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Electronic Governance:
Interdisciplinary or Multidisciplinary Field?

Abstract: In recent years, electronic governance has become an obvious and increasingly intense phenomenon. The concept of e-governance becomes useful when e-governance is viewed from a broad, comprehensive perspective, which refers not only to the authority and intervention of the state, but also to the joint action of the other actors involved in the development of public services, whether it is by citizens, civil society organizations, companies or institutions of public interest. Electronic governance thus manifests itself as part of an overall vision of the relationship between the state and society. Therefore, e-governance can today be considered an indispensable element of democratic practice, being one of the most important concerns of international organizations that promote democratic principles and respect for human rights. Research in the field of electronic governance is proving to be interdisciplinary or transdisciplinary, only thus being able to address the complexity of problems and phenomena without oversimplifying them.

Keywords: electronic government, electronic governance, interdisciplinary, transdisciplinary.

In recent decades, states around the world have faced increasing challenges in terms of transparency, efficiency and effectiveness of governance. The implementation of information and communication technologies (ICT) promises greater accessibility to public information and services, reduction of corruption, as well as more intense participation of citizens in decision-making. Neither the functioning of public institutions in general nor the improvement of democratic mechanisms can be conceived independently of the huge social and technological ecosystem of the global digital network. In this context, e-government and e-governance have become important topics on the political agendas of contemporary states.

Governance has always been dependent on technology, understood as a set of knowledge, skills, techniques, knowledge strategies, and tools. The emergence of new technological models has influenced, at the same time, the structuring of the principles of political authority and social relations. Industrial societies have become more and more complex, more conflictive

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and dynamic, and political institutions have gained more and more attributions to deal with new social problems. The more the government became involved in social life, the more it had to rely on new, more complex techniques for collecting, storing and disseminating information. Technologies not only have supported certain existing courses of action. They opened the way to new areas of action. The invention of the printing press, then of the telegraph, and later of the Internet, offered individuals the opportunity to inform or participate in public life, but also offered the governments the ability to carry out, under new conditions, public policies.

Governments have been using information and communication technology (ICT) for several decades in order to increase the efficiency and effectiveness of their actions. The first applications focused on building information management systems, which could be used for planning and monitoring the implementation of public policies. Despite failures in the use of information and communication technology, the emergence of the Internet and its use in distance education, increasing citizen participation and providing information and services to them have led to the idea that ICT can provide the public sector with fundamental benefits.

Technology and new perspectives on this field are producing radical changes in economic and social relations, which makes to increase citizens' expectations of government. Although governments try to cope with change, they often encounter impediments such as improper circulation of information within administrative hierarchies, public policies that do not respond to population requirements, lack of effective assessment tools, cumbersome tax and tax collection systems, public services that can be accessed only in "traditional" forms (West 2005, 5). The implementation of technological innovations within the systems of government is essential to meet the needs of a globalized economy, a growing population, and with increasing demands. However, change often encounters opposition even within government structures, either because the lack of knowledge or resources, or because the consequences of change (Schwester 2009, 119). Understanding the phenomenon of computerized globalization and the details of the relationship between the evolution of ICT and the action of political institutions is therefore of the utmost importance for the success of public policies and economic development programs.

When the Internet was invented in the 1960s, no one could predict how society would be transformed a few decades later. According to the International Telecommunication Union (ITU 2018), the proportion of the population using the Internet has increased worldwide from 15.8% in 2005 (approximately one billion inhabitants), to 43.8% in 2015 (approximately 3.5 billion inhabitants), and 51.2% in 2018. In Romania, the proportion of individuals with internet access increased, according to the same source,

from 3.61% in 2000, to 28.30% in 2007 and reached 55.76% in 2015, and 72.4% in 2018, but still far from the average of developed countries (91%).

Such an explosive growth in the use of the Internet and the rapid development of e-commerce in the private sector have created the desire of citizens to receive public services (at least some of them) in a digital way. But the Internet is not just another manner of providing public services. It stimulates the transformation of the philosophy of governance and the organization of the administration. Thus, the traditional administrative-bureaucratic paradigm is tested by the new paradigm of electronic governance.

Usually, the public administration is regarded as a hierarchical bureaucracy. This model, known as the Weberian model of organization, focuses on internal and managerial problems, emphasizing the importance of creating departments, standardization, specialization and routine in the administrative process. Civil servants performing similar functions are grouped and organized in the same administrative unit or department. Each unit is responsible for understanding the clients, assessing the demand for the services they offer, implementing these services and evaluating them. One of the advantages of this "classic" bureaucracy is that it reduces the transaction costs of communication and coordination, through the establishment of specialized departments and routines. This perspective encourages professional specialization and maximizes efficiency, as well as potential economies of scale. Moreover, through rules, regulations and hierarchical supervision, the bureaucratic model reduces the chances of unintended errors, frauds and negligence of civil servants and ensures the fair treatment of all clients. However, the Weberian bureaucracy is often criticized for its rigidity, excessive emphasis on procedures, inefficiency, and inability to serve people differently, depending on their preferences (Dunleavy et al. 2006, 78).

Following these criticisms, in the early 1980s, emerged a movement for the "reinvention of government", which represents an effort to reorient government operations from an inward-facing perspective to an outward-facing perspective, and toward user needs. According to this model, the citizens are seen mainly as clients, becoming the central point in designing the way of providing public services. Public officials are therefore forced to find ways to mandate citizens on community issues. This perspective requires public officials to partner with citizen groups and non-governmental organizations to identify solutions and effectively deliver public services. The major obstacle to reforming governance from such a perspective is the transactional costs of communication between public officials and citizens. Citizens' consultation can be considered chronophagic and financially costly by the rulers. Citizens may be reluctant to participate in the decision-making process of governance, due to the time and energy consumption required for it (West 2005, 127).

Faced with these challenges, information technology has begun to play an increasingly important role in the functioning of public administration. The emergence of the Internet marked a turning point in the use of information technology, by placing the emphasis of the government on the relations with citizens. Gradually, the Internet has become more and more cost-effective and easier to use, so officials can communicate much easy with citizens and provide more information. The development of e-commerce has reinforced these trends in the government sector. The Internet allows not only companies, but also citizens to exchange information and conduct transactions efficiently. As a result of technological advancement and economic changes, policy makers have been stimulated to shift the focus of using information technology from internal managerial needs to external links with the public.

This new paradigm leads to a change in the organizational principles of governance. While the bureaucratic model emphasizes top-down leadership and hierarchical communication, the new model emphasizes teamwork, multidirectional networks, direct communication between stakeholders, and rapid feedback (Dunleavy et al. 2006, 93). It is no longer necessary for citizens to know which department they should contact to get a particular service. The departmental structure behind a "single office" consequently becomes invisible to consumers.

The term "e-government" is a recent one and, yet,it hasn't got a unanimously accepted definition. Electronic government is one of the most interesting concepts introduced in the field of public administration in the late 1990s, although it was not very clearly defined and understood by public policy analysts and bureaucrats (Moon 2002, 274). As with other concepts in public administration (strategic management, participatory management, etc.), the idea of electronic government followed the adoption in the private sector of what was called electronic business (e-businesses) and electronic commerce (e-commerce). Broadly, electronic government includes the use of all information and communication technologies, from fax to mobile, to facilitate the day-to-day management of government issues. However, as with e-commerce, the usual interpretation of e-government refers exclusively to Internet-based activities, which improve citizens' access to government information, services and expertise, in order to ensure citizens' participation in the governance process and their satisfactionabout it (UN & ASPA 2003, 16).

Electronic government can be defined, in a narrow sense, as the production and provision of public services through information technology. More broadly, it can be defined as any use of information technology to simplify and improve the relationships between governors and other actors, such as voters, private companies and other government agencies (Sprecher 2000, 21). Another definition says that electronic government can be understood

as using information and communication technology to promote efficient and effective governance, to facilitate access to government services, to allow greater access to public information and to increase the responsibility of the government towards the citizens (Bhatnagar 2004, 19).

Analogous to the concept of e-commerce, which brings customers closer to companies (business to clients, B2C) and facilitates business relations (B2B), the goals of e-governance are to improve the links between government and citizens (G2C), on those between government and firms (G2B), as well as leading to easier, more transparent and cheaper connections within government (G2G).
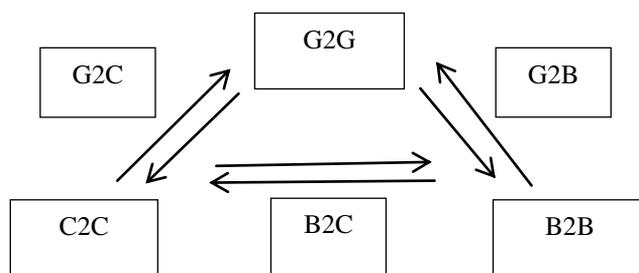

Figure 1. The links between government, citizens and business

Traditionally, interactions between citizens and government bodies or between firms and government bodies take place in their office. With the advent of new information technologies, it is possible to move the place of interaction closer to customers, to information centers in public institutions or other spaces, or even in the client's office or home, by using the personal computer and the internet.

Information technology has become one of the central elements of managerial reform, and electronic governance is an essential dimension of governance in a society open to the future and responsive to the challenges of globalization. Information technology has opened up numerous possibilities to increase managerial efficiency and the quality of public services offered to citizens, has contributed to dramatic changes in policy (Nye 1999, 5; Norris 1999, 77), within government institutions (Fountain 2001), regarding performance management (Brown 1999, 121) and reducing bureaucracy (Moon and Bretschneider 2002, 278).

E-commerce has evolved into four stages: information presentation, interaction, transaction execution and delivery. In a similar way, the stages of the maturation of electronic governance were defined. Recent studies show that there are five stages in the development of electronic governance, stages that reflect the degree of technical sophistication and interaction with users (**Figure 2**).
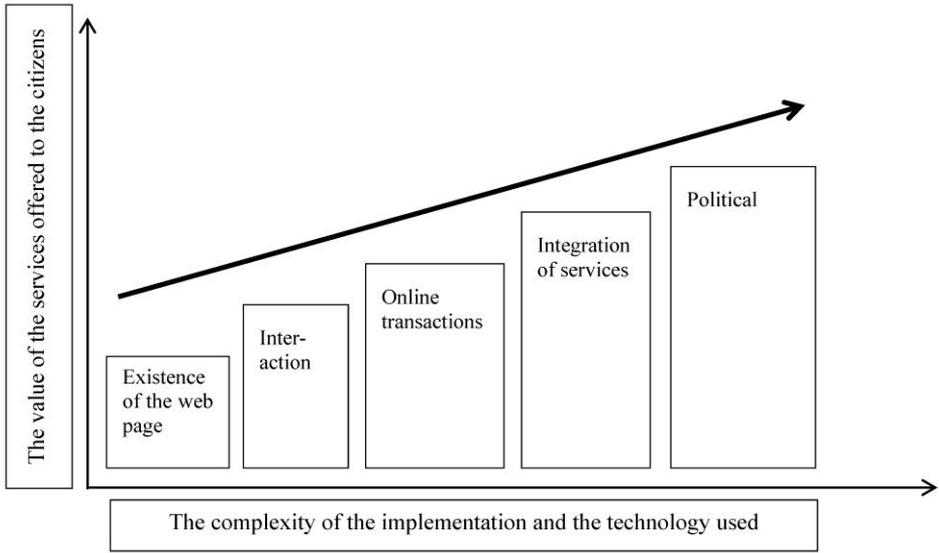
Figure 2. Stages in the development of electronic governance
(Bhatnagar 2004, 20)

Four stages are similar to those in e-commerce, to which is added the stage of electronic democracy: dissemination of information (one-way communication), two-way communication, financial services and economic transactions, transforming (through horizontal and vertical integration) and political participation (Moon 2002, 282).

The first step is the simplest form of electronic governance and consists only of posting information on the web page for viewing by citizens. The second stage is characterized by an interactive communication between governors and citizens, incorporating e-mail and information transfer systems. In the third stage, the sites allow online services and financial transactions (Hiller and Belanger 2001, 13). This type of e-governance can be partially achieved by providing databases and online links with them, as well as by providing permits and licenses (Layene and Lee 2001, 129). In the fourth stage, there is an intention to integrate the various government services, both vertically (inter-governmental integration) and horizontally (intra-governmental integration). This stage requires special efforts, as it requires time and resources to integrate the online system with the services behind it (Hiller and Bellanger 2001, 131). The final stage involves promoting political participation based on Internet access, where government websites include online voting, online discussion forums, and online opinion polls, all for the most direct interaction with the public. If the first four stages are related to public services provided through the Internet, the fifth stage emphasizes the political activities that citizens can participate through. The

conceptual framework we refer to is merely an exploratory tool that helps to understand the evolution of electronic governance, but in practice linear evolution may not be confirmed.

Such an approach, which describes progressively how good governance, supported by the evolution of technology, can lead to an increase in the quality of democratic representation, is important for understanding the political interactions that occur outside the administrative environment. The concept of electronic governance becomes useful when electronic governance is viewed from a broad, comprehensive perspective, which refers not only to the authority and intervention of the state, but also to the joint action of the other actors involved in the development of public services, citizens, civil society organizations, companies or institutions of public interest.

Electronic governance thus manifests itself as part of an overall vision of the relationship between the state and society. Some authors believe that e-governance involves the promotion of more intense civic engagement and political participation by government institutions or civil society (Palvia& Sharma 2007, 5), using new mass communication technologies. Therefore, e-governance can today be considered an indispensable element of democratic practice, being one of the most important concerns of international organizations that promote democratic principles and respect for human rights (Council of Europe 2005, 8).

	"Hard" sciences ⟶		"Weak" sciences
Pure sciences	Computer science		Ethics of electronic governance
	Informatics		Information management
	Formal modeling	Management of eGovernment organizations	E-justice
	E-GIS (electronic geographical information system)	Infrastructure and interoperability of electronic governance	E-administration E-health
Applied sciences	Urban planning	Electronic public services	E-inclusion

Figure 3. The field of electronic governance

The relatively new field of electronic governance is at the intersection of already established fields of other sciences: political science, public administration, management, informatics, computer science, sociology, law, ethics, etc. (Scholl 2008, 30). The field of e-government research is therefore dominated by a strong multidisciplinary perspective (Irani and Dwivendi 2008, 223).

In fact, the precise domain of electronic governance cannot be defined: it overlaps the areas traditionally occupied by other disciplines, studying a

group of problems that tend to be outside the interest of a single "traditional" science. The domain of electronic governance seems to belong to the interdisciplinary sciences. If Biglan's classification of academic disciplines (hard sciences, weak sciences, pure sciences and applied sciences) is used, it can be observed that the field of electronic governance research extends across this spectrum (Delcambre& Giuliano 2005, 37).

Electronic governance is both interdisciplinary and transdisciplinary (Heeks 2006, 4). At its center is the information (raw data, but also processed data). This information is used through technology, which can be digital but also non-digital.
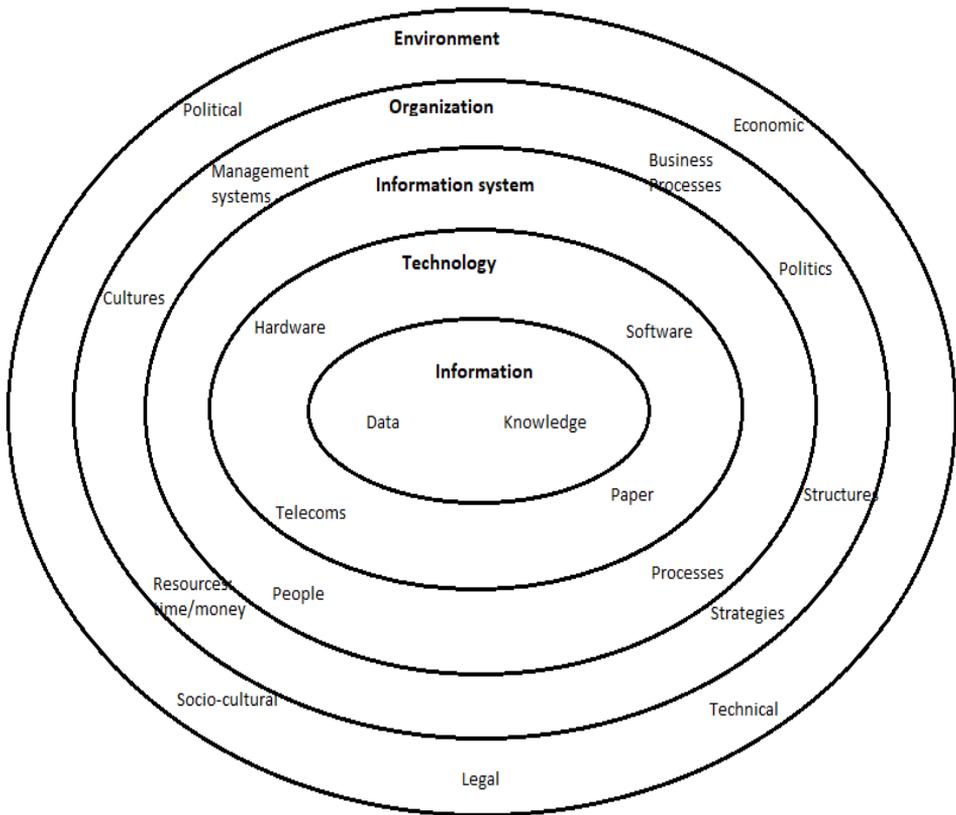

Figure 4. Model of electronic governance systems (Heeks 2006, 5)

In order for electronic governance to be considered a system, information and technology must be added to people and their work for a purpose, a process in which information is processed with the help of technology (**Figure 4**). Electronic governance systems are not independent, but are covered by public organizations, which provide them with the administrative and cultural environment in which they operate. Public organizations,

in turn, evolve into a much broader societal framework, which includes besides the technical and economic, political, legal, socio-cultural or legal dimension.

In conclusion, electronic governance is a new field of study, having no clear boundaries, no settled theories and no dominant research methodologies. Some authors consider that it is a field of interdisciplinary studies. Computer science, informatics, urban planning, management, ethics, public services, public administration and other social sciences can be brought together under the "umbrella" of digitalization. At the same time, an e-government system is not just information and technology, but it is included in the public sector (which means resources, structures, management and organizational culture), all these being embedded in a broader context of political thoughts, laws, values, technologies, and economic system, all of them being gathered together in a transdisciplinary field.

References

Bhatnagar, S. 2004. *E-Government. From Vision to Implementation*. London: Sage Publications Ltd.

Brown, D. 1999. "Information Systems for Improved Performance Management: Development Approaches in U.S. Public Agencies". In *Reinventing Government in the Information Age*, edited by Richard Heeks, 113-134. New York: Routledge.

Council of Europe. 2005. *Electronic governance ("e-governance"): recommendation adopted by the Committee of Ministers of the Council of Europe on 15 December 2004 and explanatory memorandum*. Strasbourg: Council of Europe Pub.

Delcambre, L. Giuliano, G. 2005. "Digital government research in academia". *Computer* 38(12): 33-39.

Dunleavy, P.; Margetts, H.; Bastow, S.; and Tinker, J. 2006. *Digital Era Governance: IT Corporations, the State, and E-Government*. New York: Oxford University Press.

Fountain, J.E. 2001. *Building the Virtual State. Information Technology and Institutional Change*. Washington DC: Brookings Institution Press.

Heeks, R. 2006. *Implementuing and Managing eGovernment*. London: Sage Publications.

Hiller, J. and Belanger, F. 2001. *Privacy Strategies for Electronic Government. E-Government Series*. Pricewaterhouse Coopers Endowment for the Business of Government, Arlington VA.

International Telecommunication Union. 2018. *Measuring the Information Society Report*. https://www.itu.int/en/ITU-D/Statistics/Documents/publications/misr2018/MISR-2018-Vol-1-E.pdf. (Accessed 4 November 2018)

Irani, Z. and Dwivendi, Y.K. 2008. "Editorial". *Transforming Government: People, Process and Policy* 2(4): 221-224.

Jain Palvia, S., and Sharma, S.S. 2007. "E-Government and E-Governance: Definitions/Domain Framework and Status around the World". In *Foundations of e-Government*, edited by A. Agarwal and V. V. Ramana. http://www.iceg.net/2007/books/1/1_369.pdf

Layne, K., and Lee, J. 2001. "Developing fully functional E-government: A four stage model". *Government Information Quarterly* 18(2): 122-136.

Moon, M.J.; Welch E.W.; and Wong W. 2005. "What Drives Global E-governance? An Exploratory Study at a Macro Level". *Proceedings of the 38th Hawaii International Conference on System Sciences*, DOI: 10.1109/HICSS.2005.688

Moon, M.J., and Bretschneider, S. 2002. "Does the Perception of Red Tape Constrain IT Innovativeness in Organizations? Unexpected Results from Simultaneous Equation Model and Implications". *Journal of Public Administration Research and Theory* 12(2): 273-291.

Norris, P. 1999. "Who Surfs? New Technology, Old Voters, and Virtual Democracy". In *Democracy.com? Governance in Networked World*, edited by Elaine Ciulla Kamarck and Joseph S. Nye, Jr., 71-94. Hollis NH: Hollis Publishing Company.

Nye, J. 1999. "Information Technology and Democratic Governance". In *Democracy.com? Governance in Networked World*, edited by Elaine Ciulla Kamarck şi Joseph S. Nye, Jr., 1-18. Hollis, NH: Hollis Publishing Company.

Scholl, H. 2008. "Discipline or Interdisciplinary Study Domain? Challenges and Promises in Electronic Government Research". In *Digital Government. E-Government Research, Case Studies, and Implementation*, edited by H. Chen, L. Brandt, V. Gregg, R. Traunmuller, S. Dawes, E. Hovy, A. Macintosh, C. Larson, 21-41. New York: Springer Science-Business Media.

Schwester, R. 2009. "Examining the Barriers to e-Government Adoption". *Electronic Journal of e-Government* 7(1): 113-122.

Sprecher, M. 2000. "Racing to E-government: Using the Internet for Citizen Service Delivery". *Government Finance Review* 16(5): 21-22.

United Nations and American Society for Public Administration. 2003. *Global Survey of E-government*.
https://publicadministration.un.org/egovkb/portals/egovkb/Documents/un/2003 -Survey/unpan016066.pdf.

West, D.M. 2005. *Digital Government: Technology and Public Sector Performance*. New Jersey: Princeton University Press.