges, there is still lack of citizens' adoption of e-government. Adoption theories, such as Diffusion and Innovation Theory (DOI), have been used extensively in these researches with their own limitations. Besides, all factors work together and should be all considered to reach successful adoption. This paper aims to formulate a model that gives a comprehensive view about possible factors affecting e-government adoption by citizens. Developing the model involved conducting an aspectual analysis of Dooyeweerd theory, which is used as a method to overcome the limitations of adoption theories. This paper contributes to available literature through providing aspectual method to investigate e-government factors, which supports understanding citizens' adoption barriers from a different perspective.*

**Keywords:** E-government, Challenges, Adoption model, Diffusion of Innovation, Dooyeweerd Theory, Aspectual Analysis

## **1. Introduction**

E-government represents the idea of delivering government services and information through the internet and electronic technologies. Many governments have recognised the benefits of this idea to enhance citizens-government relationship. By e-government adoption, government information is offered to citizens anytime/anywhere (Kumar et al., 2018). Besides, it could support democratic

activities, which give citizens the ability to participate in government decisions (Rodrigues et al., 2016). E-government delivers various types of online services such as conducting electronic transactions, which facilitates individuals' life. However, obtaining these benefits requires successful e-government adoption, as well as the consideration of factors influencing citizens' usage of e-government. This is because effective e-government adoption depends on the willingness of all citizens to

use its services (Carter et al., 2016). Besides, failing to consider these factors could also lead to e-government project failure as evidenced in the Qatari government (Al-Shafi and Weerakkody, 2010). Consequently, many researchers attempt to discover and understand these factors in different developed and developing countries.

The motivation of this research stems from the need to provide a comprehensive understanding of factors that have been overlooked or ignored in the existing literature through an aspectual lens.

## **2. Review of the literature**

### **2.1. Diffusion of Innovation Theory (DOI)**

DOI is employed in IS studies to illuminate user adoption of new technology (Carter and Be' langer, 2005). This theory measures adoption rates through five characteristics that can be described as relative advantage, compatibility, complexity, triability and observability (Rogers, 1983). Relative advantage (RA) is defined as "the degree to which an innovation is perceived as better than the idea it supersedes" (Rogers, 1983, p. 213). Ojha et al., (2009) concluded that RA has an enormous impact on people's use of income tax, e-filing services. Ojha et al., (2009, p.81) explained that taxpayers may "care more about RAs which eventually translate to monetary or other gains which they really value". In the research of Schaupp and Carter (2005), RA did not show its importance on affecting citizen's intention to use e- voting services because people might care about the voting act more than conducting means.

Compatibility is defined as "the degree to which an innovation is perceived as being

consistent with the existing values, past experience, and needs of potential adopters" (Rogers, 1983, p. 223). Carter and Be' langer (2005) indicated that citizens have the willingness to use e-government if its services are congruent, socially (such as contacting with friends) and economically (for example purchasing goods online), with their ways of interacting with each other. Compatibility and RA were strongly loaded together in previous researches of Moore and Benbasat (1991), Van Slyke et al., (2004) and Carter and Be' langer (2005).

Complexity, on the other hand, is considered as "the degree to which an innovation is perceived as difficult to understand and use" (Rogers, 1983, p.230). Complexity of services could damage the relationship between stakeholders of e-government systems (Eynon and Dutton, 2007; Gil-García and Pardo, 2005). Van Slyke et al. (2004) found complexity as one of significant factors that affect people's intention on using e-commerce services. Moreover, Alomari et al. (2012) confirmed that complexity affects Jordanian citizens' intention to use e-government services. However, Alomari et al. (2012) research sample was an Internet literate population, indicating that participants were able to evaluate the complexity of government websites and its importance. IS studies posit that RA, compatibility and complexity are the most relevant factors to the issue of technology adoption (Tornatzky and Klein, 1982). Consequently, the researcher will only consider the first three constructs in this research.

### **2.2. More Literature Factors**

A plethora of studies have explored the potential effects of e-government adoption factors, such as trust in Internet, trust in

government, attitudes, beliefs, and skills of using computers and Internet, in addition to website design, awareness, lack of policy and regulation for e-usage, information communication technology (ICT) infrastructure, citizen's participation and financial barriers. The results of these researches highlight significant impacts of these factors on citizens' intention to use e-government services.

One factor is the appropriate ICTs required to conduct online transformations (Stead et al., 2000), whereas sufficient infrastructures support interacting activities between government agencies and other stakeholders (Sweisi and Adams, 2007; Saxena, 2017). Commonly, the Internet represents the main channel of e-government services delivery (Maumbe et al., 2008). Absence of high quality internet services could create bad experiences of using e-government services, which could lead to a service rejection by citizens (Alshehry, 2008).

Further, citizens' participation (CP) plays a significant role in determining the success of e-government adoption (Sweisi, 2010; Baxter, 2017). Given e-government services are aimed mainly to serve citizens, governments should provide all possible types of participation to their citizens to cover all citizens' suggestions (Irani et al., 2007). Reaching active citizens' participation can be achieved through sharing information with citizens, consulting and involving them in the process of developing of e-government (Saidi and Yared, 2002). Participants, however, would like to see returns on their involvement and at least considering their suggestions (Elliman and Taylor, 2008). Establishing new legislations is another factor required to cope with changes that e-

government systems cause in the public sector (Akomode et al., 2002; Al-Shafi and Weerakkody, 2010). For example, legislations of electronic signature, cybercrimes, data protection and freedom of information are required to protect the privacy and security of users. Hence, "these laws and regulations are playing an important function in promoting effective communication between citizens, business and government to accelerate the adoption of e-government service on all levels" (Alshehri, et al., 2012, p.4).

Lack of awareness of e-government systems and their benefits is another factor that could hinder citizens' adoption of e-government services (Reffat, 2003; Sanchez-Torres & Miles, 2017). It is arguable that creating awareness of e-government services helps citizens to prepare for embracing the new technology rather than resisting it (Sweisi, 2010). Lack of awareness campaigns is considered as one of the reasons of Qatar e-government project failure in 2005 (Al-Shafi and Weerakkody, 2010). Moreover, Alshehri and Drew (2010) emphasised the importance of awareness campaigns for e-government adoption after finding 56% of the Saudi population indicated a lack of promoting activities for e-government benefits.

Another factor is the lack of computer and internet skills to use e-government services, which has negative impacts on e-government adoption (Sweisi, 2010; Nkwe, 2011). A high level of IT illiteracy hinders adopting new technologies in Arab states (Pons, 2004). In the USA, Be'langer and Carter (2008) indicated that using e-government services is affected by citizens' Internet skills, whereas computer skills did

not show an importance in this issue. In Jordan, Alomari, et al., (2012) found no significant impacts of both skills on Jordanian citizens to use e-government. However, the IT illiteracy levels are different from one country to another, which may impose to discover the importance of both Internet and computer skills.

Negative attitudes and beliefs is another factor that may lead to citizens' rejection of interacting online with the government (Moreno & Molina, 2017; Vassilakis et al., 2005). Attitude is considered as the negative or positive feelings that people might hold towards conducting a specific behaviour (Taylor and Todd, 1995) such as feelings towards using the Internet to interact with the government. While, belief is defined as people's perceptions of the possibility that performing a specific behaviour will lead to a particular consequence (Taylor and Todd, 1995). In Taiwan, Chu and Wu (2005) and Hung et al. (2006) confirmed that attitude affects the acceptance of citizens towards using e-government services. In Arabic countries, religious beliefs could reduce citizens' internet usage levels because of issues related to moral themes such as accessing websites that present adult themes (Norten, 2002). Dimitrova and Beilock (2005) emphasised the significant role of religion on Internet usage in states of Eastern Europe. The results of Alomari et al. (2012) showed that religious beliefs affect adopting Internet services more than attitudes.

Moreover, people should have the confidence in enabling technologies, especially confidence with the ability of Internet services to protect their privacy and security when interacting online with the

government (McClure, 2001; Carter and Bélanger, 2005; Saeed, 2013). Chang et al. (2005) and Phang et al. (2005) have conducted researches in Taiwan and Singapore respectively that showed an influence of this factor on the use of e-government services. This dimension of trust is closely associated with legislations and effective technological infrastructures (Sweisi, 2010) that have the power to overcome security challenges through securing online transactions (Mauser, 1996).

Trust in government, as a factor, represents citizens' trust with the capability of their government agencies and institutions to provide services that meet their expectations (Bélanger and Carter, 2008; Sang et al., 2009; Mpinganjira, 2015). Researches in Jordan and the USA by Alomari et al., (2012) and Bélanger, and Carter (2008) respectively found significant influence of trust in government on the level of e-government adoption.

The cost of ICTs is considered as a financial barrier to access the Internet by citizens, which affects e-government adoption (Sweisi, 2010; Al-Hammaday and Heshmati, 2011). The majority of citizens consider Internet cafés as the most popular and convenient place for accessing Internet services due to its affordability (Sweisi, 2010; Al-Hammaday and Heshmati, 2011). This cost is used to identify the willingness of citizens to provide internet services to their homes.

Website design has an impact on the adoption of e-government services (Sachan et al., 2018). Wang et al. (2005) argued that evaluating web-based services of e-government is required to guarantee its benefits. Accessibility, usability and

presentation of content are factors of good website design that affect citizens' motivation to use e-government services (Wang et al., 2005; Bertot and Jaeger, 2006). Abanumy et al., (2005) highlighted that e-government websites of Saudi Arabia

and Oman require considerable enhancements to be accessible and this returns to the importance of a lack of awareness of accessibility. From the above literature, the following concepts have been deduced and summarised (see Table 1).

**Table 1: Summary of E-Government Adoption Concepts**

<b>Factors</b>	<b>Author(s)</b>	<b>Description</b>
<b>Relative Advantage, Compatibility and Complexity</b>	Diffusion of Innovation (DOI) (Rogers, 1983)	Relative advantage (RA) is defined as “the degree to which an innovation is perceived as better than the idea it supersedes”. Compatibility is defined as “the degree to which an innovation is perceived as being consistent with the existing values, past experience, and needs of potential adopters”. Complexity, on the other hand, is considered as “the degree to which an innovation is perceived as difficult to understand and use”.
<b>Attitudes and Beliefs</b>	Alomari et al. (2012) Dimitrova and Beilock (2005) Hung et al. (2006) Moreno & Molina (2017) Norten (2002) Taylor and Todd (1995) Vassilakis et al. (2005) Wu (2005)	Negative attitudes and beliefs may lead to citizens’ rejection of interacting online with the government.
<b>Awareness</b>	Al-Shafi and Weerakkody (2010) Alshehri and Drew (2010) Reffat (2003) Sanchez-Torres & Miles (2017) Sweisi (2010)	Unfamiliarity with existing e-government systems and their benefits could hinder citizens’ adoption of e-government services
<b>Citizens’ Participation</b>	Baxter (2017) Elliman and Taylor (2008) Irani et al. (2007) Saidi and Yared (2002) Sweisi (2010)	Since e-government services are aimed mainly to serve citizens, governments should provide all possible types of participation to their citizens to cover all citizens’ suggestions
<b>Computer and Internet Skills</b>	Alomari, et al., (2012) Be’langer and Carter (2008) Pons (2004) Sweisi (2010) Nkwe (2011)	Lack of computer and internet skills to use e-government services has negative impacts on e-government adoption

<b>Financial Barrier</b>	Al-Hammaday and Heshmati, (2011) Sweisi (2010)	Cost of ICTs is considered as a financial barrier to access the Internet by citizens, which affects e-government adoption
<b>ICT Infrastructure</b>	Adams (2007) Al-shehry (2008) Maumbe et al. (2008) Saxena (2017) Stead et al. (2000) Sweisi (2010)	Appropriate ICTs are required to conduct online transformations whereas sufficient infrastructures support interacting activities between government agencies and other stakeholders
<b>Legislations</b>	Akomode et al. (2002) Al-Shafi and Weerakkody (2010) Alshehri, et al. (2012)	Establishing new legislations is required to cope with changes that e-government systems cause in the public sector e.g. legislations of electronic signature, cybercrimes, data protection and freedom of information
<b>Trust in Government</b>	Bélanger and Carter (2008) Sang et al. (2009) Mpinganjira, (2015)	Trust in government, as a factor, represents citizens' trust with the capability of their government agencies and institutions to provide services that meet their expectations
<b>Trust in Internet</b>	Carter and Bélanger (2005) Chang et al. (2005) McClure (2001) Phang et al. (2005) Saeed (2013)	People should have the confidence in enabling technologies, especially confidence with the ability of Internet services to protect their privacy and security when interacting online with the government
<b>Website Design</b>	Abanumy et al., (2005) Bertot and Jaeger (2006) Sachan et al. (2018) Wang et al. (2005)	Website design has an impact on the adoption of e-government services via accessibility, usability and presentation of content, which are good factors of website design that affect citizens' motivation to use e-government services

### 3. Dooyeweerd Theory

This section briefly introduces and discusses Dooyeweerd's aspects and their significance to fill the gap of the literature. Dooyeweerd aspects can be defined as spheres of meaning and laws, which express everyday experiences in distinct and meaningful ways (Basden, 2008). An aspect is defined as "a way in which a thing may be viewed or regarded; interpretation" (Dictionary.com, 2012, p.1). Dooyeweerd aspects consist of fifteen aspects that help to understand

different things around information systems (Basden, 2008).

Dooyeweerd's aspects can be classified into mathematical, pre-human aspects, human aspects, social aspects and societal aspects. Given that this research focuses on government to citizens (G2C) relationship, last three categories of Dooyeweerd aspects are explained. Analytic, formative, and lingual aspects are the components of human aspects. The analytic aspect presents



the “conceptual and theoretical thinking” of distinguishing things, clarifying confusions and concept formation. Shaping things, achievements, planning, obtaining skills and techniques are all related to the formative aspect. The lingual aspect deals with presenting information and understanding them through writing, speaking, symbols, and other lingual media. (Basden, 2010)

The human category involves aspects of several human activities that are conducted in any society. Social aspects include social, economic and aesthetic aspects. The social aspect offers the concept of togetherness, which involves creating relationships among people in different groups in society. Then, the economic aspect comes to illuminate the importance of managing limited resources that are offered in a society such as, money, time and other resources. The aesthetic aspect adds the notion of being harmonised and enjoying the society people live in. This includes enjoyment, coherence, playing, disharmony, etc. (Basden, 2010).

Societal aspects are the final set of aspects that involve juridical, ethical and faith aspects. The juridical aspect represents dealing with the legality and appropriateness of conducting life’s activities with respect to people’s responsibilities. While considering others rights, the ethical aspect introduces the concept of self-giving, sacrifice, goodness and generosity towards people who live around us. The pistic aspect covers the notion of faith, commitment and vision of people towards their life.

The importance of these aspects comes from the notion that Dooyeweerd’s aspects are irreducible in their distinct meaning and are related to each other (Basden, 2008). Consequently, the factors are analysed via the aspectual analysis tool of Dooyeweerd theory to determine their aspects. Then, the factors are compared with Dooyeweerd’s

aspects in order to recognise the ones that are missing or overlooked. Further, “each aspect provides a different way in which we exclaim that makes sense! or that does not make sense” (Basden, 2008, p.75). Consequently, aspectual analysis is employed to interpret an existing text (Basden, 2008) of a specific factor to its embedded aspects in order to show its meaningfulness.

#### **4. Findings & Conceptual Model**

This section summarises the results of the aspectual analysis and presents the research model. There is no comprehensive model that includes all aspects required to adopt e-government effectively. However, factors identified in the literature revealed more aspects and this calls for the significance of involving all aspects of e-government adoption into one model. Therefore, the model presented in this research is developed to deliver a comprehensive understanding of the challenges of e-government adoption.

##### **4.1 Aspectual analysis of factors**

This section provides a deep analysis of factors that affect e-government adoption from a citizen’s perspective through using aspectual analysis of Dooyeweerd theory. In the aspectual analysis, we first presents a meaning/definition of each factor in sake of determining its embedded aspect, and then identifying the meaningfulness of the factor. Hence, the concept that has been assigned to each factor in the literature to relevant aspects is interpreted and the area of similarity related to the meaning of each factor is identified. However, interpretations of texts should target the actual words (Basden, 2008). The following paragraphs provide the Dooyeweerd analysis of factors identified from the literature:

**Relative Advantage (RA):** “the degree to which an innovation is perceived as better than the idea it supersedes” (Rogers, 1983, p.213). From above definition, we can understand that the main concept of the factor talks about people’s ability to recognise the benefits of an innovation and consider it as better than pervious idea. However, “better” as a word is a multi-aspectual word that can be related to many aspects such as economic (faster and cheaper services), aesthetic (enjoyable services), social (enhancing the relationship with the government), and pistic (enhancing the confidence with the government through reducing the corruption level).

**Compatibility:** “the degree to which an innovation is perceived as being consistent with the existing values, past experience, and needs of potential adopters” (Rogers, 1983, p.223). “Compatibility” also refers to “consistent” that represents the focus of the sentence. Harmony, which is the kernel meaning of aesthetic aspect, refers to things working together to form larger groups (e.g. an orchestra). Compatibility means that the innovation should work together with experience as part of a larger group. Therefore, it is mainly of the aesthetic aspect of Dooyeweerd theory.

**Complexity:** “the degree to which an innovation is perceived as difficult to understand and use” (Rogers, 1983, p.230). “Perceived as difficult to” refers to the analytical aspect because engaging citizens to understand or use a complex innovation needs a level of clarification (which is one of the kernel meanings of the analytical aspect). It is linked to the lingual aspect since the word “understand” shows the importance of users’ understanding of innovation to reduce the level of perceived complexity.

**Attitudes and beliefs:** Attitude is defined as negative or positive feelings that people have towards a specific behaviour (Taylor and Todd, 1995) such as feelings towards using e-government. Beliefs are defined as perceptions of people of the probability that performing a specific behaviour will result in a particular consequence (Alomari et al., 2012). People’s attitude is related to ethical aspect (of Dooyeweerd theory) in terms of individuals’ ability to show self-giving and deal with a new system, particularly when they have negative feelings towards it. However, beliefs are associated with the Pistic aspect (of Dooyeweerd theory) since they show that people have a specific vision of something, and according to that vision, they will behave towards using e-government. Given that attitude and beliefs have different aspects, they should be considered as different factors as mentioned in previous researches (Moreno & Molina, 2017; Alomari et al., 2012).

**Awareness:** awareness of e-government systems and their benefits is necessary for citizens’ adoption of e-government services (Reffat, 2003). According to the Cambridge dictionary, ‘awareness’ refers to “knowledge that something exists”. Here, the main concept concerns peoples’ ability to distinguish the existence of e-government services on one hand and distinguishing their distinct benefits on the other hand (Sanchez-Torres & Miles, 2017). Distinguishing refers to the kernel analytical aspect of Dooyeweerd theory.

**Citizens’ participation:** Reaching active citizens’ participation can be achieved through sharing information with them, consulting and involving them in the process of developing e-government (Saidi and Yared, 2002). “Citizens’ participation” is the main focus of the factor that is achieved by social activities such as “sharing

information”, “consulting” and “involving” citizens. Hence, it can be observed that all these activities and the title of the factor indicate explicitly to the social aspect Dooyeweerd theory.

**Financial barrier:** The cost of ICTs is considered as a financial barrier to access the internet by citizens, which affects e-government adoption (Sweisi, 2010; AlHammaday and Heshmati, 2011). It can be observed that this factor is related to the economic aspect of Dooyeweerd theory because of terms such as “cost” and “financial”. This means that the economic aspect will influence citizens by affecting their budget through ICT costs.

**ICT infrastructure:** “ICT infrastructure” provides citizens with resources to benefit from the development of the ICT field such as internet services that represent one of the essential resources to access e-government services. Consequently, this factor is relevant to the economic aspect because its concept indicates to providing “resources” to citizens, which represent one of the kernel meanings of the economic aspect of Dooyeweerd theory.

**Legislations:** Establishing new legislations is required to cope with changes that e-government systems cause in the public sector (Akomode et al., 2002; Al-Shafi and Weerakkody, 2010). The juridical aspect is the aspect of this factor because of the word “required”, more specifically the phrase of “required to cope with the changes”. Moreover, policy and regulations are formed to express what is right for the people, and this supports the idea of “required to cope with changes”.

**Skills of using computers and internet:** Lack of computer and internet skills for using e-government services has a negative impact on e-government adoption (Nkwe,

2011 and Bélanger and Carter, 2008). The concept of this factor is reflected by the word “skills” in both the title and the sentence, which is directly related to the formative aspect of Dooyeweerd theory.

**Trust in government:** citizens’ trust with the capability of their government to provide services that meet their expectations (Carter and Bélanger, 2008; Sang et al., 2009). Trust with the government’s capability is the main concept and this factor is related to the Pistic aspect of Dooyeweerd theory because trust as a word reflects people’s beliefs about the government capability to deliver services that meet their ambitions.

**Trust in internet:** People should have the confidence in enabling technologies, especially confidence with the ability of internet services to protect their privacy and security when interacting online with the government (McClure, 2001; Carter and Bélanger, 2005; Alomari et al., 2012). Confidence with the internet services represents the main concept of the sentence, which is consistent with the word of the factor’s title (Trust) and these words are related to the Pistic aspect.

**Website design:** "Accessibility, usability and presentation of content are factors of good website design that affect citizens’ motivation to use e-government services". Firstly, website design has numerous purposes such as making the website accessible, usable and enjoyable. However, “presentation of content” is more related to making the website attractive and enjoyable. Hence, the concept of the factor can be linked to aesthetic aspect of Dooyeweerd theory in order to bring attraction and enjoyment constructs to e-government websites. While, making the website accessible and usable are required for an enhanced website design, consequently the

juridical aspect of Dooyeweerd theory covers these characteristics of website design.

#### 4.2 Conceptual Model

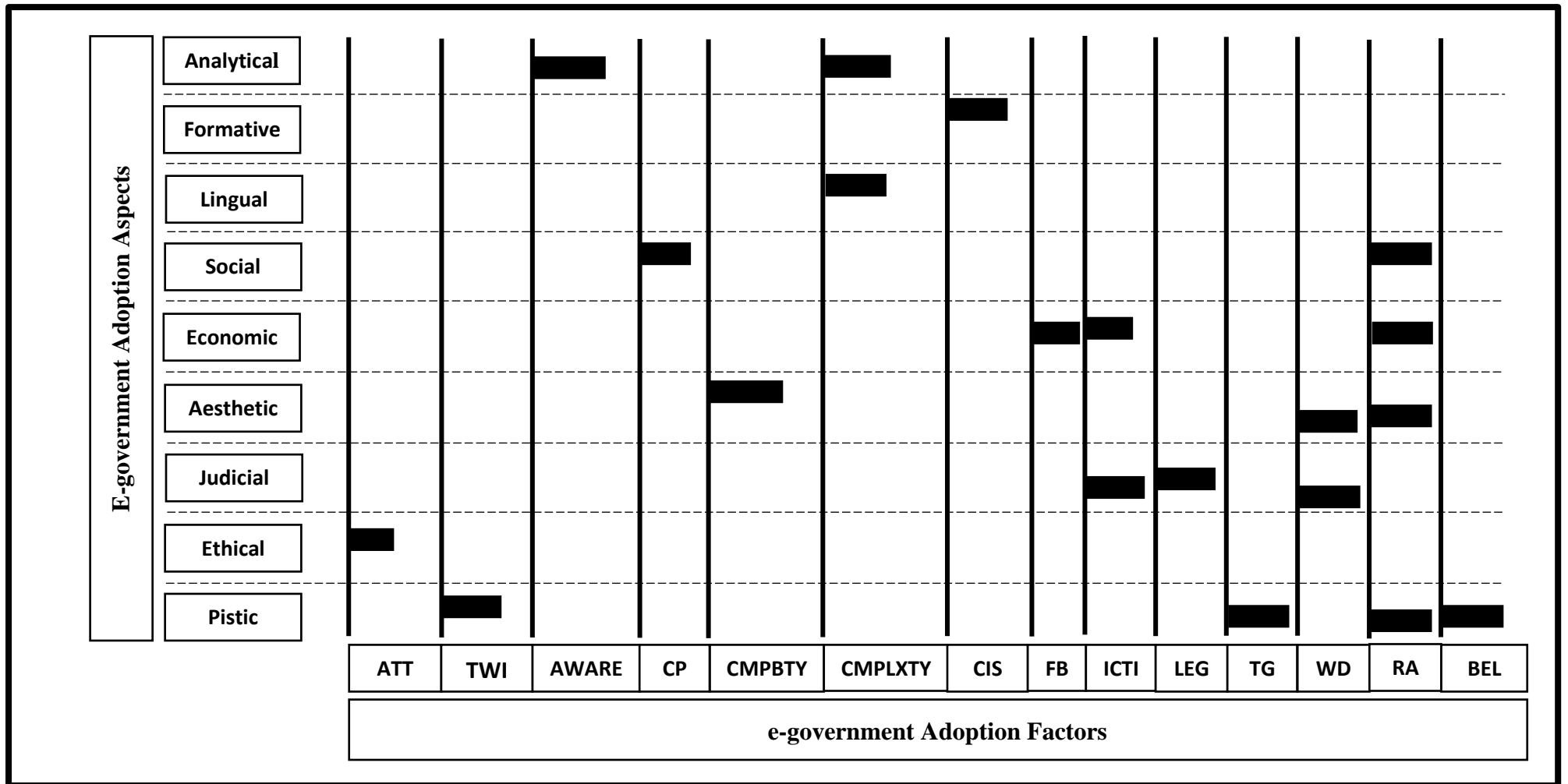
The uniqueness of this model stems from extending and comparing the aspects of e-government literature with Dooyeweerd

aspects. Table 2 shows the possibility of comparing the factors with Dooyeweerd aspects in order to determine whether there are missing or overlooked aspects that the existing literature have not yet covered. This leads to the development of the research model as shown in Figure 1.

**Table 2: Model Concepts with Descriptions**

Aspects	Factors	Main concept of factors' aspects
Analytical	Complexity (CMPLXTY)	Analytical aspect has an impact on e-government adoption through the required level of the clarification for the process of using e-government services.
	Awareness (AWARE)	Analytical aspect affects e-government implementation through the impact of individual's ability to distinguish the existence of e-government.
Formative	Computers and internet Skills (CIS)	Formative aspect explains the importance of obtaining a level of computer and internet skills to be able to achieve online transactions and using e-government systems correctly.
Lingual	Complexity (CMPLXTY)	Lingual aspect affects e-government usage through the level of citizens' understanding of e-government concept.
Social	Citizens' participation (CP)	Social aspect has an impact on e-government adoption by the level of citizens' participation.
	Relative Advantage (RA)	Enhancing the relationship with the government through the focus on social aspect of e-government adoption.
Economic	ICT infrastructure (ICTI)	Economic aspect will affect citizens' use of e-government by the availability of the needed resources.
	Financial barrier (FB)	Economic aspect will influence citizens by affecting their budget through ICT costs.
	Relative Advantage (RA)	Economic aspect indicates to the ability of e-government to provide cheaper and faster services.
Aesthetic	Compatibility (CMPBTY)	Aesthetic aspect has an impact on e-government usage because it affects individuals' perceptions of e-government services being compatible and consistent with their lives.
	Website design (WD)	Aesthetic aspect plays an important role in increasing citizens' use of e-government services through considering constructs of attraction and enjoyment of government websites.
	Relative Advantage (RA)	Providing enjoyable and attractive services of the e-government through the focus on aesthetic aspect.

Juridical	Legislations (LEGIS)	Juridical aspect affects citizens' intention to use e-government by the availability of appropriate regulations.
	ICT infrastructure (ICTI)	Juridical aspects will affect citizens' use of e-government by the availability of appropriate internet services.
	Website Design (WD)	Juridical aspect imposes that website design should be accessible and usable.
Ethical	Attitude (ATT)	People's attitude could be related to ethical aspect in terms of individuals' ability to show self-giving and deal with the new system particularly when they have negative feelings towards it.
Pistic	Trust with internet (TWI)	Pistic aspect will affect e-government usage by the impact of people's trust with the internet services.
	Trust in the government (TG)	Pistic aspect will affect e-government usage by the impact of people's trust with their government capabilities.
	Beliefs (BEL)	beliefs is associated with Pistic aspect because beliefs show that people have a specific vision of something, and according to that vision they will behave towards using internet.
	Relative Advantage (RA)	Pistic aspect affects e-government adoption through enhancing the confidence with the government through reducing the corruption level.



**Figure 1:** Conceptual Model of Dooyweerd Aspects in relation to e-government Adoption Factors

## 5. Discussion

It is clear that pistic aspect has four factors. This may indicate that pistic aspect controls the perception of the people and then their attitude towards adopting e-government services. However, this does not mean decreasing the importance of other aspects. According to the literature, trusts with internet and government, and beliefs factors affect peoples' perceptions about e-government adoption negatively (Chang et al., 2005; Phang et al., 2005; Alomari et al., 2012; Be' langer and Carter, 2008). While, citizens' beliefs about the ability of e-government to reduce the corruption (RA) will enhance citizens' trust with the government. This is because providing citizens with government information enable them to understand how government decisions are made (IDABC, 2005), which maintains citizens' trust with the government. Accordingly, it is recommended to enhance the awareness about the benefits of e-government (analytical aspect) to target citizens' beliefs, which could reduce the negative impact of all pistic factors. Hence, measuring the factors of pistic aspect supports the understanding of the overall perception towards using e-government.

Furthermore, each one of juridical, economic and aesthetic aspects has three factors. This result may show that these aspects have almost the same significance with regard to e-government adoption. Interestingly, juridical aspect embedded in website design and ICT infrastructure, which also have economic aspects. Hence, fulfilling juridical aspect leads to cover economic aspects of ICT infrastructure and financial barrier. This is because providing appropriate ICT infrastructure includes the idea of making resources available to citizens, as well as delivering resources to

citizens with appropriate prices. In addition, the availability of appropriate ICT infrastructure affects trust with internet (pistic aspect) (Sweisi, 2010). Besides, considering juridical aspect of legislations enhances citizens' trust with internet (Sweisi, 2010). Moreover, making websites usable and accessible (juridical aspect) also indicates to the importance of considering the aesthetic aspect of websites. Further, aesthetic aspect of website design influences the ability to provide attractive services (RA). This explains how juridical factors work together to highlight the basic requirements of e-government usage and their relationship with other aspects.

Moreover, Ojha et al., (2009) mentioned that people care more about gaining financial incentive and other values (RA); hence, economic aspects of e-government usage highly affect citizens' attitude. Nevertheless, compatibility is defined as "the degree to which an innovation is perceived as being consistent with the existing values, past experience, and needs of potential adopters" (Rogers, 1983, p. 223). Hence, individuals' compatibility with e-government depends largely on the economic benefits that meet their needs and values, which has a direct relation to RA and compatibility factors as indicated by a research of Moore and Benbasat (1991). As a result, providing appropriate ICT services with rational prices enhances the ability to gain economic benefits of e-government services. It is clear here how these factors relate to each other to reflect the kernel meaning of making resources available to obtain economic benefits of e-government. To support viewing e-government services as being more compatible with citizens, there should a considerable attention for aesthetic aspect of website design. This imposes considering user's needs and values in order to provide attractive and enjoyable

services. Therefore, the ability of delivering attractive and superior services depends on understanding compatibility needs of citizens and then developing the aesthetic aspect of websites accordingly.

Given that people need a level of skills to use e-government services, Juridical and aesthetic aspects of website design affects both the formative aspect of computers and internet skills, and the analytic aspect of complexity. In addition, the lingual aspect of the e-government concept affects the perception about the complexity of e-government. Besides, raising citizens' awareness about e-government theoretically and practically reduces the possibility of perceiving e-government as a complex facility (Al-Shafi and Weerakkody, 2010). Hence, the analytical aspect controls the thinking towards the way of using e-government facilities and then influences the level of citizen's participation. Without citizens' participation, it will be difficult to raise awareness of e-government services (AlShafi and Weerakkody, 2010) and inform citizens about government efforts to maintain a positive relationship with people. This shows that analytical and social factors can be invested to change citizens' perceptions and then mitigate the pistic negative impacts. Interestingly, this discussion showed how factors work as a whole as Sweisi (2010) indicated before, and how they can affect each other negatively or positively.

## 6. Conclusion

This paper aimed to formulate a comprehensive model that gives an understandable view about the factors affecting e-government adoption from a citizen's perspective. Dooyeweerd theory and aspectual analysis are used to develop the intended model. The results led to

formulating an intended model that provides readers with an aspectual picture about the factors affecting individuals' intention to use e-government, together with a discussion which clarified how the factors influence each other. Finally, this paper contributed mainly to available literature by delivering an aspectual method to investigate e-government factors, which supports other researchers to understand e-government adoption barriers from a different point of view. Research implications point to future empirical studies using the findings of this paper, together with Dooyeweerd theory and aspectual analysis to analyse various e-government technologies from a citizen's perspective.

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