

IS THERE A DIRECT DEPENDENCY BETWEEN THE DEVELOPMENT OF E-GOVERNMENT AND CORRUPTION? A COMPARATIVE ANALYSIS

¿EXISTE UNA RELACIÓN DIRECTA ENTRE EL DESARROLLO DEL E-GOBIERNO Y EL GRADO DE CORRUPCIÓN? UN ANÁLISIS COMPARATIVO

Svetlozar TODOROV

The University of Sofia "St. Kliment Ohridski". Bulgaria.

E-mail: svetlozart@yahoo.com

Abstract:

Information and communication technologies can be seen as a means of facilitating people's lives, but at the same time they can be used to protect them from mistakes. They can also protect civil servants from mistakes and bad practices when providing services to citizens. Is there a dependency between e-government and corruption? How strong is this relationship? Does the level of corruption depend on the e-government development? These questions are important for each government, and responses can determine the individual steps they will take. This study aims to reveal whether there is a direct dependence between the implementation of e-government, its level of development and its impact on corruption in countries around the world. It should be clarified that here will be studied only the achieved results by several groups of countries over a period of ten years, between 2005 and 2015.

Keywords: e-government, corruption, interdependence between e-government and corruption

Resumen:

Las tecnologías de la información y comunicación no solo facilitan la vida de las personas, sino que también se pueden emplear evitar cometer errores. Así, pueden usarse para impedir que los funcionarios cometan errores administrativos o realicen malas prácticas. ¿Hay una relación entre e-gobierno y corrupción? ¿Depende el grado de corrupción del desarrollo del e-gobierno? Estas preguntas son importantes y las respuestas determinarán las estrategias a seguir. Este trabajo analiza estas cuestiones a partir de una muestra de países de todo el mundo con datos entre 2005 y 2015.

Palabras clave: e-gobierno, corrupción, interdependencia entre e-gobierno y corrupción

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1. INTRODUCTION

There are a number of studies that explore this process. Some opinions support the view that there can be a correlation between the development of e-government and the level of corruption. The characteristics of e-government that limit corruption summarized by Paul (2007) are the following:

- E-government can centralize data to improve auditing and analysis.
- E-government can make decisions that are traceable.
- Enhancing access to information in order to increase transparency in the specific decisions and actions of civil servants.
- E-government reduces redundancy in the administration at different levels, and so corruption is greatly reduced by improving the efficiency of the different departments. Improving financial reporting, submitting online documents, and paying in this way is almost immediate.
- The decision-making process is speeding up.

- Electronic parity increases the interaction between citizens and institutions by making all services available and thus increasing their confidence.

By examining the common features of e-government strategies by different groups of countries Shahkooh, et al. (2008) find that e-government is a partial solution to tackle corruption. They point out its capabilities to remove arbitrary action by administration officials by recording and storing different traceable data. Models created by Lupu and Lazăr (2015) confirm the assumption that widespread use of e-government will reduce corruption. In particular, they argue that an increase in the 1% e-government index could lead to a reduction in corruption of 6.7% in countries of the EU and 6.3 for a non-EU member. In his study Andersen (2009) states that the use of e-government over the period 1996-2006 has led to the reduction of corruption in non-OECD countries. According to him, this ascertainment is stable and adds that e-government implementation significantly restricts corruption, even if account is taken of every tendency of corrupt governments to be more or less aggressive in e-government initiatives and that e-government is useful an instrument in global efforts to reduce corruption.

When the Online Procedures Enhancement for Civil Applications (OPEN) was introduced in 1999, the Seoul Metropolitan Government's anti-corruption index is 64.0. There was an increase to 84.9 in 2006. This is presented in an institutional analysis of the Open System in the South Korean capital. The approach is recognized (not only by Korean citizens and government as well as by international organizations such as the UN, OECD, and the World Bank), both to enhance administrative transparency and reduce corruption. But there are two reasons to say that the open system has had a direct effect on lowering the level of corruption in civil cases.

First, the anticorruption index was announced by the Seoul Metropolitan Government (SMG) itself. Second, Corruption Perceptions Index, proclaimed by Transparency International, shows that the level of corruption of the Korean government is still much lower than a satisfactory level of 7.0. In addition, SMG has implemented different anti-corruption strategies and improving the anti-corruption index can not be fully due entirely to the Open System. (Kim S. *et al.*, 2009) The main issue they are exploring Krishnan *et al.* (2013) is the link between the development of e-government, corruption, economic prosperity, and the erosion of the environment in

the countries. The results raise the following questions that deserve attention. First, the e-government development is a negative one related to corruption. As an attempt to deal with these doubts, their research identifies quantitative merit in the relationship between e-government in the countries and their levels of corruption. Although there are strong theoretical grounds for believing that e-government can fight corruption, some studies have doubts about whether ICT as a whole can effectively reduce corruption in reality. For example, Heeks (1998) argues that sometimes ICT does not have a significant effect on reducing corruption, and even creates new opportunities for corruption. Another study, Wescott (2001), highlights that ICT can lead to increased opportunities for corruption, and reduces the skills of civil servants to counteract.

Using Klitgaard's advanced model Garcia-Murillo y Ortega (2010) argue that the widening of platforms that citizens can use to interact with state institutions as well as the digitization of some services may reduce cases of corruption. According to them, countries with a greater government presence on the Internet show fewer cases of corruption by reducing the monopoly power of government structures and the arbitrary behavior of civil servants.

ICTs can be in great help to minimize opportunities for abuse by simplifying procedures and regulations. In this regard, ICT and the Internet have already been introduced in Asia and the Pacific region to limit subjective judgment in the decision-making process, especially in corrupt-prone sectors (Asian Development Bank, 2004). Bailey (2000) argues that the application of computer technologies and appropriate financial management systems improves the detection of financial abuse, which in turn warns potential offenders against participation in corruption activities. In addition, ICTs are a tool for improving accountability and an integrated system of financial management, thus increasing transparency and accountability (Habtemichael, 2009).

2. RESEARCH METHOD

The main purpose of this study is to present graphically the collected data and to try to prove whether exists a direct dependence between the development of the

electronic government and the perception of corruption. In the course of the study are presented the trends in the development of e-government and the perception of corruption in fifteen countries between 2004 and 2015. They are divided into three groups, with the old member states of the EU (Denmark, Finland, Sweden, Netherlands, France), that traditionally demonstrate negative attitude to corruption. The second group includes countries from Central and Eastern Europe (Bulgaria, Romania, Poland, the Czech Republic, Estonia), which joined the EU at a later stage. Interesting in this group is the presence of countries with critical assessments about their ability to resist corruption. The third group includes countries from other parts of the world (USA, Singapore, Australia, Canada, South Korea) who have a strong attitude towards the implementation and development of e-Government.

The study uses data from the Department of Economic and Social Affairs of the United Nations (DESA, publicadministration.un.org), which refers to the level of e-government development in 193 countries and relies on three important criteria: accessible online services, telecommunication infrastructure, human capacity. Transparency International (<http://transparency.bg/>) is the organization that annually publishes reports assessing the perception of corruption in nearly 170 countries around the world.

The tables below provide estimates of the Corruption perception Index (IPC), of the countries surveyed for that period. The values of some of them are with decimal places as for the period up to 2012. For clarity in charting, it has been removed and integer numbers are used.

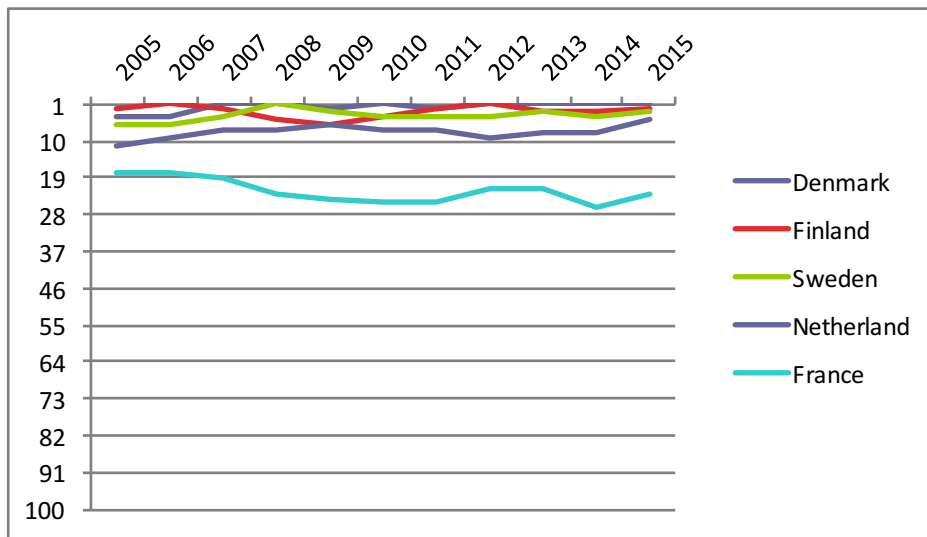
It is important to make one more clarification. When considering only the numerical indices presented, it is difficult to trace the general trend. For this, I use the ranking of each country during the specified period by indexes for the development of e-government and the perception of corruption presented with graphs.

Table 1. Corruption Perception Index

Group I	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
Denmark	91	92	91	90	9.4	9.3	9.3	9.3	9.4	9.5	9.5
Finland	90	89	89	90	9.4	9.2	8.9	9.0	9.4	9.6	9.6
Sweden	89	87	89	88	9.3	9.2	9.2	9.3	9.3	9.2	9.2

Netherlands	87	83	83	84	8.9	8.8	8.9	8.9	9.0	8.7	8.6
France	70	69	71	71	7.0	6.8	6.9	6.9	7.3	7.4	7.5

Figure 1. Corruption Perception Index - ranking



It is clear that there are minimal fluctuations in Corruption Perception Index in the group of old EU member states (Table 1 and Figure 1). This trend is particularly stable for the Scandinavian Peninsula: Denmark, Finland and Sweden, which are always among the top six in the overall ranking of the survey period, and very often, especially Denmark and Finland rank among the top two. Here, it is appropriate to

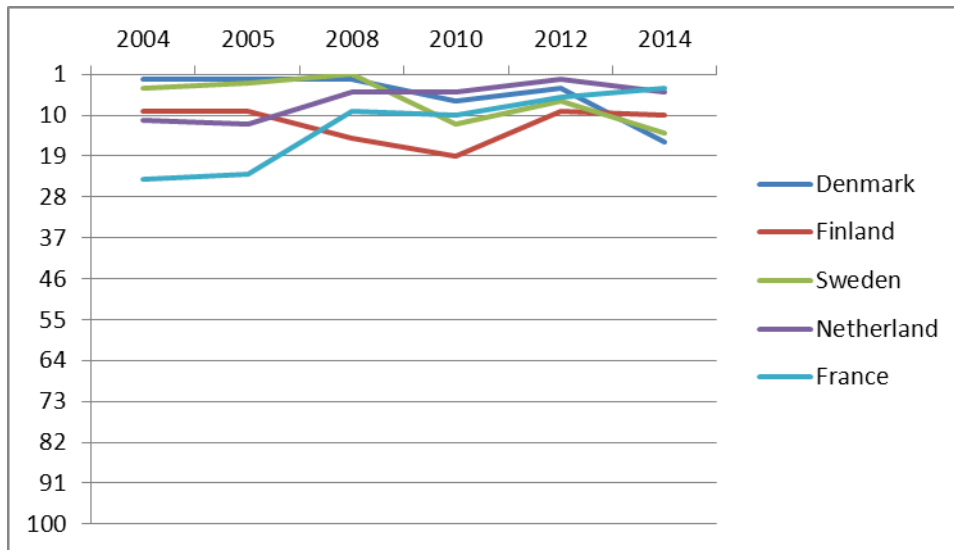
recall the law on freedom of information, adopted by the Swedish Parliament in 1766, which generally deals with the elimination of political censorship and the guarantee of public access to government documents (www.chydenius.net/pdf/worlds_first_foia.Pdf). Although suspended later, the principles of publicity of the law remain the guiding principles for these countries.

Similar is the dynamics of the Netherlands and France. There are slight fluctuations in the data and rankings that occupy the world rankings. The Netherlands, for example, ranks eleventh at the beginning in this period, and for the most part it is positioned between seventh and ninth, and at the end it is fifth. In 2005, France is the eighteenth place, and with each subsequent year to 2012, it goes down with one position to twenty-fifth. In 2015 France is twenty-third.

Table 2. E-government Development index

Group I	2014	2012	2010	2008	2005	2004
Denmark	0.8162	0.8889	0.7872	0.9134	0.9058	0.9047
Finland	0.8449	0.8505	0.6967	0.7488	0.8231	0.8239
Sweden	0.8225	0.8599	0.7474	0.9157	0.8983	0.8741
Netherland	0.8897	0.9125	0.8097	0.8631	0.8021	0.8026
France	0.8938	0.8635	0.7510	0.8038	0.6925	0.6687

Figure 2. E-government development index - ranking



At the Table 2 and Figure 2, where figures and graphs reflecting the e-government development index are presented in countries in Group One.

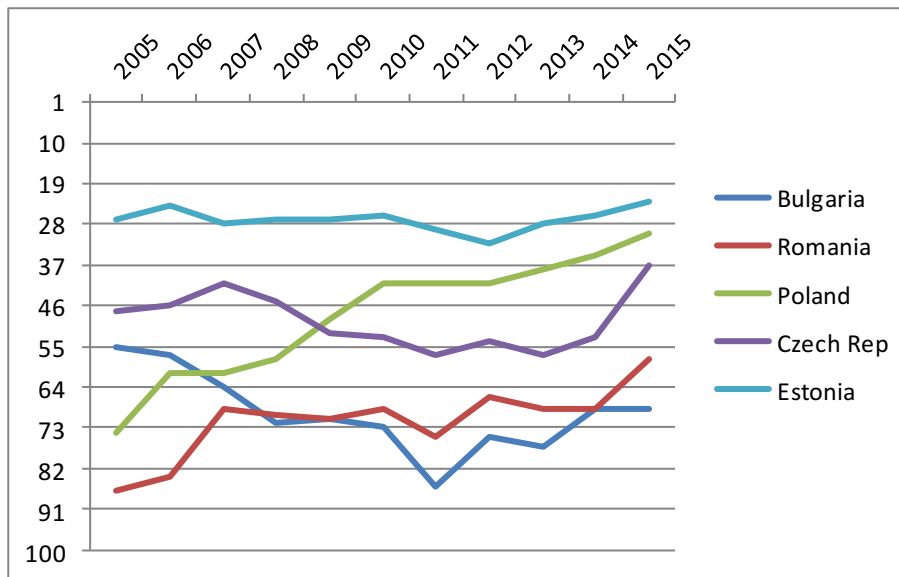
In 2004, Denmark ranks second in the world. Ten years later, this country is sixteenth. Finland is ninth in the world rankings and tenth place at the end of period. At the same time, Sweden ranks fourth in 2004 and is down to the fourteenth in 2014. For the same period, Netherland climbed from eleventh to fifth position.

Even more remarkable is the result of France, which initially ranks twenty-fourth in the world, and ten years later is fourth. Moreover, France is becoming Europe's leader on this indicator. The chart clearly shows the movement of each country, including the overall fall in this indicator, which is registered in 2010.

Table 3. Corruption Perception Index

Group II	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
Bulgaria	41	43	41	41	3.3	3.6	3.8	3.6	4.1	4.0	4.0
Romania	46	43	43	44	3.6	3.7	3.8	3.8	3.7	3.1	3.0
Poland	62	61	60	58	5.5	5.3	5.0	4.6	4.2	3.7	3.4
Czech Rep.	56	51	48	49	4.4	4.6	4.9	5.2	5.2	4.8	4.8
Естония	70	69	68	64	6.4	6.5	6.6	6.6	6.5	6.7	6.4

Figure 3. Corruption Perception Index - ranking



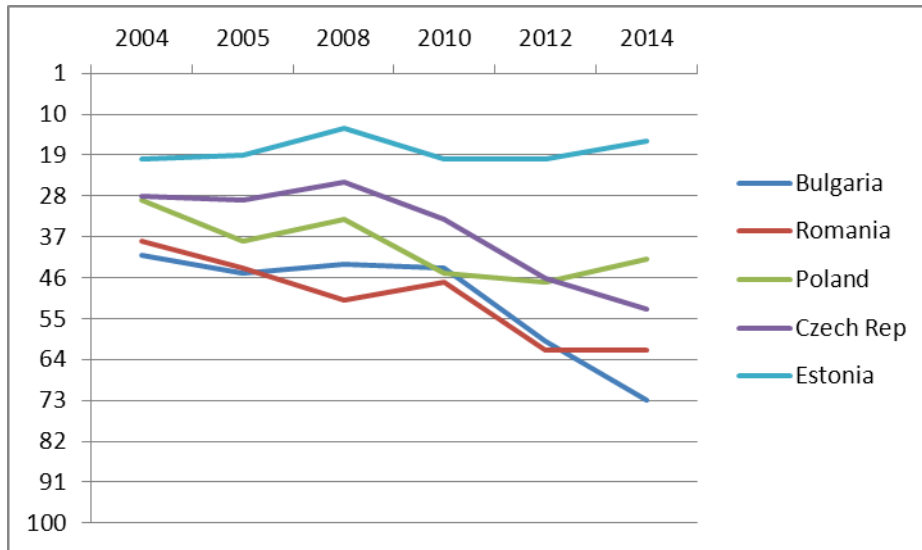
What is the situation with the Member States of the European Union joined after 2004? All of them are former socialist countries bearing the burden of their past. As already mentioned the date in Table 3. (Corruption Perception Index) can not represent the overall picture, but the chart is much clearer (Figure 3). Almost all countries in this group at the end of the survey period had better results than in the beginning of the period. The rise has been particularly sharp over the last five years. Let's have a look at the dynamics of Poland and Romania, especially Poland, whose movement is only upward. Both countries have made significant progress in climbing, with about 30 seats in Romania and 44 in Poland respectively. Only Bulgaria has weaker indicators. If we compare them with the other four countries, we will see strong dynamics in the negative direction, especially in the period 2005-2011, where the country made a remarkable collapse from 55th to 86th place. Over the next four years (by the end of 2015), Bulgaria has started climbing, but the process is clumsy. That is why, for the last two consecutive years, the country is ranked 69th.

Table 4. E-government Development index

Group II	2014	2012	2010	2008	2005	2004
Bulgaria	0.5421	0.6132	0.5590	0.5719	0.5605	0.5417
Romania	0.5632	0.6060	0.5479	0.5383	0.5704	0.5504

Poland	0.6482	0.6441	0.5582	0.6117	0.5872	0.6026
Czech Rep.	0.6070	0.6491	0.6060	0.6696	0.6396	0.6214
Estonia	0.8180	0.7987	0.6965	0.7600	0.7343	0.7029

Figure 4. E-government Development index - ranking

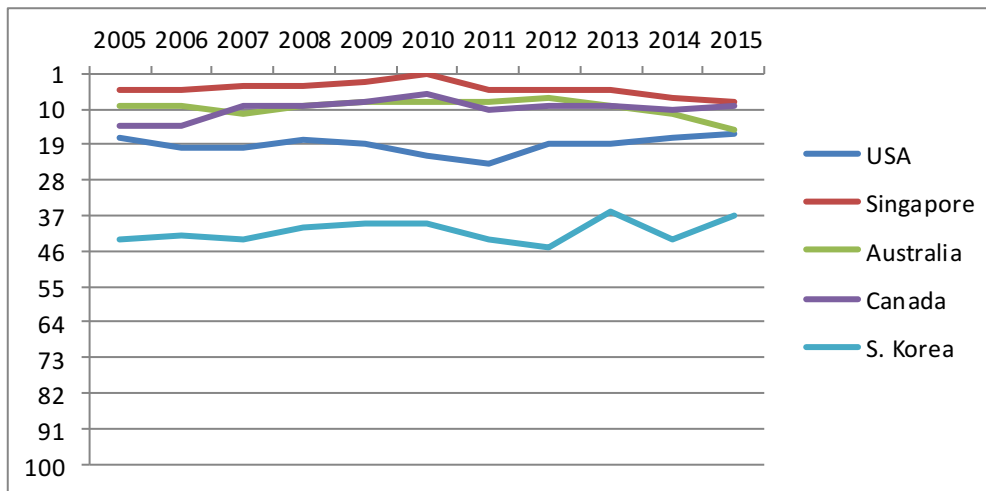


For e-Government in Group II (Table 4), with the exception of Estonia, the other four countries registered a prolonged decline. However, for Poland, there has been a reverse trend over the last few years to exit the negative line. The most sensitive is the difference for Bulgaria, which goes down nearly 30 seats.

Table 5. Corruption Perception Index

Group III	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
USA	76	74	73	73	7.1	7.1	7.5	7.3	7.2	7.3	7.3
Singapore	85	84	86	87	9.2	9.3	9.2	9.2	9.3	9.4	9.4
Australia	79	80	81	85	8.8	8.7	8.7	8.7	8.6	8.7	8.7
Canada	83	81	81	84	8.7	8.9	8.7	8.7	8.7	8.5	8.4
S. Korea	56	55	55	56	5.4	5.4	5.5	5.6	5.1	5.1	5.0

Figure 5. Corruption Perception Index



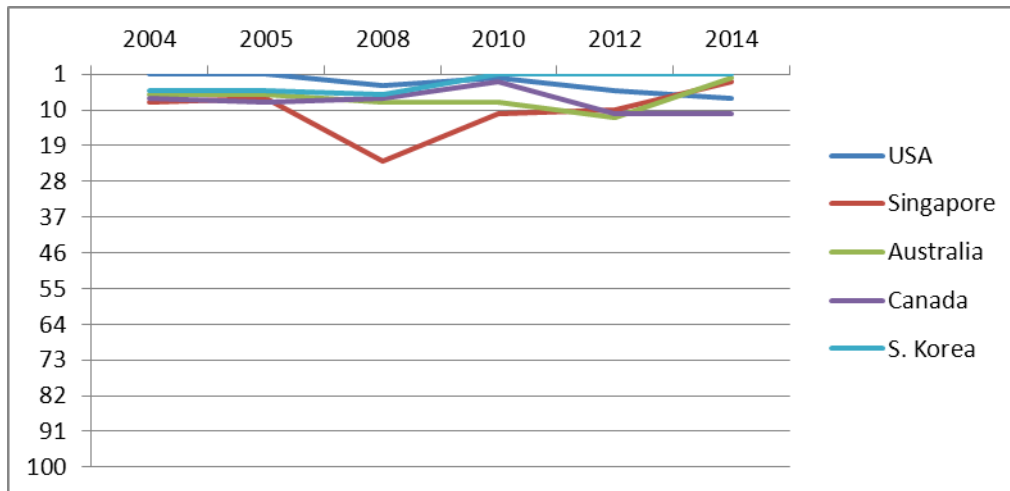
For the survey period, the Group III (Table 5, Figure 5) countries have overall relative stability with respect to the Corruption Perception Index. A smooth descending curve is only present in Singapore and Australia (Figure 5).

Table 6. E-government Development index

Group III	2014	2012	2010	2008	2005	2004
USA	0.8748	0.8687	0.9365	0.8644	0.9062	0.9132
Singapore	0.9076	0.8474	0.7476	0.7009	0.8503	0.8340
Australia	0.9103	0.8390	0.8510	0.8108	0.8679	0.8377
Canada	0.8418	0.8430	0.8448	0.8172	0.8425	0.8369
S. Korea	0.9462	0.9283	0.8785	0.8317	0.8727	0.8575

Almost analogous is the picture in Group III and the review of the E-government Development index (Table 6, Figure 6). However, there is a peculiarity and it is expressed in the smooth positive curve in Singapore and Australia, which takes them respectively to third and second place in the world. Singapore has a dramatic dynamic, which sends it to 23rd place in 2008 and the remarkable upward movement in the coming years. After 2010, South Korea is a leading country in the development of e-government, but at the same time the corruption perceptions index is not rising.

Figure 6. E-government Development index - ranking



3. CONCLUSION

In all three groups, data and graphics showed very interesting results. The common line among them is that there was no direct correlation between the development of e-government and corruption in any group. On the contrary, in the first group, France's rise in the development of e-government is not supported by the corruption perception index. In the same group, Denmark's and Sweden's weaker results in the development of e-government in recent years are not followed by the same in the Corruption Perceptions Index. In the group of former socialist countries, Estonia only demonstrates such dependence. The other countries have exactly the opposite behavior - they improve the score in the corruption perception index, but the dynamics of e-Government development is different. Singapore and Australia from third group already were mentioned. What about South Korea? Leader in e-Government development and at the same time, ranked 37th in the corruption perceptions index. Obviously, it can not be claimed that there is a directly proportional link between the development of e-government and the reduction of corruption. And that can not be relied solely on the development of e-government to fight corruption.

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