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A Brief Introduction to Electronic Government: Definition, Applications and Stages

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Introduction

In the last years the terms Electronic Government, Digital Government or their abbreviated English versions “e-Government” or “e-Gov” have been frequently used either in the political discourse as in journalists works and recently in academic research. Although the term Electronic Government has almost 10 years, it seems that there is still no consensus regarding its meaning, nor its main features. In fact, some authors assert that up to now it is still difficult to completely understand the meaning, opportunities and limits of this concept.¹ Maybe one of the elements that makes it hard to unite the concept is the transdisciplinary work in the Electronic Government, that joins both, practical applications development and investigation in areas like Public Administration, Public Policies, IT Systems Management, Procedures and Computer Science Management.²

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¹ See Corien Prins, «Electronic Government. Variations on a Concept,» en *Designing E-Government. On the Crossroads of Technological Innovation and Institutional Change*, ed. J. E. J. Prins (The Hague, Netherlands: Kluwer Law International, 2001), Åke Grönlund y Thomas A. Horan, «Introducing E-Gov: History, Definitions and Issues,» *Communications of the AIS* 15, no. 39 (2005).

² This article continues with the discussion over different Electronic Government conceptualizations presented by the authors Ramón Gil-García y Luis F. Luna-Reyes in “Integrating Conceptual Approaches to E-Government,” en *Encyclopedia of E-Commerce, E-Government and Mobile Commerce*, ed. Mehdi Khosrow-Pour

Electronic Government term, rises in the second half of the 90's as a parallel phenomenon to Electronic Commerce. At the beginning, the term was mainly used by professionals in charge of information technologies and systems in the government.³ Although these terms are coined as a result of Internet influence in public and private organizations. Recent conversations and academic forums, suggest that Electronic Government is not a totally new phenomenon, but it forms a part in the use of technologies and information systems by the government.⁴ In fact, it can be said that since the first computer applications to government operations, the Electronic Government has existed, and that the use of such technologies in the government, has evolved together with the same technology, organizational practices and institutional environment.

Thus this paper has as purpose to present the main backgrounds of the Electronic Government and different conceptualizations of the term, at the same time it analyzes the differences and similarities between the different approaches. This paper is organized in six sections for the purpose of achieving this goal. In the following section, backgrounds on the term that go back to the 50's and 60's are presented. The third part of the document, contains different approximations that have been used for understanding the so called Electronic Government phenomenon. On the third part we present a wide view of the Electronic Government concept, including not only technical aspects, but as well organizational and institutional features of the context in which these kinds of applications are developed. In the second to last section of this paper, we present a definition of Electronic Government that joins and integrates the most relevant aspects in literature, and that intends to be useful for the academy and its theoretical development, as well as for public policies implementation, related with government's information and communication technologies. The last part presents some conclusions and suggests areas that are susceptible of future studies in this field.

(Hershey, PA: Idea Group Inc., 2006), and J. Ramón Gil-García y Luis F. Luna-Reyes, "Towards a Definition of Electronic Government: A Comparative Review," en *Techno-Legal Aspects of the Information Society and New Economy: An Overview*, ed. A. Méndez-Vilas, et al., *Information Society Series* (Badajoz, Spain: Formatex, 2003)

³ See Grönlund y Horan, "Introducing E-Gov: History, Definitions and Issues."

⁴ See V. Homburg, *Understanding E-Government: Information Systems in Public Administration* (Abingdon: Routledge, 2008).

Electronic government background

Information technologies use in the government can be describes as a phenomenon that has developed in four big stages.⁵ The first stage that took place at the end of the 50's and at the beginning of the 60's, distinguished due to new computers introduction with batch processing ability. As a result from this innovation, an automation process of big and repetitive tasks, such as payrolls and tax processing's started.

Computing industry development, yield to the second stage, in which most of the big government organizations acquired their own mainframes, or they got computing capacity from external suppliers for satisfying their information processing needs. During this stage, in the second half of the 60's and practically all the 70's the main concern of public administrators were associated with equipments or services costs.

The 80's and beginning of 90's gave way to computers technology development resulting in personal computers. Increasing processing capacity and size reduction were accompanied by equipment costs cutting down, which favored that more offices attained computing capacity and this started the development of human resource in order to profit from technologies and system information investments. This stage was not free from challenges for public administrators, who mainly related with the platforms Diversity and compatibility issues for exchanging information among them. The issue was partially solved as IBM architecture and MS-DOS system consolidated as standard.

Internet and the development of computer networks have created a series of new opportunities for the development of applications and systems in the government, resulting in the use of information technologies fourth stage, known as "eGovernment" or Electronic Government. Connectivity and processing ability have brought the need of facing new challenges, related with interoperability and interconnectivity of government offices and non governmental organizations (NGO's). These challenges complexity requires experts in technology, administration, communication, law and politic science, among other disciplines, collaboration. Only through expert collaboration in different areas, we will be able to successfully face them.

⁵ The first stages described in this section were attained directly from David F. Andersen y Sharon S. Dawes, *Government Information Management. A Primer and Casebook* (Englewood Cliffs, NJ: Prentice Hall, 1991). The fourth and last is contemplated in Andersen and Dawes work, that we associate with the e-Government concept, triggered mainly by Internet and other technological trends, organizational and institutional.

Inasmuch challenges and developments of this fourth stage have been more important and remarkable than those of previous stages, it would be simplistic thinking that these are only the results of technological development. Other movements have been generating in different discipline areas and places in the world, resulting in the current Electronic Government.⁶ One of these movements is reengineering, that within public administrations reflects in currents such as New Public Management or Joined-up Government. On the other hand, new organizational forms like networks in several countries substitute hierarchical bureaucracies to face public administration issues. E-commerce exploitation applications, has also triggered that citizens demand level services similar to the ones received from private initiative to the government and have invited this last to imitate them. Finally, governments around the world, seek to build up tighter links with the citizens, and the Electronic Government has been seen as a tool that can serve these purposes.

Accordingly, the phenomenon now known as Electronic Government has its roots from information technologies same introduction in the government and it is not only a phenomenon developed in recent years. What have really been changing are Information and communication technologies used by the government, starting with batch processing computers, and recently incorporating Internet and other network technologies. On the other hand, Electronic Government does not only represent a technologies and systems evolving process, but additionally it is the result of administrative, organizational and institutional tendencies. Electronic Government is a more complex phenomenon that technologies themselves, and it involves organizational, institutional aspects and of the context in which they develop, implement and use these information and communication technologies. In the following section, we will discuss some of the main ways of understanding or conceptualizing Electronic Government.

⁶ There are different references that point out these backgrounds of Electronic Government. See for example Homburg, *Understanding E-Government: Information Systems in Public Administration*, Grönlund y Horan, "Introducing E-Gov: History, Definitions and Issues.", V. Bogdanor, ed., *Joined-up Government* (Oxford: Oxford University Press, 2005), David Arellano-Gault, *Beyond Reinventing Government: Fundamentals of New Public Management and Performance-Oriented Budgets in Latin America* (Mexico City: Miguel Ángel Porrúa, 2004), Mila Gascó, "E-Gobierno En Bolivia Y Paraguay," en *América Latina Puntogob: Casos Y Tendencias En Gobierno Electrónico*, ed. Rodrigo Araya Dujisin y Miguel Ángel Porrúa Vigon (Santiago: FLACSO-Chile/ AICD-OEA, 2004).

Concepts government background

In academic literature there are at least three different ways of understanding or conceptualizing Electronic Government.⁷ One first way is trying to build a concrete definition that contains the main elements of what it is, or should be, Electronic Government. Listing the different variants or applications of Electronic Government, has become in the second way to clarify the meaning of this concept. A third conceptual approaching to Electronic Government is evolutionary and it references the different stages that exist in its development. In this section we review some of the more representative viewpoints of each of these approaches.

Electronic Government Features

Within the first form of conceptualization, we find different Electronic Government definitions. Each of these definitions highlights some features considered as key in theoretical and practical differentiation among Electronic Government and other forms of using IT in the public sector.

Scholl⁸ mentions that there are several ways for defining Electronic Government. Some of them only include or highlight services provision through electronic means or computers network. Others try to stretch this concept limit including citizenship's commitment and participation in the administrative and political processes of the government. In fact, Grönlund⁹ identifies four levels definitions. The first group limits to information provision, services and other activities based on Internet. The second type of definitions, describes Digital Government as the use of Information and communication technologies in the government. A third level definition, highlights the transforming ability of IT's, and describes a redesigned government around IT's. The last level describes Electronic Government as a way of creating a "better government" towards internal processes and their relationship with civil society. In the following paragraphs, we include some sample definitions.

For Zweers y Planqué,¹⁰ Electronic Government refers to providing information, services or products through electronic means,

⁷ See Gil-García and Luna-Reyes, "Towards a Definition of Electronic Government: A Comparative Review."

⁸ See Hans Jochen Scholl, "E-Government: A Special Case of Ict-Enabled Business," (Albany, NY: 2002).

⁹ See Grönlund y Horan, "Introducing E-Gov: History, Definitions and Issues."

¹⁰ See Koen Zweers y Kees Planqué, "Electronic Government. From an

that can be obtained at any time or place; offering add value for all the transaction participants. Electronic Government generally refers to a greater use of IT's in the government, but it is more important to achieve a more strategic use of them in the public sector.¹¹

Galindo¹² on the other hand, proposes that Electronic Government refers to the different relations that exist between citizenship and authorities, as a consequence of using electronic tools –particularly Internet– as a way of exercising citizen's political rights. Electronic Government can be seen as the use of IT's supporting government actions and providing services to citizens.¹³ Dawes in his own right,¹⁴ besides internal operation and services, adds that Electronic Government should also involve citizenship, since people's participation is extremely important in these processes.

Another way to understand Electronic Government is like "the practical use of more innovative Information and communication technologies such as Internet, for providing effective and efficient services, information and knowledge. "This is an engagement of decision makers for strengthening the links between citizens and public sector".¹⁵

Broadly, Electronic Government can be understood as the use of any kind of IT's and ITC's, starting from fax up to electronic agendas plugged into a cellular network, facilitating government's daily administration, and its relationships with NGO's. Finally, it is common to relate Electronic Government with actions that develop through Internet, with the purpose of improving citizens' access to government information, services that insure their participation in the processes of public policies, and their satisfaction with government's actions.¹⁶

Organizational Based Perspective Towards a Client Oriented Approach," en *Designing E-Government. On the Crossroads of Technological Innovation and Institutional Change*, ed. J. E. J. Prins (The Hague, Netherlands: Kluwer Law International, 2001).

¹¹ See Åke Grönlund, ed., *Electronic Government: Design, Applications, and Management* (Hershey, PA: IDEA Group Publishing, 2001).

¹² See Fernando Galindo, "E-Government Trust Providers," en *Electronic Government: Design, Applications, and Management*, ed. Åke Grönlund (Hershey, PA: IDEA Group Publishing, 2002).

¹³ See Meghan Cook y Mark LaVigne, *Making the Local E-Gov Connection* [Electronic Magazine] (Urbanicity, 2002 [cited May 24, 2002]); available from www.urbanicity.org/FullDoc.asp?ID=36, Mark LaVigne, "Electronic Government: A Vision of a Future That Is Already Here," *Syracuse Law Review* 52, no. 4 (2002).

¹⁴ See Sharon S. Dawes, "An Examination of New York City's E-Government Initiatives," en *Select Committee on Information Technology in Government*, New York City Council (New York: 2002).

¹⁵ See ASPA, *American Society for Public Administration Home Page* (American Society for Public Administration, 2001 [cited May 12, 2002]); available from www.aspanet.org.

In this brief review we have found definitions that include very different aspects of the government performance. From those that only consider the e-services as the main element of Electronic Government, those that integrate an enhancement with internal management and fostering citizens participation as a main part of this concept, up to the ones that describe Electronic Government as a transforming force of the government's internal relationships and its relations with civil society.

Electronic Government Applications

Another way of understanding Electronic Government has been building classifications on the different kinds of applications it has given place to. Including this approach, it is possible to identify to different ways of grouping Electronic Government applications. The first is linked with different public administration and government operations such as citizen's services or democracy promotion; the second with the kind of relation that issues through electronic means.

An Electronic Government application's categorization example, following the use of public administration operation approach, is proposed by Perri 6,¹⁷ who suggests that e-Government applications can be grouped as (1) applications for electronic services provision, (2) applications for supporting electronic democracy and (3) applications of electronic address (e-governance). Nevertheless, Electronic Government literature is rich in describing the kind of applications, creating categories diversity such as: Electronic Services (e-Services), Electronic Commerce (e-Commerce), Electronic Management (e-Management), Electronic Democracy (e-Democracy), Electronic Public Policy (e-Policy) or Electronic Government Procurement (e-Procurement).

Within this kind of categorizations, practically all authors consider applications for enhancing government's services, a fundamental part of Electronic Government (Electronic Services or e-Services). A better number of authors and professionals consider IT potential for transforming government's internal operation (Electronic Management

¹⁶ Important examples of this approach are the ones performed by agencies as UNPAN, *Unpan E-Government* [Website] (United Nations On Line Network in Public Administration and Finance, 2002 [cited July 8 2002]); available from www.unpan.org/egovgovernment.asp, o el de Darrell M. West, *Digital Government. Technology and Public Sector Performance* (Princeton, NJ: Princeton University Press, 2005).

¹⁷ See Perri 6, "E-Governance. Do Digital Aids Make a Difference in Policy Making?," en *Designing E-Government. On the Crossroads of Technological Innovation and Institutional Change*, ed. J. E. J. Prins (The Hague, Netherlands: Kluwer Law International, 2001).

or e-Management). A few authors –though lately increasing– recognize IT value for promoting and preserving democratic values and mechanisms. Finally, a more reduced number of academics, relates Electronic Government with the design of public policies that issue the development of technological initiatives and that foster the information society (Electronic Public Policy or e-Policy).

Although it is difficult to assess which application categories are relevant from theoretical and practical points of view, it is possible to find guidelines in the theoretical tradition of Public administration. Rosenbloom,¹⁸ for example, identifying three different approaches in Public Administration study: Administrative, Political and Legal. Each of these approaches emphasizes different but complimentary aspects of the government. Mapping the different applications categories in this theoretical framework, allows grouping different applications in the areas of electronic administration and democracy, corresponding with Rosenbloom’s administrative and political approaches (see Table 1). It is also important to include legal vision (Electronic Public Policy or e-Policy) since governments also create legal and regulating frameworks for promoting information society. Additionally, these policies existence has been identified as a key factor for success of the Electronic Government initiatives.¹⁹

Table 1. Mapping e-Government applications with the elements of Public Administration theory

Public Administration Approaches	e-Government Categories	e-Government Elements
Administrative	e-Services	e-Services e-Commerce
	e-Administration	e-Administration e-Human Resources e-Purchasing
Policy	e-Democracy	e-Democracy e-Participation e-Vote e-Transparency
Legal	e-Public Policy	e-Public Policy e-Governance

Source: Translated and adapted by Gil-García and Luna-Reyes.²⁰

¹⁸ See David H. Rosenbloom, *Public Administration. Understanding Management, Politics, and Law in the Public Sector* (New York: McGraw-Hill, 1998).

¹⁹ See Sharon S. Dawes y M. R. Nelson, “Pool the Risks, Share the Benefits: Partnership in It Innovation,” en *Technology Trendlines. Technology Success Stories from Today’s Visionaries*, ed. J. Keyes (New York: Van Nostry Reinhold, 1995),

Although this approach would include electronic services applications as part of administrative vision, we consider that electronic services should maintain apart from electronic administration, due the client orientation in New Public Management and the great relevance of this component in this stage of e-Government, probably derive at least in some part, from Internet's potential. e-Services focus outwards, while e-Administration is in charge of technology and administrative processes that transform government organizations inwards, for offering integral services, besides being more efficient and efficacious.²¹

Patricia D. Fletcher, "Portals and Policy: Implications of Electronic Access to U.S. Federal Government Information and Services," en *Digital Government: Principles and Best Practices*, ed. Alexei Pavlichev y G. David Garson (Hershey, PA: Idea Group Publishing, 2004), L. F. Luna-Reyes, J. R. Gil-García, y C. B. Cruz, "Collaborative Digital Government in Mexico: Some Lessons from Federal Web-Based Interorganizational Information Integration Initiatives," *Government Information Quarterly* 24, no. 4 (2007).

²⁰ The table is presented in Gil-García and Luna-Reyes, "Integrating Conceptual Approaches to E-Government" as a result of an extensive literature review. Some of the main references in the administrative area are: Zweers y Planqué, "Electronic Government. From an Organizational Based Perspective Towards a Client Oriented Approach.", Galindo, "E-Government Trust Providers.", ASPA, *American Society for Public Administration Home Page* ([cited], UNPAN, *Unpan E-Government* ([cited], OCDE, *The E-Government Imperative* (Paris, France: Organisation for Economic Co-operation and Development, 2003), 6 "E-Governance. Do Digital Aids Make a Difference in Policy Making?", Janine S. Hiller y France Bélanger, "Privacy Strategies for Electronic Government," en *E-Government 2001*, ed. Mark A. Abramson y Grady E. Means, *The Pricewaterhousecoopers Endowment Series on the Business of Government* (Lanham, Maryland: Rowman & Littlefield Publishers, 2001), M. Jae Moon, "The Evolution of E-Government among Municipalities: Rhetoric or Reality?," *Public Administration Review* 62, no. 4 (2002), Karen Layne y Jungwoo Lee, "Developing Fully Functional E-Government: A Four Stage Model," *Government Information Quarterly* 18, no. 2 (2001), UN & ASPA, "Benchmarking E-Government: A Global Perspective," (New York: United Nations Division of Public Economics and Public Administration and the American Society for Public Administration, 2002), Grönlund, ed., *Electronic Government: Design, Applications, and Management*, Bruce Rocheleau, "Politics, Accountability, and Governmental Information Systems," en *Public Information Technology: Policy and Management Issues*, ed. G. David Garson (Hershey, PA: Idea Group Publishing, 2003), in political area Galindo, "E-Government Trust Providers", Jane E Fountain, "Prospects for Improving the Regulatory Process Using E-Rulmaking", *Communications of the ACM* 46, no. 1 (2003), and in the legal area 6 "E-Governance. Do Digital Aids Make a Difference in Policy Making?", Matthias Finger y Gaëlle Pécoud, "From E-Government to E-Governance? Towards a Model of E-Governance" *Electronic Journal of e-Government* 1, no. 1 (2003).

²¹ See Maria Wimmer, "Integrated Service Modelling for Online One-Stop Government," *Electronic Markets* 12, no. 3 (2002), Roland T. Rust y P. K. Kannan, "E-Service: A New Paradigm for Business in the Electronic Environment," *Communications of the ACM* 46, no. 6 (2003).

An alternative way of classifying Electronic Government applications, results from observing the type of relation there is between government and another being. Under this vision, Electronic Government limits itself mainly in e-Commerce applications in the government, and therefore to the use of Internet as a tool that issues and improves government operations in its relation to the citizens (G2C–Government to Citizen), the business (G2B–Government to Business) or other governments (G2G–Government to Government). Holmes²² identifies three main relations that he names Electronic GovernmentABC: (1) Administration to Citizen, (2) Administration to Business, and (3) Administration to Administration.

It is clear that the exposed relations in the previous paragraph have the intention of capturing all the government's possible relations with other entities. However, authors like Hiller and Bélanger²³ consider that due to the importance and peculiarities of certain type of interactions, it is necessary to be more specific. To the relations above described, these authors add: (1) Government to Individuals as Part of the Political Process (GP2IP), (2) Government to Business in the Market (G2BMKT) and (3) Government to Employees (G2E).

Electronic Government Stages

A third way of trying to understand e-Government, is building a series of stages by which different governments are traversing.²⁴ A vision like this, keeps the supposition that there is an evolution from or towards the e-Government. Some authors consider that each and every stage is already e-Government. Others consider that incipient development stages cannot be considered e-Government.

²² See Douglas Holmes, *E.Gov. E-Business Strategies for Government* (London: Nicholas Brealey Publishing, 2001).

²³ See Hiller & Bélanger, "Privacy Strategies for Electronic Government".

²⁴ See Layne & Lee, "Developing Fully Functional E-Government: A Four Stage Model.", Hiller y Bélanger, "Privacy Strategies for Electronic Government.", Ignacio J. Martínez-Moyano y J. Ramón Gil-García, "Rules, Norms, and Individual Preferences for Action: An Institutional Framework to Understand the Dynamics of E-Government Evolution" (paper presented at the Third International Conference on Electronic Government, Zaragoza, Spain, August 30 - September 3 2004), Christopher G. Reddick, "A Two-Stage Model of E-Government Growth: Theories and Empirical Evidence for U.S. Cities," *Government Information Quarterly* 21 (2004), Rodrigo Sandoval Almazán y J. Ramón Gil-García, "E-Government Portals in Mexico," en *Encyclopedia of E-Commerce, E-Government and Mobile Commerce*, ed. Mehdi Khosrow-Pour (Hershey, PA: Idea Group Inc., 2006), José Ramón Gil-García y Ignacio Martínez-Moyano, "Understanding the Evolution of E-Government: The Influence of Systems of Rules on Public Sector Dynamics," *Government Information Quarterly* 24, no. 2 (2007).

Layne & Lee²⁵ present a model in four stages that describe a completely practical Electronic Government development. The stages on their model are as follows: (1) cataloguing, (2) transaction, (3) vertical integration, and (4) horizontal integration. The first stage is named cataloguing because it focuses in the classification or cataloguing of government information and its presentation by means of electronic pages. Projects in the transaction stage, besides organizing and providing information, allow citizens' interaction with the government, through products and services attainment directly from electronic sites. Vertical integration stage consists in the physical and/or virtual integration of government organization in the different government scopes, which provide a similar service or that have under their responsibility a common operation. Currently there are some government sectors, like justice, health or education systems, that have developed initiatives that intend to achieve, to a certain degree, this kind of integration.²⁶ Finally, horizontal integration refers to transforming process that brakes with organization barriers and that develops an integral government vision, which requires a radical transformation in power intra and interorganizational power, which could be very complex. This last integration level is considered as the most complete Electronic Government vision.

Horizontal integration is so complex, that some authors have developed stage models only focusing in this integration process.²⁷ This integration first step normally consists in services integration to the inside of the different government organisms, which commonly are fragmented into operating silos (quasi-independent government offices) that rarely, interact between them. In fact, this first step is a simple way of horizontal integration towards the organization. A next step in the process consists in moving a set of service counters of different offices at a same physical or virtual site. Some citizen's service kiosks or government portals are an example of this first step towards integration. Each service counter stands alone from the others in its processes and systems. The next development step, involves different organizations collaboration and information exchange. In this stage, the citizen is still the initiator of the process by requesting government

²⁵ See Layne & Lee, "Developing Fully Functional E-Government: A Four Stage Model".

²⁶ See Anthony M. Cresswell y David Connelly, «Reconnaissance Study. Developing a Business Case for the Integration of Criminal Justice Information,» (Albany, New York: Center for Technology in Government, 1999).

²⁷ See Bram Klievink y Marijn Janssen, "Stage Models for Creating Joined-up Government: From Local to Nation-Wide Integration" (paper presented at the 9th Annual International Digital Government Research Conference, Montreal, Canada, 2008).

services. Finally, in the most developed integration stage, different government entities collaborate and share information to anticipate community needs.

Another useful way to acknowledge at an international level to classify the Electronic Government stages, it is used in the global poll about Electronic Government performed by the Public Administration and Finance Division of UN and the American Society of Public Administration.²⁸ This poll can be considered as an international effort for knowing the condition of the Electronic Government in a great number of countries through the UN webpage. The identified stages in this work are: (1) initial presence, (2) extended presence, (3) interactive presence (4) transactional presence and (5) completely integrated presence. Initial and extended presence refers to information presentation with different complexity and completeness levels (similar to cataloguing stage). Interactive and transactional presence consists in a portal that organizes and offers information in terms of the citizens needs (similar to the transaction stage). A completely integrated presence is associated with the vertical and horizontal integration processes previously described.

Recent analysis on evolutionary approaches point out that the “stages” can be better conceptualized as inclusive components or features among them.²⁹ Moreover, these components do not necessarily follow a lineal sequence. Normally, components or characteristics are complementary and correspond to a particular moment in the Internet portal life, where it is possible to observe certain dominant features (the stage in which the portal could be classified), but also features that could be considered representative of other stages.

Electronic Government: A Broader Concept?

Several authors consider that in general literature addresses Electronic Government in a very restricted way.³⁰ On one hand, it has been thought

²⁸ See UN & ASPA, “Benchmarking E-Government: A Global Perspective.”

²⁹ See Rodrigo Sandoval Almazán & J. Ramón Gil-García, «Limitations of Evolutionary Approaches to E-Government,» en *Handbook of Research on Public Information Technology*, ed. G. David Garson y Mehdi Khosrow-Pour (Hershey, PA: Idea Group Inc., 2008).

³⁰ See Klaus Lenk y Roland Traunmüller, “Broadening the Concept of Electronic Government,” en *Designing E-Government. On the Crossroads of Technological Innovation and Institutional Change*, ed. J. E. J. Prins (The Hague, Netherlands: Kluwer Law International, 2001), Homburg, *Understanding E-Government: Information Systems in Public Administration*, Richard Heeks, *Implementing and Managing E-government : An International Text* (Thousand Oaks, CA: SAGE Publications, 2005).

that Electronic Government is also services provision through some computer application using Internet as a basis. In other cases, discussion focuses mainly in technical aspects, setting aside other components important as well, belonging to a transdisciplinary phenomenon as the Electronic Government and that we will briefly discuss in the following paragraphs.

Andersen & Dawes³¹ present a view of government's information technologies use that comprises three knowledge domains. The first one consists in technical knowledge and data administration domain. The second one consists in organizations administration knowledge. Finally, the public policy component and programs content need to be integrated. The main complexity from their point of view, consist in the different speeds at which these three components evolve. While technology advances and changes in an extremely fast way, administrative practices evolve more slowly and public policies very slowly. Thus, the officer in charge of Electronic Government operates in the intersection of these three knowledge domains, with the need to understand and manage their three different adaptability and change speeds.

Using a consistent view in accordance to the one presented in the previous paragraph researchers on institutional theory areas; consider that the Electronic Government phenomenon consists in technological, organizational, and institutional redesigning.³² In fact, it is the organization activity that conditioned by beliefs, values, rules, regulations and laws (institutional arrangements), filters or directs attention to technologies features and potentials, deciding which operations to include in each of the developed applications (enacting

³¹ See Andersen & Dawes, *Government Information Management. A Primer and Casebook*.

³² One of the most acknowledge works in this perspective is without doubt Jane E. Fountain, *Building the Virtual State. Information Technology and Institutional Change* (Washington, D.C.: Brookings Institution Press, 2001), although other examples can be found in J. Ramón Gil-García, "Enacting State Websites: A Mixed Method Study Exploring E-Government Success in Multi-Organizational Settings" (paper presented at the 39th Hawaii International Conference on System Sciences (HICSS), Hawaii, USA, January 4-7 2006), Luna-Reyes, Gil-García, y Cruz, "Collaborative Digital Government in Mexico: Some Lessons from Federal Web-Based Interorganizational Information Integration Initiatives.", L. F. Luna-Reyes, J. R. Gil-García, y M. Estrada-Marroquín, "The Impact of Institutions on Interorganizational It Projects in the Mexican Federal Government," *International Journal for Electronic Government Research* 4, no. 2 (2008), Homburg, *Understanding E-Government: Information Systems in Public Administration*, J. Ramón Gil-García y Gabriel Puro Cid, "Enacting E-Budgeting in Mexico: Bureaucracy, Institutions, and the Budget Process" (paper presented at the International Conference on Public Participation and Information Technologies 2003, Cambridge, MA, November 10-12, 2003).

technology). In a certain way, institutional arrangements promote stability and project and technological activities promote innovation and changes. Thus, when a government organization wishes to develop an Electronic Government application, such as an Internet portal, uses its organization resources, like human and technological resources in selecting the operations to be incorporated to the portal. The choice of including information, services, or applications as blogs is tightly linked to institutional arrangements and it could even be said that conditioned by them. Moreover, the portal could not offer services or applications that went beyond the organization's capacities and resources or that are not allowed by the legal framework.

In other approach Lenk & Traunmüller³³ consider the government's actual operations and political institutions, and establish that Electronic Government should involve a fundamental design on the different relations there are among governments, citizens and businesses. These three authors propose four different ways to broad the view of what they think Electronic Government should be in the futures, which are: (1) services user point of view, (2) process perspective, (3) cooperation perspective, and (4) knowledge perspective.

From the services user point of view, the main activity involved in Electronic Government development, is linked to the access points to government services offer in a broader and effective way. Just as some other authors, Lenk & Traunmüller consider that it is necessary to deeply reflect upon the way government services are offer and reviewing involved processes in it, not only under the individual agencies point of view (vertical integration), but integrating related services and processes that are actually offered by several government organizations (horizontal integration). Integrated services offer to social agents, require not only a coordinated participation of government offices in the processes related to the service, but to develop strategies that take advantage of new technologies issuing decision making and negotiation processes among different government agencies and their main actors.

Finally, understanding own administration processes is a previous requirement to redesigning them. Thus, besides collaborative dimension, government agencies that wish to develop and/or redesign Electronic Government processes, need to identify which are the basic competences they count with, as well as the way that these basic competences will be transferred or modified in the new design. Thus, this way Electronic Government comprises not only development and

³³ Lenk y Traunmüller, "Broadening the Concept of Electronic Government."

implementation of information systems, but an institutional and organizational redesign that allows to take the most potential advantages of new IT's and ITC's.

Towards an Electronic Governmentdefinition

In this paragraph we seek to identify patterns or common elements in existing literature and approaches, which allow a definition of Electronic Governmentas comprehensive and clear as possible. An Electronic Governmentdefinition should have strong theoretical basis, and at the same time be simple and easy to apply in practical terms. The definition here presented seeks reconciling tensions between theory and practice. At the same time, it intends to be powerful enough to reflect the theoretical framework that backs it up as clear and practical as possible.

At first, we established that the so named Electronic Governmentis framed in the history of government's technologies and information systems use, together with organizational and institutional trends that have increased the impact of technology use in government, appearing as something completely new. On the other hand, different levels of Electronic Governmentconceptualization from Internet technology application for service providing to redesign and transformation of the government as organization and its relations with civil society. Reviewing Electronic Governmentdifferent applications drove us to identify four categories coherent with public administration theory. (1) Electronic Services (e-Services), (2) Electronic Management (e-Management), (3) Electronic Democracy (e-Democracy), and (4) Electronic Public Policy (e-Policy).

From the previous, we consider that an Electronic Governmentuseful definition either for academic research as for its application in government actions carried out regularly, it should at least consider this elements integrating them in a simple and consistent way. Therefore, Electronic Government is the selection, development, implementation and use of governments IT's and ITC's for public services provision, administrative efficiency improvement, and values and democratic mechanism promotion, as well as redesign and development of legal and regulatory frameworks that facilitate organization adjustments for the development of initiatives oriented for enhancing information use, as well as developing the society of information and knowledge.³⁴

³⁴ See Gil-García & Luna-Reyes, "Integrating Conceptual Approaches to E-Government."

Conclusion

ITC's dynamic nature has affected the development concept of "e-Government" in an important way. Since the use of the first mainframes and mini-computers till the more powerful network applications, governments have sought benefits attainment with controlled risk. Evolution has reflected in the different terms used to describe relations between government and information technologies. Public Information Systems, Information Management in Government, Electronic Government, and Government 2.0 are some examples of a trend in which terms try to capture de essence of emerging technologies.

Electronic Government is then a concept that brings something new and something old for Public Administration as a discipline as for government practice. It is clear that many authors that address the Electronic Government topic do it in a very optimistic or merely descriptive way. We consider necessary to pose a more academic discussion on this topic. Even though there are broad possibilities of development for the countries that take up again ITC's as priority policy, in the same way there is a lot of problems and limits in association with building this type of strategies and tools in complex bureaucratic contexts.

It seems clear that this trend will continue in the near futures, and that the Electronic Government concept will be again in transition, since technological advance will keep on generating new options to be used, at least potentially, by the governments. An example of this technological evolution is the social network and contents creation applications commonly known as Web 2.0.

It is important to understand the dynamic and complexity inherent to Electronic Government in a broad sense for both the development of strong theories as for implementing successful projects. We consider that a first step in this long way is developing an integral definition as the one presented in this essay, and that we consider will serve as a basis for future Electronic Government studies, but also for better understanding the practical value of initiatives that involve information technologies for the government and the society as a whole.

Finally, the real transformation is still in its initial stages. The need of a deep transformation of the government processes, and maybe of our government concept results necessary if we consider and believe we are heading towards a post-industrial economy, and a society of knowledge. It is necessary to find a balance between technology and reflection, information management and democratic

participation. We are convinced that government “digitalization” processes must be driven and regulated mainly by citizenship needs, in a frame of respect to the Rule of Law and promoting society participation in democracy. Electronic Government is and should be a better government for everyone.

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