NEAR EAST UNIVERSITY
INSTITUTE OF GRADUATE STUDIES
INNOVATION AND KNOWLEDGE MANAGEMENT PROGRAM

E-GOVERNMENT AND PARTICIPATORY DEMOCRACY IN DEVELOPING COUNTRIES: CASE OF THE MAGHREB COUNTRIES

SAMI ESSELIMANI

PhD THESIS

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I, SAMI ESSELIMANI hereby declare that this dissertation entitled '**E-government and Participatory Democracy in Developing Countries: Case of the Maghreb Countries**' has been prepared myself under the guidance and supervision of 'Prof.Dr MUSTAFA SAGSAN' and 'Assoc.Prof.Dr SEVKI KIRALP' in partial fulfilment of the Near East University, Institute of Graduate Studies regulations and does not to the best of my knowledge breach and Law of Copyrights and has been tested for plagiarism and a copy of the result can be found in the Thesis.

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DEDICATION

This work is dedicated to my family, my friends, and to everyone who supported me and believed in me since I first came to Cyprus …

To My father and my mother,

To my two brothers and my sister,

To my nephews and nieces,

To my wife and my future kids.

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ABSTRACT

E-government and Participatory Democracy in Developing countries: case of The Maghreb Countries

The evolution of the concept of democracy throughout decades of theory and practice has led to the firm understanding that democracy is progressive in terms of thought and practice. An important feature of democracy is the ability of individuals to discuss and participate in matters of public interest. E-government offers an opportunity for governments and citizens to engage in more deliberate practices of democracy. This study focuses on the Maghreb region (Algeria, Morocco and Tunisia), and discusses the direct effect of e-government on participatory democracy, and also the indirect effect between e-government and participatory democracy. A quantitative approach was adopted and a questionnaire was distributed using a non-probability, judgement sampling method, which focuses on a population with specific knowledge and expertise. A total of 702 answers were collected. The results show that e-government positively affects participatory democracy directly and also indirectly through increasing corruption control, transparency, accountability citizens' voice and trust.

Keywords: E-government, Participatory democracy, Corruption control, Transparency, Accountability, Citizens' voice, Trust.

ÖZ

E-government and Participatory Democracy in Developing countries: case of The Maghreb Countries

Tarihsel süreç içerisinde, demokrasi kavramının geçirdiği evrim düşünce ve uygulama alanlarında ilerici gelişmelerin önünü açmıştır. Demokrasinin önemli özelliklerinden biri, bireylere kamu çıkarıyla ilgili meseleleri tartışma ve bu meselelere dair süreçlerde katılım sağlama fırsatını sunmaktadır. E-devlet hükümetlere ve vatandaşlara demokrasiyi daha katılımcı bir biçimde deneyimleme olanağı tanımaktadır. Bu çalışma Mağrib bölgesini (Fas, Tunus ve Cezayir) ele almakta ve e-devletin katılımcı demokrasi üzerindeki doğrudan etkisi ile e-devlet ile katılımcı demokrasi arasındaki dolaylı etkileşimi ele almaktadır. Çalışma nicel bir yöntemden yararlanarak ankete başvurmuş, olasılık-dışılığa ve karar örneklemesine dayalı, özel bilgi ve uzmanlık sahibi bir nüfus üzerinde odaklanan bir yöntem izlemiştir. Ankette toplamda 702 cevap alınmıştır. Sonuçlar e-devletin katılımcı demokrasi üzerinde doğrudan olumlu etkiler yarattığını ve aynı zamanda dolaylı etkiler yaratarak yolsuzluk kontrolü, şeffaflık, hesap verebilirlik ile vatandaşların sesi ve güveni gibi hususlarda demokrasinin kalitesini artırdığını göstermektedir.

Anahtar Kelimeler: E-devlet, katılımcı demokrasi, yolsuzluk kontrolü, şeffaflık, hesap verebilirlik, vatandaşların sesi, güven

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ABBREVATIONS

AVE: Average variance extracted

CSOs: Civil society organizations

EDD: The Empowered Deliberative Democracy

EGDI: E-Government Development Index

EPI: Electronic participation index or e- participation Index

G2B: Government to Business

G2BC: Government to Business as Citizen

G2BMKT: Government to Business in the market

G2C: Government to Citizen

G2E: Government to Employee

G2G: Government to Government

G2IP: Government to individuals as part of a political process

G2IS: Government Services to Individuals

HCI: The Human capital index

ICR: Internal composite reliability

ICT: Information and communication technologies

MAP: The Multiannual Plan

NGOs: Non-governmental organizations

NPM: The New Public Management

OECD: Organization for Economic Co-operation and Development

OSI: Online Service Index

Pb: the participatory budgeting

TII: The Telecommunication Infrastructure Index

TQM: Total Quality Management

INTRODUCTION

The introduction of new information and communication technologies (ICT) in Public Administrations has become a fact. The offer of online services by the private sector and the citizens-driven demand, are putting pressure on the public administrations of all countries to innovate in the way they relate to citizens.

The spectacular development of electronic commerce and its evolution have encouraged citizens to demand more personalized services. Indeed, citizens, who are themselves the users of electronic commerce, are requesting the same level of receptivity and service from public administrations obtained from the private sector (Edmiston, 2003). Furthermore, some authors such as Navarro-Galera, Alcaraz-Quiles, & Ortiz-Rodriguez, (2018) and also international organizations such as the Organisation for Economic Co-operation and Development OECD, see ICT as a way to improve control and transparency and to link citizens and organizations with the Administration. These potential advantages led by new technologies are considered an essential element of the programs of modernization in western democracies.

Citizens expect a more flexible and open government, as well as an expanding variety of online resources across the Internet. The on-going technological growth and the ever-increasing degree of globalization, which have resulted in massive transformation in society, poses serious change challenges on many levels, particularly on a macro level.

Political burden emerges as a result of the Internet's massive impact on peoples' attitude along with their preferences of information sources.

Scholars and professionals are increasingly concerned about citizen's engagement efforts in all public fields. Citizens are seeking more openness and disclosure from government institutions, as well as more ways for significant interaction on issues of public concern that are affecting them.

The dynamics of policy choices and service implementation may also prompt government officials to consider greater citizen participation. People also have a special dedication to and awareness of location, as well as social networks that can be mobilized for public decisions and acts that enhance public policy outcomes, especially at the local level (Bowles & Gintis, 2000).

Citizens' involvement in politics is a necessity for any democracy. However, this involvement needs to be motivated by awareness and knowledge. The conflict between the elitist view of democracy and the deliberative view is based on the ability of the general public to understand the complicated political issues (Vitale, 2006). Therefore, representative, pluralist, and deliberative models of democracy depend on the extent to which people can develop political awareness and their ability to access information. Habermas argues that the deliberative approach is the best when applicable (Vitale, 2006).

The advance of information and communication technologies now allow citizens to access information and be better informed through e-government services and other different communication channels at a very low cost. On the one hand, this advance indeed empowers citizens and civil society organizations to speak out and practise their right of controlling and questioning both central and local governments' actions and polices; on the other hand, it serves to put pressure on governments and their representatives in parliaments to fulfil their duties.

Although it has not been sufficiently explored, and sometimes is referred to as the participatory e-government (Sangki, 2018), the relationship between E-government and participatory democracy seems to be logical and possible based on the existing literature of both topics.

Therefore, this research aims to study the e-government and participatory democracy in the Maghreb, understand how the ideas and techniques of democracy and social participation are associated with the adoption of

e-government, the indirect relationship between e-government and participatory democracy, and empirically testing this relationship.

The Maghreb countries, which are developing countries, differ in terms of income, economics and political models, but shares complex characteristics such as demographics (a mix of Arabs and Berbers), history (ex-French colonies), and culture (French/Arabic speaking countries), Thus, the Maghreb countries are homogenously consistent, which makes them a suitable region to focus on. The term *Maghreb* usually refers to Algeria, Tunisia, and Morocco. Sometimes Libya and Mauritania are also included, but the precise term for the five countries is the *Grand Maghreb*.

The scales are not equal between the countries of the Maghreb. Algeria, Morocco and Tunisia are in a completely different situation from Libya and Mauritania, even if they share the geography and the name. Therefore, we confined ourselves to the study of Algeria, Tunisia, and Morocco, due to their similarity and closeness. The study did not include Libya, because of the war situation and the complete absence of infrastructure and the most basic services in it and in Mauritania

In contrast to the opposite bank of the Mediterranean , e-government is still not well explored in northern African countries. The absence of adequate researches that address e-government in the Maghreb reflects the foggy situation of e-government in these countries.

Since the Arab spring, political life in the Maghreb is witnessing a major change from authoritative governments to less authoritative ones and hopefully to democratic governments in the near future. ICTs indeed are already playing a major role of the communication taking place between the citizens among themselves and between them and the different governmental agencies.

The environment created by ICTs in general at the first place, and by e-government as an adoption of ICTs into governmental services and public administration in the second place, seems to be pro-democratic environment.

Previous studies have focused on e-democracy as a final phase of the full adoption and integration of ICTs in established democracies (Hiller & Bélanger, 2001; Wescott, 2001), whereas this study focuses on the relationship between e-government and participatory democracy in developing countries, and the potential for e-government to play a facilitating role in the democratic change process in non-democratic countries.

This thesis consists of three theoretical chapters, methodology chapter, results chapter, and conclusion. Chapter 1 is dedicated to e-government; Chapter 2 is dedicated to the concept of Democracy and Participation; Chapter 3 is dedicated to explain our research model and hypotheses. Methods and sampling are shown in chapter 4 whereas results are presented in chapter 5. Chapter 6 is dedicated for discussing the results and concluding this study.

CHAPTER 1
E-GOVERNMENT

The government, as an organ invested with executive power and having for essential function the administrative and political management of a State, is responsible for the implementation of all the necessary measures to ensure good administrative and political governance. Thus, with the advent of information and communication technologies (ICT) and given the many positive repercussions of the integration in the management of activities, and in all sectors, governments around the world integrate the ICTs in the organization and execution of government functions. Governments, in both developed and developing countries, have realized that e-government today shapes the development process of our countries (Yadav & Singh, 2013), multiplies e-government initiatives and projects. International organizations also contribute to the e-government development process in order to build a world where societies benefit fully from the use of computer and communication technologies. Global e-government leaders such as South Korea bring their expertise to developing countries in the context of bilateral relations.

This chapter aims to present and critically investigate e-government. It begins by a general overview on e-government and its emergence and then defining the concepts of e-government, e-government and e-governance while noting the differences between the two in order to remove the confusion in their use. The different dimensions and phases of e-government are then presented in the light of the literature review. This chapter discusses the evaluation of an electronic government and the many benefits that underlie the adoption of e-government

are mentioned. It concludes with the highlighting e-government indicators in the Maghreb

1.1 An overview on electronic government

The concept of electronic government emerged a little over a 1990s, when the computers went from an exclusively scientific use or in large companies to their use on a regular basis. In 1992, the United States undertook a reform of the Public Administration through the introduction of new computer technologies in the system of government and in the development of public policies.

This initial process developed in the United States was quickly imported by other countries. Within the European Union, initiatives such as the "one-stop shop" (Government Gateway) of the United Kingdom little by little they were expanding in the different member states, which made the community institutions becoming aware of this new reality and coined the term Electronic Administration. This term, handled in a way equivalent to the most common of e- government, is the expression that became general in the European Union.

In its beginnings, electronic government was associated only with the use of the Internet for dissemination of public information and the provision of services to citizens. Some authors, however, have already sensed a greater significance and stated that the rapid spread of ICTs, associated with the reform agenda in the of Public Administrations management, would bring fundamental changes in the social and governance structures of many countries.

This ambitious orientation regarding its capacity to transform the administration has associated electronic government with the theories of New Public Management, administrative modernization and the "reinvention of government." This Bonding is the result of a confluence, rather than a common origin. The Public Administration theorists began to point out the need to abandon the administrative model based on the Weberian bureaucracy in favour of more flexible, less hierarchical, dynamic ways of working, etc. (Oxborne &

Gaebler, 1995). In parallel, the technological advances provided to those responsible for the administration suitable instruments to promote profound changes in models and existing procedures. Therefore, e-government incorporates a double slope, in which ICTs are the means of this transformation and the government and public administration are the setting for its implementation.

With this perspective, e-government constitutes a new way to organize public management to increase efficiency, transparency, accessibility and responsiveness to citizens. This is achieved through intensive use and strategic information and communications technologies (ICT) in the internal management of public sector, as well as in their daily relationships with citizens and users of public services. The intensive incorporation of ICT constitutes a particular way of structuring management in public entities, distinguishing in addition, its importance, both to improve care for citizens and for the development of the internal operation of the indicated organizations. In more internal management, electronic government combines ICT, reengineering of processes and organizational culture changes.

As an additional component to its conventional approach, there is its potentiality to reinforce the elements of participation (e-democracy) which we will see in Chapter 2. The United Nations, in their World Public Sector Report 2003 "Government at the Crossroads" (Unies, 2003), emphasize this aspect when including the concept of e-participation in its survey, since it incorporates definition of e-government as the ability of people to get involved in a dialogue with their governments as customers of public services and for participating in political processes as citizens. At the same time, it is worth reflecting on their contribution to the development of new association forms linked to the social network dimension of the Internet. Therefore, the administration through its electronic government models can play a role of important coordinating point of these movements.

Combining the previous lines, we can say that the provision of services through Internet gives citizens freedom to search for information according to their convenience, without the limitations of opening hours to the public (West, 2004), and the interactivity improves service delivery and responsiveness to customer demands. Citizens therefore, generate greater trust in the Administration (Nulhusna, Sandhyaduhita, Hidayanto, & Phusavat, 2017).

Consequently, a strategic vision implies that the best way to understand the electronic government is like a process of value creation in the public sphere with the use of ICT. On this basis, it highlights that the notion of value for the citizen is rooted in people's preferences and consequently, they are the ones who can determine what is of real value to their members. In the same time, this concept is also conditioned by the commitment and ability of the public administration to offer services as citizens are demanding.

In this sense, the construction of electronic government is structured to contribute and to improve people's quality of life and, at the same time, their viability and effectiveness are associated with the ability to incorporate citizens harnessing the potential of ICTs in the effort to identify priorities for their developing. This reveals the democratic potential of the use of ICT since it leaves in evidence its eventual contribution to a more open government, subject to public scrutiny and an institutional framework that opens opportunities for direct participation of people in the discussion on public policy.

However, the vast majority of current e-government initiatives still consider citizens from a passive perspective (Pina, Torres, & Acerete, 2007), so the challenge for public administrations will be transforming themselves to involve citizens in democratic activities.

This integrated vision reveals an evolution in expectations about what e-government can contribute to public sector reform programs.

1.2 Concept and definitions of e-government

From a terminological point of view, there is a wide variety of definitions that do not always generate consensus on the concept of electronic government (Ronaghan, 2002). The term itself was new to the field of knowledge and consequently, there were no definition that was fully accepted therefore the notion of e-government has been progressive ever since. The expressions "Electronic state", "Digital government", "Online Government", "Electronic Administration" and "Digital State", "electronic government" "e-government", "e-governance "or" e-democracy" refer to the technological paradigm associated with Public Administration and its interaction with citizens, companies and with others administrations.

In addition, another obstacle for e-government studies derives from the ambiguity of definitions. In many cases, they focus on their web dimension or interaction through the Internet and will not incorporate criteria that allow us to understand the complex reality. Definitions overlap and address in many cases partial aspects: the change in the internal processes of the administration, its dimension of providing quality services or citizen participation in public decisions. In each case, electronic government has reached a very rapid diffusion both in (1) the academic area, where a new research space was opened in which mainly the studies of public administration and political science, as in (2) the field of political action, in which it gave rise to strategies of incorporation of new technologies and management strategies characteristic of the private sector, as well as a greater link between the public and private sectors. In the different definitions coming from governments, international institutions, the private sector and universities, we find some common elements.

International organizations such as the World Bank and the United Nations define e-government as the adoption and integration of information technologies (internet, mobile computing and wide area networks) within government agencies, transforming the relationship with their different customers (citizens,

businesses, other government agencies ..etc) (Wirtz & Daiser, 2015). The use of information technologies aims to digitalize workflows and processes in order to enhance data and information management (Nations, 2014).

The application of these technologies in public administration can lead to different positive outputs, such as: enhancing the delivery of government services, better interaction with different organizations (e.g. businesses and associations), citizens empowerment (Wirtz & Daiser, 2015), and engagement by facilitating access to information (Nations, 2014). According to the World Bank, the effective adoption and use of information technologies to deliver government services can decrease corruption, provide more transparency, reduce costs and increase revenue (Wirtz & Daiser, 2015).

DeBenedictis, Howell, Figueroa, & Boggs (2002) argued that the use of information technology can enhance accountability and the quality of government activities, which include: service delivery, providing easy access to information, and encouraging citizens and organizations toward direct participation. In this sense, E-government is expected to bring the government closer to its citizens (Homburg, 2008).

Emphasis is placed on the digitization of public services. The evolution of this process starts from a first moment in which it was sought to provide the greater number of services through electronic means, to the current one, in which more well, it seeks to redefine benefits (simplify procedures, avoid bureaucracy in different administrations, etc.).

According to Cardona (2003), once a careful review of the various definitions that have emerged, which is not necessarily exhaustive or exclusive, from the different definitions found it can be concluded that the concept of electronic government includes at least the following elements:

➢ It involves innovation in the government's internal and external relations with:

- Other government agencies

- Its own employees

- The private sector in its profit and non-profit spheres

- The citizens

  ➤ It affects the organization and government function in relation to:

- Access to information

- Provision of services

- Completion of procedures

- Citizen participation

  ➤ It seeks to optimize the use of resources to achieve the objectives governmental

  ➤ Its implementation implies going through a series of phases, not necessarily consecutive

  ➤ It is related to the application of ICT

  ➤ It is a means, but an end in itself.

Neither the use of electronic government, nor the concept itself, is simple to delimit. This difficulty has its origin in several reasons. It is an area of development that is being put into practice and, thus, its development and growth belong to the last two decades.

In addition, the roots of electronic government have a triple origin. There is the literature on Public Administration, also literature dedicated specifically to Information Systems and finally to management entrepreneurship and business organization (Holden & Fletcher, 2005). This position, on the cross point of several different fields of study, sometimes creates a certain ambiguity in their

analysis and proposals, still not forgetting the richness they provide approaches with an integrated vision.

Although electronic government supposes an incorporation of the e-business practices (e-Business, digitization of all processes of the company) typically from the private sector to the public sector (Gulledge & Sommer, 2003), there are multiple differences between e-business and electronic government. One of them is based on the classic immobility of the public sector of not occupying a leadership position in the implementation of new technologies, nor in any other innovation (Nikoloyuk, Marche, & McNiven, 2005).

Other problems of the electronic government that move away from the concept of e-business are (Chen & Perry, 2003):

- Organizational and cultural inertia: Many public entities are not known for their efficiency or their willingness to adopt change.
- Regulatory framework: There are usually laws and regulations that have the intention to clarify rights and obligations or to carry out the supervisory or control function. Although it is well intentioned regulations disinhibit innovation.
- Security and privacy: E-government applications must protect the privacy of citizens in an open environment (Internet) and not entirely sure. This is also the case in e-business, but in public services there is a greater obligation to guarantee security and privacy.

E-Government therefore, includes technological components, cultural elements and information management. They should not be missing following key references: the application of ICT to achieve an effective, efficient and transparent administration of all government resources, easy and fast access to public services for citizens, companies and other entities that interact with the government, improve and increase the relationship and communication between government-citizen, government-business and within the government itself.

Despite the centrality of the citizen in the rhetoric of change, they are marginal experiences in which they have been taken into account when designing the administrative modernization processes or incorporating them in a way other than either as the number of web page users. And finally, since the process of Innovation affects and is affected by the structure of public administration, officials, politicians and private sector actors, the concept does not work as analysis tool because in many cases it is limited to technology and with a deterministic view of it.

In short, e-government presents obvious benefits for the citizens (Pedersen, 2017), which contribute to improve the image that it has from the public sector (Tolbert & Mossberger, 2006); these benefits focus on:

- Saving costs in service delivery, which enhances efficiency and effectiveness of the same, produces budgetary savings for the public body and improves its picture.
- Expanding the channels of personal interaction of the citizen with the administration, being able to obtain public services without going in person to the public administrations, without time limits and obtaining personalized services (for example, considering disadvantageous people).
- Reaching a higher level of transparency in relationship with citizens, by keeping them well-informed regarding the different legislative events , schedules, etc… .
- Showing responsibility, as demonstrated by the measures of privacy and security necessary when generating and dealing with personal information.

The transformation of the government should be an opportunity for social inclusion, disappearing geographical limitations and increasing communication and equality of opportunities. To achieve this objective, facilities must be created for citizens can become familiar with technological tools and guarantee their accessibility.

The impact of e-government can be seen on citizen satisfaction. The success of these initiatives for citizens is based on factors such as:

➢ Ease of use: the system is easy to use for the intended user. It is based on standardization and ease of use.

➢ Relevance: The services delivered electronically must be adequate to the needs of specific users.

➢ Inclusion: Certain groups of users should not be excluded from being able to participate with public institutions.

➢ Feedback: It is necessary for the user to know how his / her opinion in decision-making processes

➢ Cost: The interaction with the system does not mean higher costs for the user. With a more transversal perspective, we can consider three pillars of the electronic government devices that support or hinder its implementation and its adoption by the citizens:

  o Strategic vision: long-term and comprehensive vision that defines the future orientation of the evolution of e-government centred on citizens.

  o Trust: Degree of credibility that citizens have regarding an ICT-based system.

  o Update: Ability of a system to be up-to-date with respect to the information and services offered.

The definition provided by the Gartner Group (Baum & Di Mao, 2000), can be considered eclectic. Electronic Government is the continuous optimization in the provision of public services, access to public information and citizen participation, through the internal and external transformation of relationships based on the use of ICT. This definition implies the existence of internal and external relationships inherent to governance. Electronic government, for this should not have a purely technical aspect, but should focus on the socio-cultural transformations that it allows. If we delve into their relationships, in the case of external ones, at least two components:

Citizen Participation: it emphasizes the interaction between citizens and elected representatives to participate in decision-making affecting the communities.

Provision of public services and access to public information: This guarantees the attention to the requirements made by the citizen. Regarding internal relationships, a third component is involved, as highlighted by Layne & Lee (2001), is horizontal integration. This allows the creation of external services based on the interaction between different levels and organisms of the public administration(Cardona, 2003).

The extension use of ICT in public organizations has served to develop multiple strategies for governments and Public administrations modernization internally and externally in their relationships with other agents (Heeks, 2001). With these reflections, we believe that a systematization of the concept of electronic government that addresses its complexity is starting from three main axes:

Public service providers (e-*Administration*), which includes the dimensions of management, information, processing of services, formulation of complaints and suggestions.

Promoters of democracy: (e-*Democracy*), which includes consultation in the decision-making processes.

Facilitators and developers of public policies: (electronic governance), which includes active participation in the development of policies, management and evaluation of the results.

From a multidisciplinary perspective and with a greater political burden, the electronic government constitutes a model of government and public administration capable of institutional change necessary to continuously improve the quality of policies and public services, better solve social problems (guaranteeing governability) and generate consensus among those actors that

are critical to articulate joint responses to social problems (Saldanha & da Silva, 2020).

The electronic government thus proposes a new relational and interactive model of government whose challenge will be to guarantee the governance of societies. This governance that covers political, social and economic dimensions is capable of formulating in a consensual manner bearing in mind the needs and demands of society as a whole to offer answers and adequate results that allow solving increasingly complex problems, effectively. Only in this way it will be possible to regain legitimacy and trust in the public institutions (Saldanha & da Silva, 2020).

E-government, according to Grant & Chau (2006), has three major activities which are: (1) integration of high-quality public services, (2) providing effective management of the relationship with citizens, (3) supporting citizens and civil society's goals of development on economic and social levels locally, nationally and internationally.

Accordingly, e-government can be characterized as a re-engineering of information provision to citizens by the public administration to achieve added value. Therefore, three major e-government relationships can be distinguished between the three actors, as shown in Figure 1.

E-government here is considered as a body that is composed of the interaction of three parts, which are: e-democracy, e-administration and e-service. E-democracy represents citizens' relationship with the state; e-service represents the relationship between citizens and public administration; whereas e-administration is the digitalization of the processes and procedures within the governmental agencies to provide support for decision makers (Bernhard, 2013; Wihlborg, 2005). Although e-democracy is not included in e-government definitions (Jansson, 2011), other researchers still agree with the three-dimensional model of e-government (Gronlund, 2005; Giritli Nygren & Wiklund, 2010).
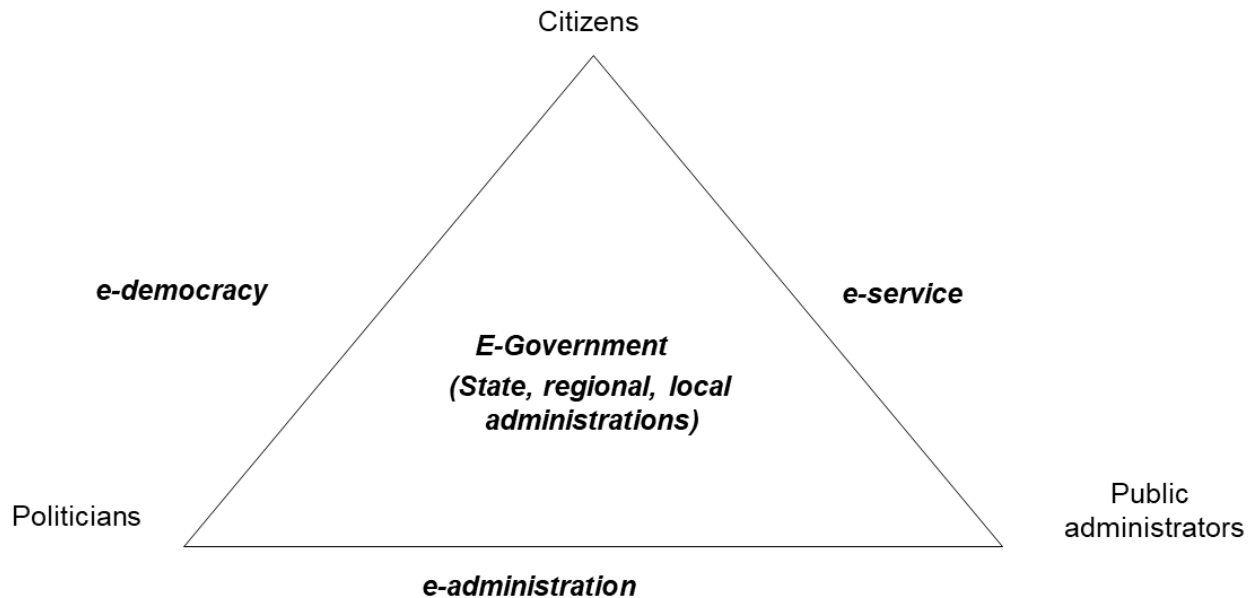
Figure 1: E-government relationships model

Source: (Bernhard, 2013)

Efficiency is the key word for successful e-services that aim to rationalize public administration expenses, and offer more accessible and readily available services. We can observe similarities between e-services and e-commerce that are inherited from the similarities of the public and the private sectors. Nevertheless, the main technical difference is that demand in private sector is market-oriented, whereas public services, electronic or non-electronic, lack the flexible market information structures. Moreover, the supply of public services is constrained by the availability of resources, which are basically taxes and fees, and also by prioritization and legal application. Therefore, digitalisation of public services is subject to its resources (Bernhard, 2013).

Vintar, Kunstelj, Dečman, & Berčič (2003) argue that e-administration can be either a radical re-engineering of administration or just another stratum to be added to a traditional administration. The latter is the case in many developing countries such as the Maghreb countries. In the light of this, E-administration introduces new relationships, which is referred to as vertical and horizontal integration (Layne & Lee, 2001). According to Cordelia (2007) the principles of

New Public Management NPM   such as decentralisation and flattened bureaucracy, are better served with e-administration. This basically happens while access to information by other public bodies is made easier through digitalization. Further definitions approach e-government from different perspectives as shown in table 1.1.

Table 1.1 Definitions of e-government based on perspectives

Perspective	Definition	Authors
Technology	The use of the internet and web presence to publish information and provide public services to citizens.	United nations (2003)
Management model Change	The use of ICTS in public administration combined organizational change and new skills with objective with improving public services, processes democratic institutions and consolidate aid for public policies.	European Information Society (2004:2O)
Relations with External agents	The use by the government of technology, as well as Internet to help the dissemination of information and provision of services to citizens, officials public, companies and another organizations.	Layne and Lee (2001)
Dimensions of Electronics Government	E-government should be divided into four distinct sectors of activity, namely e-democracy, e-service, e-management and e-government.	Berri (2004)
Reform of public Sector	The use of ICTS to improve efficiency, transparency and accountability of the government.	World Bank Group (2004)
Use of the technology with political objectives	The use of ICTS and particularly the internet to get a better government	OECD (2004)
Politics	It offers opportunity for government to reorganize, be closer to citizens and cooperate with great variety of social agents.	Dunleave (2002) (Caldow, 1999)

1.3 E-government versus e-governance

As for e-governance, UNESCO defines it as: "the use by the public sector of information and communication technologies in order to improve information and the provision of services, by encouraging citizen participation in the decision-making process and to hold the government to account, to be more transparent

and more effective. E-governance involves new styles of leadership, new ways of debating and making politics and investments, new ways of accessing education, listening to citizens, organizing and providing information and services (Palvia & Sharma, 2007).

E-governance is generally viewed as a broader concept than the government. E-governance can bring new conceptions of citizenship, both in terms of the needs and responsibilities of citizens. Its goal is to engage, activate and empower the citizen (Palvia & Sharma, 2007). In 2011, UNESCO gave a more concise definition that e-governance as the use of ICTs by different actors in society in order to improve their access to information and to strengthen their capacities (Bannister & Connolly, 2012).

According to Backus, e-governance refers to: the use of electronic means in interactions between government and citizens and between government and business, as well as in the internal operations of government to simplify and to improve the democratic, governmental and commercial aspects of governance (Backus, 2001). Unlike e-government which is the business of governments (the use of ICTs by governments), e-government concerns the latter but also private organizations such as companies, non-governmental organizations (NGOs), associations, etc. Indeed, they can undertake their own strategies for using ICTs to improve their internal functioning, offer quality, facilitate the tasks of their employees and improve their interaction with other organizations, in a word, make use of ICT in their access to good governance.

Some researchers use the terms e-government and e-governance alternately to describe the same idea, while for others they correspond to different meanings. Since our point of view, the evolution towards electronic government is part of a broad set of changes that are reflected in the gradual change of terminology from "government" to "governance" (Geiselhart, 2004). For Evans & Yen (2005), e-government is the last step in the evolution that empowers the citizens for full participation in decision-making processes. The Internet therefore

supports the achievement of the objectives of good governance by increasing transparency, efficiency and the provision of services focused on the needs of citizens.

Administrative reform and development underwent the New Public Management (NPM) and Total Quality Management (TQM) over the 1980s and the "reengineering and reinvention of government" in the 1990s. This process of reinvention and reengineering of governance is reflected in electronic government, which seeks to adapt administration to the ever-increasing flow of information by speeding decision-making through resource optimization and enabling self-regulating mechanism of the decision-making (Baev, 2003). As a result, government has evolved from the act of governing to the process of obtaining the approval and assistance of those who are governed. E-government's main goal is to back up and facilitate governance for all parties involved (other governmental agencies and departments, individuals, and moral individuals) In the late 1980s, the word "governance" was first used in the development debate. Freedom and democracy are fully synonymous with growth and progress, according to the 1991 Human Development Report, even though they are not a prerequisite. The United Nations changed its concerns of international development from economic growth in the mid of the last century to another level of sustainability in which priority is to nature, human rights. The movement has claimed that good governance is essential for implementing development strategies in a comprehensive manner, encompassing not just the public sector and stakeholders, but also those who are impacted in other fields. It has compelled a new understanding of the public interest as participatory in design.

As the ultimate dimension of e-government aims to support and facilitate good governance for all parties involved, it is necessary that we understand that it cannot be limited to a website or simply a digitization of the provision of services. It really needs to address a broader definition of the commitment and depth of relationships between citizens and government (Fang, 2002).

1.4 The dimensions of e-government

The definition of a common approach or perspective of e-government finds its root in the phenomenal expansion of the Internet and its penetration within the markets, communities and public organizations. It has been concluded that electronic government cannot only be produced through the imposition of new technologies on existing government models. The process of adaptation of the public sector to the new environment functions as a catalyst to guide all participants to a common course. Electronic government is associated directly with government transformations that reorganize the economy, the society and politics.

A generally accepted framework focuses on the dynamics between different agents that interact with the public administration. These are, the citizens and the businesses in one hand, and on the other, the different levels of their own management. To translate these three essential groups towards a vision of e-government, the government is continuously engaged in bidirectional interactions with the other groups.

Therefore, e-government comprises four dimensions corresponding to the four types of relationships existing between different actors (Al-Busaidy & Weerakkody, 2011; Ndou, 2004):

- Government to Government dimension (G2G);
- Government to Citizen dimension (G2C);
- Government to Business dimension (G2B);
- Government to Employee dimension (G2E).

1.4.1 Government to Citizen Dimension: G2C

This is the first dimension of e-government and it is always put forward when it comes to defining e-government. It consists in setting up all the electronic mechanisms allowing the facilitation of the exchanges between the state

services and the citizens in order to guarantee to these services in quality (Zhi & Zhenhua, 2009). In this dimension we find information portals, the dematerialization of administrative procedures with the aim of simplifying exchanges, increasing transparency and reducing litigation between the administration and citizens. To achieve this dimension, many countries are opting for the establishment of a one-stop shop that includes all state services to citizens, from information to administrative procedures and the payment of fees for services delivered.

This means that citizens can carry out several different operations, especially those where multiple agencies are involved, without the need to contact each one of them. According to Yong & Koon (2003), a single access point reinforces participation citizen in democratic processes since citizens can use administrative procedures and more conveniently express their needs to public servants. Public officials are the foundation of effective government.

1.4.2 Government to Government Dimension: G2G

It is a key dimension of e-government and it consists in ensuring and controlling the exchange of data and information between public services (ministries, general directorates, presidency, etc.) (Sang, Lee, & Lee, 2009). In other words, this dimension of e-government covers all possible interactions between public services, between those responsible for these services through exchange infrastructures, directories, applications shared, etc.

For example, when local administration requires information of a fiscal nature to the autonomous or state administration, it involves electronic transactions and data sharing among government actors; and includes intra- and inter-agency interactions between employees, departments, agencies, ministries and even other governments. The movement of information from a lower level to a higher level of government is called vertical integration and is one of the most advanced characterizations of the electronic government. Vertical integration refers to the flow of information from a lower level of government to a higher

level of government and is one of the most sophisticated characterizations of electronic government. Government to government interaction may also happen horizontally, as one agency deals with another field of government in a similar level. For example, programs that require collaboration between a city council and culture departments to arrange a particular cultural event.

The aim is to modernize the internal services of public management through increased efficiency, availability and accessibility during exchanges (Choudrie, Ghinea, & Weerakkody, 2004). Compared to the other three dimensions, the implementation of this one is very costly financially.

1.4.3 Government to Business Dimension: G2B

This dimension has received much attention, due to the dynamic nature of business activities in general and the potential to improve efficiency in transactions. The online government transactions provide opportunities for businesses for the simplification of regulation processes, easier and fast electronic operations that can avoid the physical presence to a government office for filling out forms.

It deals with the different interactions between public administrations and companies. During their routines, companies exchange a lot with public services such as the Ministry of Finance (Treasury, Tax Directorate, etc.), the Ministry of Industry, the Ministry of justice, etc. In this dimension of e-government we find the same types of services and objectives as in the one dedicated to relations between the government and the citizens, plus the possibility for the government to simplify the payment of taxes, access to public control and therefore participation in growth, while reducing and making treatment procedures more reliable. It should be noted that all these exchanges must be, from the outset, inscribed in an environment of security and confidence favouring the economic prosperity of companies and the state (Yaw, Mawuli, & Quaye, 2017).

1.4.4 Government to Employee Dimension: G2E

Given the importance of human resources in the good conduct of e-government projects, this dimension has been added to those mentioned above. It focuses on the relationships between government departments and their employees (Chourabi & Mellouli, 2011). It is used by governments to improve the internal functioning of public services and to reduce administrative costs. G2E initiatives include giving employees access to training on ICT use, online training and database access permissions to get the information they need for their tasks execution (Ndou, 2004). This dimension of e-government can be seen as a component of the G2G (Government to Government) dimension set up to improve day-to-day bureaucracy in government services and improve transactions with physical and moral citizens. G2E initiatives in e-government are a springboard for employees in managing and carrying out their tasks.

Expanding on this typology, Hiller and Belanger (2001) classify electronic government as six categories: Government Services to Individuals (G2IS), government to individuals as part of a political process (G2IP), government to individuals Employees (G2E), Government to Business as Citizen (G2BC), Government to Business in the market (G2BMKT) and government to government (G2G).

From a development-oriented perspective, (Heeks, 2001) proposes a model of Electronic government based on the use of the capacities of automation, information and communication of ICT to improve the processes of government (e-administration); to connect the Government and citizens (e-citizens); to provide services to citizens (e-services) and to incorporate new forms of understanding and collaboration between the Government and civil society and within the civil society (e-society). Each of the perspectives that make up the briefly described frameworks above show different ways of representing the relationships that derive of the division of the participating groups or

domains. This division into perspectives facilitates the analysis of the issues that are the result of these relationships. In other words, the frames serve to present a simplified view of the relationships between the participating groups and most importantly, facilitate understanding and implementation of electronic government.

But the understanding of the phenomenon of electronic government must go beyond the theoretical explanation in terms of interactions between different perspectives: groups, sectors or domains. To complete this approach, from the beginning, both, Researchers and international organizations have paid great attention to monitoring the evolution of electronic government, creating generally accepted models that describe and predict the growth of e-government in stages or strategic phases.

1.5 Stages in the evolution of e-Government

It is not realistic to think that the construction of electronic government constitutes basically a technical process, but it requires to be approached in a comprehensive way, in which processes and people are the centre of attention. A citizen-centred strategy cannot be achieved by simply shifting the administrative processes and traditional service provision to the Internet and advertising them on a web page. Although this may be essentially as a first step, e-government proposals must go further, not only from the point of view of internal management, but also in the model of interaction with citizens. In this way, citizens, officials, administrators, political representatives and companies (all of which participate in the processes of the e-government) contribute their specific knowledge and requirements to develop a system that corresponds to their needs and not one where people must adapt to the technical system.

In this section, we will review the classical stages models that proved their and demonstrated their effectiveness by explaining the various stages of e-government adoption and their ability to predict possible stages of growth, and

we will finish with the most contemporary stages model which is the no-stop-shop model.

Returning to the main references of its historical evolution, we have that already in the decade of the 1990s many administrations around the world began to put e-government solutions focused mainly on the dissemination of information via the Internet. Later these initiatives were spreading from simple web presence and one-way communication, to bidirectional communication and the incorporation of capacity to carry out transactions with citizens and businesses. More recent approaches are being considered integrated from the citizen's perspective and with increasing proposals aimed at promoting participation and electronic democracy (Layne & Lee, 2001; Moon, 2002; Ronaghan, 2002). Many researchers have tried to understand the phenomenon of electronic government from an evolutionary point of view contemplating its evolution in different stages (Al-Dosari & King, 2004; Layne & Lee, 2001; Moon, 2002).

Table 1.2 E-government models

	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6
Baum and Di Maio (2000)		Presence	Interaction	Transaction	Transformation	
Ronaghan (2001)	Emerging presence	Enhanced presence	Interactive	Transactional government	Seamless	
Hiller and Bélanger (2001)		Information dissemination	Two-way communication	Integration	Transaction	Participation
Wescott (2001)	E-mail and internal network	Enable inter-organizational and public access to information	Two-way communication	Exchange of value	Digital democracy	Joined-up government
Layne and Lee (2001)		Catalogue	Transaction	Vertical integration	Horizontal integration	
Anderson and Henrison (2006)		Cultivation	Extension	Maturity	Revolution	

Source : (adapted from Coursey & Norris (2008))

As shown in table 1.2, there is general agreement among the studies in identifying essential stages such as the publication of public information and the capacity to carry out transactions. However, there are substantial differences in approaching life cycle based on the most significant area considered to trigger this evolution: technology, internal organization, integration with other administrations, citizen perception. Regardless of the approach, each model addresses both the services available and the structural transformations of the governments on their progress to full e-government.

One of the most classic models is the one proposed by the UN in its "Public Sector Report " in 2002, where it observes a clear emphasis on the concept of presence on the Internet, which refers to the way in which users can operate on the website developed by the public administrations. It proposes a development model based on five stages that go from the web publication of static information to the incorporation of options for the participation of citizens in the discussion on public policy.

The main limitation of this perspective is that it suggests that the online presence of the administration can be based on initiatives oriented only to interface with the citizens (front-office) and that, ultimately, affects the to a lesser extent the internal organization of public entities. According to this approach, the provision of services therefore, constitutes a new channel available to citizens which does not affect the main procedures with which the services had been provided.

On the way to integrating the capabilities of the online presence with the transformation of internal processes, two new approaches emerge: Accenture and OECD.

Accenture (2003) has defined an e-government evolution model that serves as a basis for its annual study on the degree of development of electronic government. Their main contributions are based on what involves the client (a concept that prefers the citizen) and in the capacity of the new channel to add

value to the services in line with respect to those provided in a traditional way. This perspective introduces, consequently, the need to discriminate between the presence on the Internet that constitutes more than a "showcase" and those initiatives that effectively improve access and provision of services.

Also they build a five-stage model in which, although there are quite a few coincidences with the previous scheme in the initial stages, the most significant is found in the last two stages.

In the fourth stage, the concept of transactional portals draws attention, in which that attention is focused on putting online services that provide greater value to the citizen. Also, although in an underdeveloped way, still there is an importance of collaboration between different levels and agencies of the Management.

Finally, in the fifth stage, it is emphasized that the guiding idea of the effort should be to improve citizen services and more importantly, work in the direction that users agree to use online services.

What is most significant about the approach is that it introduces a different perspective of the followed so far by naming the fifth stage as that of "service transformation", thus abandoning the approaches focused exclusively on the web presence. In this way, it introduces the underlying challenges posed by construction of electronic government and that relates it to the proposals to reform and modernize of the State and public management: the idea that the electronic government is part of a global transformation of public services.

Complementing Accenture, the OECD (2003) approach in its book "The e-government Imperative" not only recognizes the relationship between electronic government and reform of the State, but radically transforms the way of evaluating the websites, relating its evolution from the beginning, with the internal transformations of the State and public administration. The radical nature of the change in focus remains evidence from the beginning of the text,

when it indicates that electronic government is more about the government than the prefix "e".

On this basis, the OECD (Organisation for Economic Co-operation and Development) identifies four stages, although as in the previous case, the most disruptive are the last two. The transactional development stage (third stage) refers to the fact that its existence requires the ability to respond in real time to Public administrations. This implies significant advances in the internal processes and the beginning of a systematic collaboration between public entities to enable seamless provision of public services. Also, the last stage reveals the importance of public entities being empowered by law and the citizens to share the data sources and information necessary to provide services, thereby breaking down the traditional boundaries between public institutions.

An approach similar to that of the OECD had been developed as part of the effort to structuring the so-called "one stop government" carried out in several European countries and which Wimmer (2002) synthesizes. Unlike previous models, this proposal already in its title it reveals that its objective is to identify the phases that the construction follows of electronic services, rather than observing the evolution of the initiatives of electronic government of the different public administrations.

It is a multidimensional model that distinguishes between various levels of abstraction (from a strategic to a technical level), of different aspects (organizational, legal, security, process modelling, access, services, flow of work) and the central phases of the progress of the online public service (from the informational phase up to transactional and resolution phase, including the attention phase later).

First, on the diagonal plane, it focuses attention on the four phases that go through the electronic provision of services. Second, it distinguishes four levels of abstraction:

- The strategic framework, which directs attention to basic organizational requirements, such as strategy, fundamental roles, strategic decisions and constraints.

- The level of public services, processes and workflow, where the strategies and basic roles acquire content or, in other words, the level at which services are specified (from the consumer's point of view); processes (public authority point of view) and workflows. Thus define the different roles and required collaboration, process steps, the coordination of inputs, and products (outputs) and the adaptation of the public service to the legal framework.

- The level of interaction, where attention is focused on the performance of the service, that is, the integration of service models, processes, commitment of information and data technology experts and information incorporated into public services. In this way, they investigated the interaction and information flows and interfaces between different concepts, namely, people, data and information, processes and legal grounds.

- The level of information technology, which refers to the implementation technique of the project components, standard formats for exchange of information, communication, transaction, and telecommunication infrastructure with its interfaces.

Finally, in order to identify the requirements for the development of the project, in the vertical plane between the different points of view involved distinguish: the service perspective (focused on public service, processes, required functionality, service flow and work flow); the technical point of view (focused on the technical implementation of the system), the perspective of users (which includes citizens), the private sector and government officials , public administration; security aspects; the legal aspects; the organizational aspects, such as the structural fragmentation of the public administration and the division of domains of competence and responsibility; the socio-political, and the perspective regarding data and information.

There is no agreement regarding the required number of stages that electronic government must go through to evolve from one to another. Some models emphasize that e-government must go through all the preceding stages, although there are approaches by which public organizations may decide to skip over certain stages to offer specific services.

However, there seems to be a certain consensus between public and private institutions on how to define the different stages of implementation of electronic government. The most theoretical approaches (Baum & Di Maio, 2000; Layne and Lee, 2001; Ranaghan, 2001; Wescott, 2001; Hiller and Belanger, 2001; Santos and Heeks, 2003) identify three to five stages that delimit the phase of development in electronic government in which each organization is located.

The stages from one to three are: the static (unidirectional) information stage, in which internet is used as notice board; the stage of limited interaction (bidirectional), in which online service delivery is partial and limited online; and the complete transaction stage, with full provision of the service, with the possibility of generating personalized information. These stages are an extension of the administrative structures, in which services are delivered quickly without time restrictions for accessibility.

Additionally, two other stages have been delimited that introduce a more sophisticated level of interconnection between administrations (G2G) and between administration and citizens (G2C). The fourth stage, Integrated administration (the seamless stage), involves the complete integration through the public administration, a benchmark of e-government reforms as well as the first phase toward modern governance models.

Integrated administration represents a new management and delivery design that responds citizens' needs rather than the preferences of the administrations. This requires a change in attitude towards cooperation between the different levels of the Administration, which is rarely found on the websites of the public administrations of the Maghreb countries, who must

overcome this challenge if they are to improve the trust of the citizens in their institutions.

The fifth level corresponding to a phase of political participation and extreme of electronic democracy. This one represents the transition of e-government to higher degree of development that is established through dimensions such as transparency, interactivity and accountability, as well as its ease of use and technical sophistication (Pina, Torres, & Royo, 2007; Wong & Welch, 2004).

Transparency can be enhanced through the combination of the political dimension and the use of the Internet to bring the Administration's agenda closer to the citizen and to implement unbiased information dissemination policies - and citizens dialogue, that intends to use ICT to improve communication with citizens and stimulate their participation in political and civic processes. Both dimensions try to build participatory democracy mechanisms that reduce social exclusion and improve access to services.

Interactivity is the measure of the degree of immediate response and development of electronic services.

The manageability and degree of technical sophistication refer to the ease with that users can access the information and navigate the portal correspondent.

Finally, accountability, in a broad sense, aims to keep citizens informed about debt, assets, the variation of the net worth, intergenerational equity, cost of public services, sustainability of their provision, and the efficiency and effectiveness of the public action. Citizens will not be able to hold the administration responsible if they do not know what it is done with their money. Disclosure of position of financial and performance information of public administrations is necessary to determine the sustainability of service delivery and efficient and effective use of public funds.

Although the fore-mentioned stages models aimed to reach a higher degree of full integration characterized by a final one-stop-shop stage, Scholta, Mertens, Kowalkiewicz, & Becker (2019) consider them as a reactive form of governmental service delivery. Instead, they discuss and suggest a no-stop-shop model that is composed of three stages: one-stop-shop stage, limited no-stop shop stage and no-stop shop stage. This model is an extension to the previous stages models with a novelty of a proactive and a predictive form of governmental services delivery.

According to Scholta, et al.(2019) The first stage of the model is the one-stop shop, in which, the front end is fully integrated utilizing one form wherein users' data are collected and integrated. While the back end is often dispersed and restricted to vertical and horizontal integration, proactive or predictive delivery of service is not applied, which is characterized as a reactive service delivery.at this stage, citizens are required and encouraged to act.

In this three stages model, the last stage no-stop shop stage, in which citizens do not intervene but services are delivered based on a proactive and predictive approach, is the extension of the first stage one-stop shop. These two stages are intermediated by the limited no-stop shop stage.

In limited no-stop shop stage, citizens are still required to provide some post-service delivery inputs although the government will act proactively or predictively. Citizens who are eligible for services are identified in this stage and then served without having them involved. After being served, citizens are requested to provide additional data for further steps related to the service delivered such as account numbers for payments. Therefore, this stage in a case of missing information, citizens will be required to complete this missing information after having benefitted from the service using one single form. For the full delivery of proactive and predictive services with a single form, integrated data storage is necessary.

While government can proactively or predictively deliver specific services on the basis of data from a single agency, a broad spectrum of services can be transformed if government-wide integration is achieved or if a digital identity is used.

Unlike the other two stages, this stage is not an end in itself, but it is a transitional stage between one-shop stop stage and no-stop shop stage.

The no-stop shop is distinguished by the removal of all forms, in contrast to the small previous stage. Citizens are not requested to take any action or fill out any form in this stage even after the service is provided.

Since the government initiates the service, proactive and predictive service delivery remove all forms, and a high degree of data storage integration renders subsequent citizens' data collection, when all data are provided. This stage according to Scholta, et al. (2019) requires government-wide integration or a digital identity. They give the example of Austria to illustrate the third and final stage which is no-stop shop. Austrian government provides a good example of families' allowances for child birth. When an infant is born, the hospital electronically alerts the register office and the data is registered in the national civil register which is administered by the Federal Interior Ministry. The register sends the consolidated data to the Federal Ministry of Finance, which then delivers it to the local tax offices through an electronic data interface. Once a decision has been made at the tax office, beneficiaries' details are sent via the mail. The aim of data usage here is proactive and therefore citizens are not required to perform any action in order to benefit from the service they are eligible to. In this case, the government does not act predictively, because a living child birth precedes the service delivery process. There is no need for a form since the citizen does not perform any action. Data from many government agencies are gathered during service delivery, resulting in government-wide service integration. The data are exchanged between the different agencies and departments, implying that they are not organized into a single database but

rather into a network of interconnected databases with a high degree of interoperability. In the case where the government lacks any of the data and is unable to provide the service in the third stage no-stop shop, the second level is activated. The government therefore requests one form in which, the missing date are provided.

In brief, while one-stop shop stage decreases number of forms citizens need to fill by a fully integrated front-end, no-stop shop stage eliminates the interaction between the government and the citizen throughout the process of service delivery and execution.

A no-stop shop stage is based on two fundamental functions: the first is integrated data storage function, and the second is the proactive and the predictive function. In the first, all necessary data have to be available, while in the second, the government anticipates the possible need of the citizen and provide it in the best suitable time. These two functions have to be combined together for the government in order to reach a no-stop shop stage.

1.6 Evaluation of an electronic government

On many occasions, the models described in the previous section have served as basis for the development of methodologies for the comparison and monitoring of state and level of evolution of different national or local administrations.

One of the benchmarks is the UN E-Government Development Index (EGDI) sponsored by the UN. It is a methodology that seeks to measure both the capacity and the intention to obtain advantages from the ICT. The calculation method is through a weighted average of three complementary indices, the Online Service Index (OSI), the Telecommunication Infrastructure Index (TII), and the Human capital index (HCI). Additionally, and given the importance that the UN assigns to e-government an instrument for democracy promotion, an electronic participation index or e- participation Index(EPI).

Online Service Index (OSI) is obtained through a questionnaire where the register the presence or absence of a set of functionalities of the Public websites associated with an e-government development model of five stages defined above. For each country, in addition to the main site of the country's government, the site of five secretariats or ministries. A group of experts participates in the selection of each site and in the observation of them.

Telecommunication Infrastructure Index (TII) is the result of calculating an average weighted of six infrastructure indicators, which are the number of PC's per every 1000 people; Internet users per 1000 people; telephone lines fixed per 1000 people, online population; Mobile phones per 1000 people and televisions for every 1000 people. Each indicator is normalized using as reference the maximum and minimum values between countries observed. Once normalized, the index is obtained through an average weighted in which a weight of 0.2 is assigned for each of the first 4 indicators, and 0.1 for the last two (mobile phones and televisions).

The Human Capital Index (HCI) aggregates the percentage of literate adults from the of the country with the ratio of the population enrolled in primary education levels, secondary and tertiary, weighing with 2/3 the percentage of adults who can read and write and with 1/3 the school enrolment.

The E-Participation Index (EPI) tries to detail and obtain qualitative information that extends the experts' assessment of the network presence stage in the creation of the Web presence index. Qualitative and quantitative valuation comprises three fundamental aspects: e-information, e-consultations and e-decisions making.

1.7 The benefits of e-government

1.7.1 The benefits of e-government for the physical and moral citizens

The satisfaction of citizens, businesses, NGOs, associations and society as a whole, regarding the administrative services, remains a major objective for any

responsible government. E-government is unquestionably an appropriate tool to achieve this goal, through the following advantages (Carter & Bélanger, 2005; Sandoval-Almazan & Gil-Garcia, 2012; Weerakkody, Irani, Lee, Osman, & Hindi, 2015):

- the high accessibility of public services at all times (7 days a week, 24 hours a day) and everywhere;
- improving services delivered to citizens and businesses;
- the reduction of the financial costs of the procedures as a totally dematerialized procedure costs far less expensive than a standard procedure;
- the time savings due to the reduction of bureaucracy and speed in the implementation of administrative procedures;
- the reduction of corruption and increasing transparency by eliminating inter-human exchanges, source of corruption, direct access to without intermediary online service, access to personal data;
- the online offering of new personalized services to citizens and businesses (eg. on-line tax calculation, monitoring of on-going administrative procedures, consultation of their personal file, sending by e-mail of information on- measurement, etc.);
- the speed of obtaining better targeted information;
- access to regularly updated information on the government and its administrations and on government procedures and services;
- Increasing the involvement and participation of citizens in the governance of the state (e-citizenship).

1.7.2 Benefits for governments and their employees

Public administrations and their employees also benefit greatly from the adoption of e-government. Benefits to public administrations and government officials include (Sandoval-Almazan and Gil-Garcia, 2012; Weerakkody, Irani, Lee, Osman, & Hindi, 2015):

- Improving the internal functioning of public services;
- A very effective channel for the government to share information on administrations and their activities with citizens;
- The reduction of employee expenses and tasks;
- The reduction of errors when processing procedures;
- The modernization of employees' work equipment in public administrations;
- Increasing the capacity of the administration to provide quality services;
- Increased transparency and productivity gains for public administrations;
- Computerization of the entire back office processing process;
- The facilitation of communication, information exchange and collaboration between administrations;
- The strengthening of security and confidentiality of exchanges between the highest authorities (Head of State, Head of Government, Ministers, etc.);
- better organization and structuring of administrations and procedures because, very often, the computerization of procedures, through the adoption of e-government, goes hand in hand with a complete overhaul of the procedures and an in-depth reorganization of the government apparatus;
- improving the fight against all forms of fraud;
- The increased coherence in the exercise of power and credibility of the relationship between government and the governed, between government and citizens.

Indeed, ICTs can have a very low financial and human cost to reinforce proximity functions, facilitate the online execution of administrative tasks (downloading of forms, various alerts, exchanges of information, registration in registers, secure payment, etc.), of which the government, in its administrative dimension, is responsible for providing services to citizens.

1.8 E-Government indicators in the Maghreb

The many advantages of e-government increasingly encourage developing countries to set up, like developed countries, e-government projects. However, the formers, unlike the latters, face more difficulties in the process of adopting and implementing e-government. To measure the degree of integration of e-government in these member states, the United Nations (UN), through its Department of Economics and Social Affairs, has set up a development index of e-government (E-Government Development Index: EGDI). In the latest ranking (in 2020), according to this index, the developed countries are far ahead of those developing ones in the use of ICT. E-Government Development Index EGDI illustrates a real gap. This is borne out by Tunisia, which is ranked 91st in 2020 being the first North African country and fourth in Africa after Mauritius, Seychelles   and South Africa in e-government in this ranking. No African country is in the top 10 of the countries with the highest government development indices. The reasons for this delay are many, including the lack of electricity in many rural areas, low rates of computer ownership and internet connection, the high cost of internet subscriptions compared to the minimum wage (170$ in Algeria, 220$ in Tunisia and 256$ in Morocco). In addition to these reasons, the deeper ones are poverty, lack of infrastructure, lack of computer literacy, very little or no ICT development budgets, and so on. The following tables 1.3 and 1.4 show the state of e-government in the Maghreb based on UN E-Government Development Index EGDI.

Table 1.3 EGDI in the Maghreb for the year 2020

	E-Government Rank	E-Government Index	E-Participation Index	Online Service Index	Human Capital Index	Telecommunication Infrastructure Index
Algeria	120	0.517	0.1548	0.277	0.697	0.579
Morocco	106	0.573	0.5119	0.524	0.615	0.580
Tunisia	91	0.653	0.6905	0.624	0.697	0.637

The last UN E-Government Development Index EGDI for the year 2020 shows that e-government in the three countries is more or less at the same level with slight advantage for Tunisia that stands out as the first , and Morocco second. Poor scores for Algeria in online service index and e-participation index compared to its eastern and the western neighbours. This could be related to the fact that Tunisia and Morocco have established national portals as one shopping stop whereas Algeria still has not put the National portal (that is already ready) into service for the different e-government customers. Until now citizens in Algeria still need to register in every governmental website to be able to use e-government services.

In terms of human capital, the HCI shows similarity between the three countries, probably due the socio-cultural factors that the three countries share. Based on the CIA World FactBook, literacy rates are: 81.4% (2018) in Algeria, 73.8% (2018) in Morocco, and 81.1% (2020) in Tunisia (Further information are embedded in the Appendix D). More than 18% of the Algerians and Tunisian peoples and more than 26% of the Moroccan people cannot depend on themselves to use e-government facilities, which forces a large proportion of the population in the three countries to use the traditional administration.

 And for telecommunication infrastructure Tunisia stands out again thanks to its small surface and its population (163,610 km² and 11.69 million inhabitants) compared to Algeria (2.382 million km² and 43.05 million inhabitants) and Morocco (446,550 km² and 36.47 million inhabitants) according to the World Bank report in 2019.

The pace of modernizing public administration in the Maghreb and introducing e-government was relatively slow regarding to their capacities, but surely the three countries have been in a tight rivalry since the first introduction of the UN E-Government Development index in 2003.

The following table 1.4 shows the development of UN E-Government Development Index EGDI and its sub-indices, in addition to UN E-participation Index EPI in Algeria, Morocco and Tunisia between 2003 and 2020.

Table 1. 4 EGDI, EPI and sub-indices development in the Maghreb (2003 – 2020)

Index	2003	2004	2005	2008	2010	2012	2014	2016	2018	2020
E-Government Development Index										
Algeria	0.370	0.325	0.324	0.352	0.318	0.361	0.311	0.300	0.423	0.517
Morocco	0.265	0.264	0.277	0.294	0.329	0.421	0.506	0.519	0.521	0.573
Tunisia	0.329	0.323	0.331	0.346	0.483	0.483	0.539	0.568	0.625	0.653
Online Service Index										
Algeria	0.384	0.251	0.246	0.224	0.098	0.255	0.079	0.065	0.215	0.277
Morocco	0.236	0.232	0.238	0.207	0.238	0.542	0.693	0.739	0.667	0.524
Tunisia	0.179	0.154	0.154	0.130	0.483	0.477	0.638	0.717	0.806	0.624
Telecommunication Infrastructure Index										
Algeria	0.036	0.033	0.037	0.123	0.125	0.181	0.199	0.193	0.389	0.579
Morocco	0.061	0.061	0.064	0.135	0.177	0.277	0.335	0.343	0.370	0.580
Tunisia	0.089	0.084	0.099	0.164	0.194	0.289	0.307	0.348	0.407	0.637
Human Capital Index										
Algeria	0.690	0.690	0.690	0.711	0.738	0.646	0.654	0.641	0.664	0.697
Morocco	0.500	0.500	0.530	0.544	0.574	0.443	0.490	0.474	0.528	0.615
Tunisia	0.720	0.730	0.740	0.750	0.771	0.684	0.672	0.640	0.664	0.697
E-Participation Index										
Algeria	0.052	0.033	0.032	0.023	0.014	0.053	0.078	0.119	0.202	0.155
Morocco	0.138	0.033	0.032	0.000	0.129	0.395	0.804	0.831	0.775	0.512
Tunisia	0.017	0.016	0.000	0.023	0.300	0.368	0.647	0.695	0.798	0.691

In This chapter, we have explored and investigated the notion of e-government. It started with a general overview on e-government and its emergence and then we have presented various concepts related to the topic of

e-government including definitions of e-government, e-government and e-governance while noting the differences between the two in order to remove the confusion in their use. The different dimensions and phases of e-government are then presented in the light of the literature review. This chapter has also discussed how to evaluate of an electronic government and the many benefits that underlie the adoption of e-government are mentioned. It finished with the highlighting e-government indicators in the Maghreb. Throughout this process, we have seen in many occasions the relationship between e-government and e-democracy and participatory democracy. In the next chapter, we will prompt the topic of participatory democracy.

CHAPTER 2
DEMOCRACY AND PARTICIPATION

Democracy is a phenomenon of extreme complexity and a classic object of political science. Since antiquity, various conceptions of democracy have been developed and many democratic models have been put into practice. With the end of the Cold War, a consensus emerged in the Occident, making democracy the best and most desirable form of government. Democracy is indeed this political device which has shown the greatest capacity to adapt to adversities and the most important possibilities of transformation. The democratic experience has spread throughout history over specific periods, in waves (Huntington, 1993) and today it is spreading more and more in the world.

If there is a clear consensus that democracy is the best form of political management of a society, there is however no consensus, in political science, on what democracy is. More particularly, from the perspective of democratic theory and the analysis of empirical experiences, the concept of democracy is malleable and can assume different connotations depending on the approach taken.

Democracy can be viewed in a minimalist way (Schumpeter, 1942; Przeworski, 1999) or, conversely, as a polyarchy (Dahl, 2005), or as a radical method of political decision-making (Santos, 2004).

This study focuses on measuring citizens' participation motivated by adoption of e-government. To introduce this object, it is necessary to return briefly to the

debate about democracy and participation. It is not a question of presenting a thorough and philosophical discussion on democratic theory but rather of bringing the reader into the field of political participation. In this sense, this session deals with the discussion around the concept of democracy, at stake in the field of democratic theory, the empirical innovations put in place in terms of participation and the approaches adopted to interpret this concept's phenomenon, and then we conclude with e-democracy and its participatory role.

2.1 Democracy Background

In political science, the conceptual debate on democracy has been fertile and contentious, and approaches differ according to conflicting schools of thought. One of these different ways of thinking about democracy is that which starts from the concept of Giovanni Sartori (1970) on conceptual elasticity. According to this author, concepts can be placed on a scale of broad or narrow meanings that is to say according to the intensity or the conceptual extension. A broad concept is, for example, capable of taking into account an extended universe of a political phenomenon, in contrast to a narrow concept. At the beginning of the 1970s, in the aftermath of the third wave of democratization and at the moment of a new process of decolonization emergence, the publications of Sartori appear. In political science which is gradually moving towards the use of statistics and the comparisons at the global scale, the author insists on the qualitative aspect of the discipline and more particularly on the definition of concepts and their importance to the comparative method.

Sartori shows that "the larger the world under investigation, the more we need conceptual instruments that can travel" (Sartori, 1970:1034). This idea implies an important degree of theorization. The more universal categories can be applied to different countries and produce global theories, while the general concepts are more suitable for comparisons between more homogeneous contexts and, finally, the narrower categories are used to make a

comparative analysis between countries, but with a limited theoretical capacity. This is particularly important for understanding the phenomenon of democracy. Indeed, the concept of democracy is an object whose definitions go back at least to the political philosophers of ancient Greece and there is a wide range of categories used to understand what democracy is. Concepts can include the need for citizen participation schemes in public decision - making processes, or simply be limited to elections and alternation of power criteria.

This area devoted to democracy is therefore marked by important cleavages, on the one hand, between the minimalist conceptions, the pluralistic and the participative, and, on the other hand, between the explanatory theories and the normative ones.

This is an important debate on how to analyse contemporary democracies. This discussion is polarized between normative theories on one side and the positivist approaches on the other side. Within the framework of the latter, a set of explanatory theories sought to define the criteria necessary to apprehend democracy and to classify the various empirical experiences spread throughout the world. The effects of the different conceptual degrees defined by Sartori are both methodological and political. While minimalist conceptions are limited to the analytic side, normative conceptions go further, insofar as they aspire to the transformation of state institutions, thus seeking to strengthen or perfect democracy. In addition, the idea of conceptual elasticity can contribute to the production of ambitious concepts that are synthetic and, therefore, capable of including a large number of heterogeneous cases, present in different contexts.

The minimalist or procedural definition of "democracy" has been elaborated by Joseph Schumpeter (1942). In response to the classical theories that make the "General Will" the fundamental element of democracy, Schumpeter proposes a definition of democracy oriented towards the individual dimension, especially the quarrels between the different political leaders. The author

criticizes the notion of "common interest" and "common will". For him, the will of the people cannot be considered as unique, that is to say understood as the sum of individual wishes, because individuals are heterogeneous and nourish varied expectations and wills, the sum of which does not constitute a unit. In this sense, political decisions can hardly match what the people really want.

According to the economist of the beginning of the last century, the democratic method is an institutional system for political decision-making, in which the individual acquires the power to decide, in the framework of a competition for the votes of the elector (Schumpeter, 1942: 321). This is a minimalist definition that can be applied to a large number of empirically observable cases (Przeworski, 1999). The key point of democracy is attributed to the *modus procendendi*, aiming at reaching an ultimate goal. According to this definition, the individual becomes the former of a government that will make the decisions. In this system, leadership plays a vital role. Everyone is free to compete for the government, through specific modalities, and the government is left to the group that relies on the greatest popular support.

Adam Przeworski favours a minimalist definition of democracy. For this author, the principle of alternation of governments implies that the different political forces agree to do with the rules of the democratic game, instead of resorting to violence to seize power. In terms of costs and benefits, when we lose the elections, it is more advantageous to accept the rules of democracy than to engage in political rebellion; each competitor having the same chances to win the game.

In democracies, voting plays a major role as a measure engaging the whole of society. For Przeworski, voting is the "flexible muscles" of society. The vote reflects the physical power of citizens in politics and also gives information on passions, values, interests and the distribution of forces. According

to this author, political forces in conflict with democracy obey election results (Przeworski, 1999: 43).

In the field of democratic theory, the Schumpeterian proposal of democracy constitutes a breakthrough to open a new space for the analysis of democracy from positivist approaches. This is the use of a concept to understand empirical phenomena and not to prescribe how they should arrive. If the minimalist definition makes it possible to compare different cases of democracy, on the other hand, it loses much of the content of this form of government, reducing it to a simple method and to the individual competition for power.

From the definition proposed by Schumpeter and in keeping with much of it, Robert Alan Dahl has gone further, considering democracy as a set of conditions or prerequisites that states must respect. Dahl has been cautious, or uninviting, in considering democracy as an ideal form of government, to which all existing states aspire. For the author, the term "Democracy" refers to a political system that has, among its characteristics, the quality of being wholly or almost listening to its citizens (Dahl, 2005: 26).

Dahl assumes that a political system is fully accountable and that citizens must be considered equal. In other words, everyone must have the opportunity to formulate and express their preferences to other citizens and the government and to see their preferences considered on an equal footing in the conduct of the government (Dahl, 2005: 26). In addition, state institutions must offer constitutional guarantees to make the exercise of the three rights presented above, such as fundamental freedoms and political rights. From these elements, Dahl conceives democratization as a process of equilibrium distributed between two axes: the possibility of challenging the government and that of free participation in elections and various public positions. For Dahl, democracy is simply a trend, with polyarchies being governments around the world (Dahl, 2005: 31). The polyarchies are "relatively regimes (but incompletely) democratized or, in other words, these are plans that have been

greatly popularized and liberalized, that is to say broadly inclusive and open to public contestation" (Dahl, 2005: 31). For Dahl, polyarchies are just akin to democracy. With the revival of the theories of participatory democracy, the quarrel in the theoretical field becomes more animated.

2.2 Background and roots of Participatory Democracy

Many theorists agree that democracy in its basic form should not be the sole form of governance where leaders or parties gain legitimacy to represent citizens by merely participating in elections. The elite view of democracy supported by Mosca and Pareto, has attracted interest for a long time. They claim that democracy is a regime that legally gives the elites the authority to govern. In other words, democracy according to them is a regime where the elites rule and the masses follow (Kolegar, 1967). However, supporters of participatory democracy believe that the participatory concept is a progressive concept of democracy.

Democracy has ended up being an explanatory category of a political phenomenon to become a normative concept. In this sense, the notion of democracy claims to determine how this phenomenon should occur in reality. The concepts of participatory democracy, strong democracy and radical democracy aim to establish what democracy should be.

The mechanisms for the direct participation of society in debates of public interest are, today, the object of a massive proliferation. The inclusion of citizens in decisions on matters that directly concern them has become not only a demand for social movements, but also a priority for the different governments. In Europe, visible examples such as "neighbourhood councils" in France and the UK, and "development councils" in Belgium, confirm the progressive widening of this participative reality which, since the 1990s, is gradually gaining ground. In the participatory field, Latin America is one of the most fertile regions for experimentation and innovation. Also the practices of import-export of devices as of ideas on this subject, both at the sub-national and international levels, they

inevitably develop. Brazil's "participatory budget", set up in Porto Alegre in 1989, is the most striking example of this dynamic. As an icon of participatory democracy, this device has experienced an intense movement of transfers on a global scale.

The participative phenomenon was accompanied by the emergence of intense growth in the social sciences, contributing to the crystallization of rich literature on the subject. Certain works about democratic theory (O'donnell & Cullell, 2004) consider participation as one of the elements that should be taken into account when evaluating the quality of a democratic regime. Another approach, represented by Fung & Wright (2003) in the United States and Lubambo, Coelho, & Melo (2006) in Brazil, uses case studies to observe the institutional conditions favourable for the deepening of democracy. The participatory dimension of democracy is also addressed by the prism of the type of broader political projects carried out by those who implement it (Dondero et al., 2006).

Now if all the research about participation and democracy concerns the effectiveness of participation mechanisms, quality of democracy, participation itself and the political projects, much remains to be studied as to the broader mechanisms of the international circulation of tools, ideas and models of participation. It is from this simple but significant observation that we have undertaken this research.

It was in the 1960s that the debates over participatory democracy intensified. During that period, democracy witnessed new endeavours that completely rethought the concept, which was led by authors such as Barber and Carole Pateman (Held, 2006) . Until that time, democracy considered citizens participation to be limited to voting and after that, the public decision was entrusted to politicians. For social participation thinkers, citizens should be involved in decision-making processes.

In other words, democracy has to be participatory (Pateman, 1992), strong (Benjamin, 1984) and deliberative (Fung and Wright, 2003).

Inspired by Rousseau, Carole Pateman discussed a participation-based democratic theory in his book *Participation and Democratic Theory*, published in 1970. Pateman focused on the educational role of participation. As for Rousseau, citizens learn to seriously consider public interest issues that go beyond their personal interests, while Pateman considers that individuals learn through participation that private and public concerns are strongly related. Pateman suggests that democracy is established and learned when citizens participate. Participation starts at local levels where people learn to govern themselves in social spheres as a preparation before their effective participation in politics (Pateman, 1970, 2012). This argument emerged to oppose the claim of Schumpeter, who considered citizens to be intellectually deficient in terms of being able to act or decide in political matters.

For Rousseau, participation is made when decisions are made and guarantees "good governance". One of the central elements in Pateman's argument is the pedagogical or educational function of participation.

Contrary to Schumpeter's proposition - those common citizens would not be intellectually capable of acting on political issues - for Rousseau, during the participatory process, individuals learn to take into account issues that transcend their personal interests to achieve the public interest. Pateman insists that, through participation, the citizen learns that public and private interests are interrelated (Pateman, 1970). For Rousseau, participation can also increase the value of individual freedom, guarantee equality between individuals and enable social integration.

Pateman's theory of participatory democracy emphasizes individual participation in political decision-making processes. Participation at the local level is the space and time during which individuals learn to govern themselves, with participation being used as a preparation to participate in politics at the broader state level (Pateman, 1970). Democracy is learned through participation.

The participatory dimension of democracy is also at the heart of the work of Benjamin (1984). While the main concern of Pateman is to re-integrate participation in democratic theory, Benjamin Barber questions whether the problems of excessive liberalism could lead to democracy. The possible degenerations of liberalism can become pathology of the political system, characterized by problems of political passivity or totalitarian temptations. Convinced that liberal democracy does not correspond to the best political device that human beings can aspire to, the author proposes the alternative of Strong Democracy.

Strong democracy is a modern and distinct form of participatory democracy, centred on "the idea of a self-managed community by citizens, united by civil education and capable of pursuing common objectives". and mutual actions , for the sake of their civic behaviour and participatory institutions, rather than altruism and beneficent nature (Benjamin, 1984).This alternative, which focuses on transformation and change, is mobilized to resolve the dilemmas of modern conflict- ridden politics. What's more is, for this author, in strong democracy , participation in policies is essential and conflicts are resolved through participatory processes and self-management in which the community is able to ensure that private interests become public goods (Benjamin, 1984).

The debate on democracy has gone further and turned to the field of internal procedures to the participatory process, that is to say the deliberative dimension. This is a facet of democratic theory that has gained new momentum since the mid -1980s. Much of the deliberation debate feeds on the insights developed by Jürgen Habermas. Among his most significant contributions are reflections on the category of "public", often translated as "public space" (from the original German term *Öffentlichkeit*). The author has resumed the debate between republicanism and liberalism, arguing that the democratic process is what distinguishes them from each other.

In liberalism, the state must plan in consultation with the interests of society, leaving enough space for the development of private interests, while in republicanism, the state must be a constituent element of society as a whole (Habermas, 1995). According to the republican conception, there is solidarity and orientation towards the public interest as the third source of social integration, in addition to administrative power and individual interests (Habermas, 1995: 40). Besides, the existence of an autonomous and independent base of civil society is essential for the self-determination of citizens to be effective.

Although he believes that republicanism is advantageous because it offers a radical proposal of democracy, Habermas makes a criticism. He underlines the excess of idealism of the republican model which makes ethics the indispensable element for its maintenance, supposing then that citizens are inclined to seek the common interest. The author defends a third model that would overcome republicanism. His argument is based on the fact that, in the presence of individuals with different interests, it is possible, through a deliberative process, to obtain acceptable results for all parties. Habermas proposes a model that seeks to achieve just results, as long as the participants respect the rules of the game, that is, the solution lies in the use of a judicial element. This author's reflection focuses on the capacity for discussion in public spaces that are opinion-forming and able to obtain rational and just results. Legitimacy lies in the fact that decisions derive from democratic processes that express the will of citizens.

The arguments of deliberation, combined with theses on Participatory democracy, have been widely explored to explain the increased experiences of citizens' participation. In the theoretical field of participatory democracy that take place at the local level, normative theories have largely been adopted by contemporary studies. This phenomenon occurred in parallel with a movement of expansion of democratic countries, initiated with the fall of the Berlin Wall.

2.3 Models, Principles and Democratic Ideas

Democracy is an object that circulates internationally. Its models, principles and ideas, often discussed, have been disseminated in time and space. The classic work of Bernard Manin (1996), titled *The Principles of Representative Government,* shows how a set of dimensions of representative and direct democracy have combined and alternated as forms of government. His argument emphasizes the triumph of representative democracy that has emerged with the great revolutions of the eighteenth century. For his part, Yves Sintomer (2010) has insisted on the return, during the contemporary period, of practices of direct democracy with random selection, in force in the Florentine Republics of the fifteenth century. He discusses the introduction of deliberative democracy practices, involving citizen assemblies and referendums, as decision-making methods in the institutional setting of British Columbia in Canada.

In this movement of democratic elements, and often the export of democracy, states present forms of government that promote the co-existence of participation, representation and deliberation, as decision-making mechanisms on matters of public interest (Hermet, 2008). These current combinations are the product of social pressures. Indeed, it is important to note that the debate on participatory democracy is not only centred on a conceptual question, but also on its issues for politics and for conflicts. From the 1970s, a series of transitions to democracy took place in different parts of the world, intensifying with the end of the Cold War.

Samuel Huntington (1993) described the process of international spread of democracy in various states during this period, called *The Third Wave of Democratization.* The so-called *Transitions of Authoritarian Governments* (O'Donnel, Schmitter & Whitehead, 1986), which extended from Greece, Spain and Portugal to Latin America, have resulted, in the new states, in democratic constitutional charters , whose texts present important innovations in terms

of social participation in terms of citizens' participation and vertical accountability mechanisms (Smulovitz and Peruzzotti, 2000).

While many Latin American countries are new democracies, based on the representative Systems as a form of state government, participation has been institutionalized in different sectors, has become normative and has become a public policy. In public debates, many of the principles of inclusion of society have been guaranteed by the new constitutions, constitutional amendments and laws, and, moreover, various programs of social participation have entered the agenda of national governments and subnational. Brazil is an important example of how this phenomenon has taken shape.

It is from heterogeneous movements that social participation policies found a new momentum in Latin America and Europe. In the countries in transition, there was a rejection of the authoritarian forms of the governments of the previous period (Dagnino, Olvera and Panfichi, 2006). In Europe and the United States, a generalized movement, called by Rosanvallon the "malaise of democracy" (de Oliveira, 2017; Diehl, 2019) pointed to dissatisfaction with political institutions and demanded greater social and citizen commitment. Experiences like neighbourhoods have proliferated in France, as have Citizens' juries in Germany. In the case of Latin America, traditional forms of participation have been updated, public policy advice and conferences have been put in place, and the Brazilian participatory budget PB has taken the importance lead by being adopted and adapted to different countries of the Region (Cabannes, 2006).

The inclusion of social participation policies in government agendas, in Europe and Latin America, took place in a context of citizen mistrust, on the one hand, and in conditions of transition to democracy, on the other one. Blondiaux (2017) emphasizes the weakening of the traditional structures of representative democracy, the reinforcement of alternative scenes of the

political conflict and especially the "ability of ordinary citizens to mobilize, to resist, to authorities outside traditional political circuits and organizations. The argument of Rosanvallon also follows the same direction, insisting on the mistrust of the citizens towards the institutions of the State (Diehl, 2019). The emergence of social participation policies in Europe is a way to renew democracy or, to use Blondiaux's expression, to give a "new spirit" to democracy. This participative turnaround is taking place globally, since Latin American countries have been important leaders in participatory innovations and sources of inspiration for Northern countries. (de Oliveira, 2019).

In fact, Latin America has been a laboratory for the construction of democracy, especially since the 1980s, and Brazil has been central to this movement. Important social movements, such as health movement, the trade unions on the outskirts of Sao Paulo, the theology of liberation, the ideas of Paulo Freire's pedagogy of the oppressed, or the self-management practices and to self-organization in the less favoured neighbourhoods and communities, succeeded in institutionalizing their voices in the process of building democracy. Important areas of institutionalized social participation have become mandatory by law, such as the Public Policy Management Councils in Health, Social Assistance and Education.

Budgetary control mechanisms, such as the Multiannual Plan (MAP), have also been important. At the municipal level, the Cities Management Plans and the Cities Statute have contributed to democratic management, through the participation of associations in the process of developing urban development programs.

During this period, the great innovation has been also implemented at municipal level (Avritzer, 2006). From these experiences, Latin America, and especially Brazil, had the opportunity to reinvent democracy as it was conceived in its historical process.

In the literature, social participation policies have been analysed from different perspectives. First, in the late 1990s, public spaces for public participation and deliberation in public policy were valued and became almost mandatory in various places. As Blondiaux and Sintomer (2002) say, it was "imperative" that institutions of this nature be put in place in certain sectors.

Then, a second object of analysis was the institutional innovations brought by the policies of social participation. The research focuses on the conditions that ensure the success of the experiments (Avritzer & Navarro, 2003), as well as on the variables that allowed to radicalize the democracy empowering the ordinary people to include them in the deliberative processes (Fung and Wright, 2001).

Finally, a third reading of the emergence of participatory spaces was made in Latin America, based on an analysis of ideological quarrels for the construction of participatory spaces.

In Europe, in the late 1990s, Blondiaux and Sintomer (2002) showed that there was a constant and systematic enhancement of certain themes: discussion, debate, consultation, participation, partnership, governance, characterizing a new spirit in public policies that developed as multiplied participatory spaces. New techniques of participation, deliberation and governance have gained momentum in the management of public policies by democratizing the decision-making process. The authors observed a set of changes that occurred as a result of this movement. The first change is a pluralisation through the integration of new actors in participatory spaces.

The authors add that the generated effect caused two breaks. The first has been to end the monopoly of experts on public policy, participatory institutions attended since scholarly knowledge and secular knowledge. Then, the second breakup was the questioning of the supposed "informed opinion" of the representative in relation to the common citizen.

The second change is the redistribution of the place of political decisions in various sectors and the substitution, in many cases, of the principle of representation by that of deliberation. On the other hand, transparency and the public presentation of debates have come to occupy a central role.

Participatory institutional innovations emerging in the 1990s also drew attention to the North American debate. As part of the project "Real Utopias", Fung and Wright (2003) were interested in the potential of citizen empowerment generated by the participatory institutions. These authors developed the Empowered Deliberative Democracy (EDD) model from five experiences: the Chicago Neighbourhood Governance Councils, the Wisconsin Regional Training Partnership, and the Habitat Conservancy Planning of the United States , the participatory budgeting (Pb) of Porto Alegre, and the "Panchayats" of Kerala, India.

They identified a group of common elements to all these practices: the concentration on specific problems, the commitment of citizens affected by these problems and deliberative procedures to find solutions. They also showed the institutional properties of experiences: restitution of decision-making power and policy-making, coordination of participation by the government, and finally the power to transform, through participation and deliberation, forms of production of public policies centred on bureaucratic practices and corporation. One of the conditions to ensure the proper functioning of these Institutions is equality in the distribution of power among the different participants (Fung & Wright, 2003).

In Brazil, Leonardo Avritzer (2006) has been extensively interested in studies on social participation, in particular to institutional innovation that is the BP. The author has defined four pillars to ensure its success. The first is democracy, which focuses on the ability to increase citizen participation with PB. The second is the presence of resident associations involved in the process. The third is the institutional design, combining decentralized regional assemblies and

a central deliberation body, the council. The fourth pillar is the ability to redistribute resources for PB implementation.

A Latin American study adopted a different reading of the process of democratic construction in the subcontinent, as well as the new participatory Institutions and democratic control that emerged from the dictatorships. Dagnino, Olvera and Panfichi (2006) have shifted the focus of the practical and empirical dimension of participatory institutions to the cognitive dimension of public policies, that is to say in the field of ideas and ideologies. According to these authors, the debate on democracy is characterized by "a great dispute between various political projects that, using the same concepts and using similar discourses, are in fact completely different" (Dagnino, Olvera and Panfichi, 2006: 14). This amounts to saying that there is heterogeneity of projects that mobilize a discourse that values participation but that, in practice, when setting up participatory institutions, use different methods that can have different effects on the participants and on public policies.

The concept of political project was inspired by the Gramscian thinking and makes reference to "sets of beliefs, interests, world views and representations of what must be the life of society, which guide political action of different topics (Dagnino, Olvera and Panfichi, 2006: 38).

Two political projects competed for the construction of democracy in Latin America: the participative democracy and the neoliberal. The first is characterized by a vision of the world whose main objective is to strengthen and radicalize democracy, making social participation in decision-making processes a fundamental element of democratization.

Participatory institutions are seen here as an instrument to ensure greater equality among citizens included in public policy processes. This worldview confronts the idea of liberal and representative democracy. The idea is that participation and deliberation policies are complementary to representation. In addition, this project is characterized by its opposition to the privatization of the

state, defending a closer articulation between the public interest and the institutions, through participatory institutions.

Participation, deliberation and social control are the main elements of this political project. The instruments put in place to carry out this project in Latin America have been multiple. PB is one of the best examples of this model for social participation.

For the neoliberal project, the state must articulate its relations so as to favour the requirements of the production system and the mode of operation of capital accumulation. Here, social participation is seen as an instrument, a means of making structural adjustments. It is more precisely a tool to transfer the responsibilities of the State, and in which NGOs and civil society ensure the implementation of social projects, such as the fight against poverty.

The prerogatives of decisions and definitions of policies, however, remain at the discretion of the State. In this political project, the conception of civil society and participation is based on an intention of depoliticization, which reproduces the idea of a minimalist (thin) democracy.

The authors insist that, in this context, what is defined as a situation of "perverse confluence". The confluence is determined by the existence of a "meeting between, on the one hand, the projects aimed at democracy, which were elaborated during the period of resistance against the authoritarian regimes and pursued their search for a democratic progress, and, on the other hand, the neoliberal projects which, from the end of the 1980s, were set up according to different rhythms and chronologies. The perversity is that moving towards opposite or even opposing directions, these two sets of projects use the same discourse (Dagnino et *al.,* 2006:16).

Democracy is a complex concept that can be understood from either a minimalist or a global perspective. In recent years, democracy and its principles have spread widely, combining representation, participation and deliberation, in

a movement to strengthen democracy. The way public policy was developed has been transformed as citizens and civil society have been included in public debates, thus acquiring a more active and meaningful role. This movement did not happen in a linear and peaceful way. The whole process of building and strengthening democracy has been the subject of ideological disputes. The objective of this study is not to analyse the philosophical dimension, nor even to approach the democratic quality or the best model to follow.

With this research, we propose to seek to understand how the ideas and techniques of democracy and social participation are associated with the adoption of e-government.

2.4 Participatory democracy as a solution: some examples across the world and through the ages

2.4.1 The Constitution of Condorcet

The Constitution of Condorcet came to light during the period of the French Revolution, and begins with a request from the National Convention to draw up a draft Constitution. Condorcet was appointed as rapporteur and was the main craftsman of the project that will be introduced in 1793, which was considered at the time as the most democratic constitution that can be given to a great nation (Williams, 2004).

According to this project, the French territory would have been divided into primary assemblies composed of a number citizens ranging from four hundred and fifty to nine hundred. Every citizen can bring order from the day of its meeting a proposal which, if it is favourably received by the meeting will then be submitted to the other primary assemblies of the municipality, and after favourable majority decision to all the primary assemblies of the department. Then the legislature can either adopt or reject the proposal with the possibility for the primary assemblies of another department to oppose the decision (Williams, 2004).

In this hypothesis, a general consultation of all the primary assemblies of the country will take place, with consequence either the confirmation of the decision of the Legislature, which puts an end to the procedure, that is to say the rejection of the decision which dissolves the legislative body and provokes new elections. Condorcet had at the time to organize an educational program parallel to this procedure, aimed at uplifting citizens and developing their critical thinking (Mercier, 2003). It also seems necessary today to include an information phase to allow citizens to position themselves in full knowledge of the facts, thus than to develop citizenship education to train the critical and civic mind from the start younger age.

The draft Constitution of Condorcet will never come to practice, mainly due to political opposition, but also according to some authors because of the complexity of its implementation, its tendency to restrain the revolutionary momentum and the risk of setting up an aristocracy, because the well-to-do classes would undoubtedly be the only ones to have the means to participate in these assemblies (Mercier, 2003: 501-504).

2.4.2 The case of Switzerland

In 1294, the first *landsgemeinde was* established in the Swiss canton of Schwyz. *Landsgemeinde* is an assembly ranging from 1,000 to 10,000 citizens, gathering annually to position themself on legislative and regulatory issues. This *Landsgemeindes* greatly diminished from the eighteenth century, duration of sessions being disproportionately long and the vote by show of hands posing a problem of confidentiality. However, it should not be forgotten that today this type of assembly still exists in two Swiss cantons. Switzerland has now switched to another system of direct democracy, via referendum. Among the Swiss referendums we can cite the compulsory referendum on constitutional revisions adopted by Parliament and the adoption of international organizations treaties, the popular initiative referendum with a view to constitutional, the optional

referendum of popular initiative on the laws adopted by the Parliament, as well as the referendums of the cantons (Linares Lejarraga, 2017).

2.4.3 Porto Alegre and participatory budgets

The participatory budget is a concept born in Porto Alegre, in the south of Brazil, after the municipal elections of 1988. This democratic innovation was widely diffused in Brazil and the rest of the world, especially in European countries.

Concretely, the participatory budget is a process of direct democracy, voluntary and universal, during which the population can discuss and decide on the budget and public policies. Participatory budgets are intended to redirect resources towards leadership of the poor, rebuilding social ties and contact between citizens and their municipality, invent a new democratic culture and mobilize the sense of citizenship (Falanga & Lüchmann, 2020).

Participatory budgets are structured around different cycles distributed throughout the year with specific objectives for each.

The limits of these participatory budgets are of two types, on the one hand they are quantitatively limited to a part of the population and on the other hand it is difficult to set up for the long term .

2.4.4 The G1000

An experience often mentioned in the context of participatory democracy and deliberative is that of the G1000.

On November 11, 2011, following the crisis of the 500 days without government in Belgium, an event resulting from an ascending dynamic (which is not initiated by the public authorities), is organized. The G1000 brings together 704 ordinary citizens drawn by lot to discuss and deliberate in Brussels on topics chosen online by the public. In parallel are organized dozens of G'Offs bringing together

individuals near at home to discuss the same topics, and follow the Brussels summit in streaming.

G'Home are also organized to allow citizens to participate in debates on the internet, from their home. A G32 gathering 32 citizens drawn by lot will be organized a few months later in order to transform the proposals resulting from the day of November 11, 2011 into recommendations (Van Crombrugge, 2020). On November 11, 2012, the recommendations of the G32 were presented at the parliament in Brussels.

2.5 Multi levels of participatory democracy

2.5.1 Notions

To fully understand the notion of participatory democracy, it is necessary to go back to what participation is. Participation in Oxford Dictionary is taking part. Taking part supposes therefore a collective whole that is shared between several individuals. Therefore, taking part is necessarily sharing. According to Blondiaux (2008), participatory democracy is defined by the political ambition of involving in decision-making all those who are likely to affect.

The notion of participatory democracy can take two forms, top-down or bottom-up. The first form can be grouped under different names such as top-down participation, top-down, institutionalized. It refers to the procedures put in place by the public authorities and supervised legally in order to integrate the citizen in a process of participation (Dellavalle, 2017). The second form is said to be ascending, bottom-up, non-institutionalized, or invented spaces, and corresponds to the will of citizens and organized civil society to speak out, to challenge, highlight needs, and organize between individuals in order to find solutions to issues that affect them (Dellavalle, 2017).

Concretely, participatory democracy aimed at building common projects, to empower the future of society and bring out the values of fraternity, of

participation and solidarity. It is important to specify that participatory democracy does not simply replace representative democracy, but is seen as a complementary tool to this one. Obviously, developing participatory democracy includes the need to revise our representative procedures. Despite everything, the concept of participatory democracy remains, holistic, designating series of scenarios rather than a generic concept.

Before going any further, it is necessary to distinguish participatory democracy from deliberative democracy. Cohen (2007) characterizes the deliberative procedure via the following:

- First, the deliberation revolves around an argument leaving the freedom for the participants to advance, defend or criticize proposals.
- Second, the deliberations are inclusive and public, leaving the door open to anyone who may to be affected by decisions.
- Third, the proceedings are not subject to external constraints, the participants being bound only by the procedural rules of argumentation and communication conditions.
- Fourth, from a point of internal view, no constraint can undermine the equality of opportunities of the participants to achieve to hear, to introduce proposals, themes, and contributions or to be critical.

We can distinguish both systems in terms of their content and form. Regarding the content, the deliberative democracy is not about a decision but about its premises, the participation constituting an element of the decision-making procedure. Regarding the form, Carson & Elstub (2019) distinguish a tension between participatory and deliberative devices. The first one is a more quantitative concerned, the main interest of participation is including a significant part of the population in the decision-making process. In the second case, we are no longer in the quantitative but qualitative field, the procedures having vocation to allow a rational and reasoned exchange between the participants. These two alternatives are tensioning. The main objective of institutional

arrangements is to achieve the best possible balance between participation and deliberation.

Today, the need to bring citizens together and to diversify governance by closely involving local and regional authorities is increasingly seen as a solution in strengthening the developing countries and legitimizing its policies. The shared governance favours the ownership of decisions and joint implementation, while basing on respect for the principle of subsidiarity between the different levels of power. Indeed participatory democracy is difficult to implement beyond the local level. According to Chevallier (2004), the effectiveness of participation depends on a condition of proximity.

2.5.2 The collaborative process

The objective of this section is to respond to a particularly important issue in levels of participatory democracy. Indeed, since the beginning of this democratic model, it is put forward the interest that the participatory procedures would have in regaining citizens' confidence regarding their institutions, without however dwelling on the framework to be given to this participatory process. This section attempts to determine how to implement the participatory mechanisms.

2.5.2.1 Actors of participatory democracy

Among the actors, we can cite elected officials, inhabitants, technicians, consultants and facilitators. To fully understand the composition of the audiences of participation, a fundamental distinction must be made between the target public and the mobilized public.

This gap between two audiences constitutes the basis of the criticism of participatory democracy, according to which the mobilized public is too often made up of people with high social, cultural and economic capital, and who have an interest in consequent for politics. The image of the "professional participant" is often used to describe this finding (Gourgues, 2013).

The constitution of an audience revolves around three logics that are territorial logic (based around an area), categorical logic (socio-economic characteristic, gender, age,…) and sectorial logic (identifying the public from the problem which is at the centre). The procedures for participatory organization can be done in different ways, depending on the audiences that are mobilized. The first type of public is professional, and counts among its ranks officials of the public bureaucracy, experts in the field in question, elected officials as well as carriers of professional interests (such as unions). This first audience poses question in terms of participatory democracy, because mobilized alone it amounts to representative democracy (Gourgues, 2013). Then we can open the process to an audience of citizens concerned and organized, who act on a voluntary basis. Third, an audience could be made up from scratch by the public authorities, which is the case in procedures by drawing lots in particular. It would also be possible, in a fourth type of audience, target a segment of society in which participation is offered, by opening the door to a few individuals or to all individuals in that society. Finally, a final target audience, plus vast, for its part, is named "extended public sphere" by Fung, and allows any citizen interested in fitting into the device. Obviously, these audiences are not set in stone, and we could imagine combining them in the process in a more or less important way (Gourgues, 2013).

The successful completion of a participatory procedure is in principle accompanied by a facilitator or a third party guarantor, whose role is to implement the discussion process within the assembly. This person can be an elected official, a territorial agent, come from an external firm, an inhabitant. As a third party guarantor, it will be characterized by its neutrality and its independence. He is responsible for the progress of the collective sessions, setting a legitimate participation framework and whose main role is to ensure equality between the protagonists and the balance of exchanges, as well as to promote the expression of each one (Bherer, Dufour, & Montambeault, 2016).

This diversity of actors implies taking into account different parameters: they do not all have the same level of expertise, belief, material constraint, hierarchical and temporal, as well as the same understanding of the participatory process and its objective (Bherer & al., 2016).

2.5.2.2 Encourages citizen participation

In their study on participatory budgets in Poitou-Charentes, Mazeaud and . Talpin enumerate four reasons that can lead an individual to participate in a participatory process: the will to respond to a civic duty, the satisfaction of a personal interest (resolution of a specific problem), social integration (creating social space links) and development of its experience (Mazeaud & Talpin, 2010). These four patterns are a good starting point for understanding and developing the conditions that encourage individuals to mobilize.

Launching citizen mobilization requires developing a feeling of citizenship among the inhabitants of district, an awareness within the population that everyone has a role to play and can make a contribution. In this regard, school is highlighted as an essential place for the development of citizenship (Della Porta, 2019)

The awareness that citizenship is apprehended from an early age should be included in schools, which should include in their fundamental pillars the democratic functioning, giving children, whatever their age, the power to vote and decide both in informal times and in formal occasions.

In the context of a participation physically involving the citizens, and therefore not via a platform, it is also necessary to imagine and reinvent hybrid places that can be dedicated to citizens, in order to develop and share knowledge between citizens, elected officials and experts as well as to support and develop the forms commitments that emerge. In practice, we could use associations, social centres and even schools as a place of participation.

According to Faraldi (2012), a posteriori feedback from the organizers to the citizens explaining why this or that proposal was not followed is essential. The return must be systematic because it brings a mark of consideration for the time and energy mobilized by the inhabitants, and constitutes also a kind of "right of follow-up" of the file by the citizens, so that they can understand why certain proposals were accepted or refused. The return values contributions, demonstrates that participation is not unnecessary and therefore gives more citizens' willingness to invest their time afterwards. Conversely, the absence of return crystallizes citizens' mistrust and weakens participation (Faraldi, 2012:35).

The development of participatory democracy can also come from below, via initiatives characterized by ascending, or not institutionalized. These spontaneous movements have a positive impact in redefining democracy, which makes it possible to be aware of the need to listen to and support these movements, as well as to maintain them the heterogeneity which constitutes its richness. A conducive framework must be created for bottom-up initiatives development, and stay tuned to citizens as much as possible (Dellavalle, 2017). For example, in France, a "inhabitants participation fund" was created to support the realization of residents' projects . Support is not only financial; it can also be more technical via the loan of materials, places or equipment, etc. These modes of participation being much diversified, it is not possible to be exhaustive with regard to them, as they are implemented differently depending on their origin and their evolution.

An effective participation is subject to a good and a real understanding by the participants of the topics discussed. It is necessary therefore to define a common language, apart from the languages of expertise which blur the understanding of certain protagonists, in order to put the participants on an equal footing in the course of the procedure. The participation requires breaking out of cleavages such as experts and non-experts, knowing and not knowing (Faraldi, 2012: 33).

3-5-2-3 Contributions and questions raised by participatory democracy

The mechanisms including citizens in the decision-making process can provide solutions to deal with the crisis of representative democracy, but these processes are also likely to ask certain questions. We will discuss in this section the contributions and questions that participatory democracy rises.

a. Contributions

We assume that in a society that gives decision-making power to citizens, the poorest category, which is more numerous, will be able to tip the balance in favour of their interests, which will tend to diminish long period of inequalities. Then, the passage through participation processes legitimizes public policies and builds citizens' trust in their representatives. Through their participation, individuals take ownership and better understand decisions (Ploere, 2007:16). Take into account the opinion of citizens also allows decision-makers to better understand the concrete problems that concern citizens. Each citizen has an experience of his own throughout his life, resulting both from its exchanges with other citizens from other social backgrounds or even resulting from its relationship to its living environment. These different experiences form what is called "learning by doing". This latter is interesting, in particular within the framework of the implementation of town planning programs. Indeed during the development of a site, the citizen can, much more than a civil servant, know specific elements to the environment such as the difference in level, the vegetation, the cavities, the traditions, the use of this place by other inhabitants, and therefore be more able than an official to propose solutions in the planning of a city (Damay & Delmotte, 2010).

Participatory mechanisms are also means of political education of citizens, and are even considered as school of democracy (Pateman, 1970). Therefore, participation brings experience and provides a better understanding of societal issues and controversies, pushing citizens to decide and position themselves in favour of the general interest, to the detriment of their personal interests.

The methods of direct democracy and participatory democracy are good means of preventing violent claims. By giving the possibility to minority views to express themselves, this minimizes the risks that these minorities use violence and force as a means of expressing their demands, avoiding blockages of public space.

Participatory democracy promotes the creation of social links and the strengthening social cohesion, including individuals from different backgrounds. Recreating the social links is built in particular through meeting and discussion spaces dedicated to participation (Ploere, 2007:16). Here comes the question of the right balance between participatory and deliberative democracies, with procedures focusing only on participation which may not fully meet this objective of citizen exchange and creation of a general will.

b. Questions raised by participatory mechanisms

Despite the contributions conferred by participatory mechanisms, we must also raise some questions and limitations that these processes highlight.

Develop means of participation of individuals only without thinking about the deliberation risks exacerbating the tendency towards individualism. Citizens could have tendency to position themselves according to their own interests, and not from the point of view of the general interest. This individualism could in particular be detrimental to the most disadvantaged, such as the attest to numerous examples of direct democracy via referendum.

According to this thesis, a right balance between participatory and deliberative mechanisms must be sought. The participatory democracy approach could, through its deliberative approach, constitute a solution to the risk of individualism. The confrontation of individuals within a discussion body allows you to better understand the particularities of each, creating a space for empathy and involving more reasoned decision-making that serves the public interest.

Another question that arises about participatory devices is that they are generally composed of the same citizens, already politicized, and belonging to middle and high classes. The question of those who are voluntarily excluded from participation arises, and especially how to get them interested in public affairs to stimulate them to participate (Carrel & Vercoutere, 2012: 24).

To describe this problem: a person, often retired, former civil servant and engaged in various associations and movements (Gourgues, 2013:91). The devices of participatory democracy are truly democratic only when they allow access to the excluded populations in the decision-making process. There is unfortunately always a risk that participation reproduces the domination of wealthy social categories, eliminating disadvantaged classes (Gourgues, 2013: 98).

Remaining in the question of the citizens' participation and evoking a confusing observation: a vast majority of the population is not interested and never participates in no device at any time in history and in any country.

We come to ask ourselves the meaning of this offer to participate in the face of such a low request. However, we believe that this observation is normal, and that it is only gradually small, seeing and discovering the opportunities offered, which citizens will increasingly take part in the mechanisms. We also think about learning citizenship from school via the "citizenship" course, because it gets people aware of the role that everyone can play in the society which helps changing mentalities in the long term.

From a general point of view, a large proportion of citizens in the Maghreb is little informed of the existence of the participatory devices at their disposal.

The question of participation transparency is also often raised. Almost everywhere, there is a citizen request for clarification the rules of the game, the objectives and the functioning of the systems. A local charter of participation can help solve the problem, by establishing the rules of the game in advance. This

charter can explain in particular what is expected of participants, their status, duration of participation, leeway they have depending on the subjects, in order to let them know in advance what they are getting into (Faraldi & Soclet, 2012:33). It is also important to provide feedback on the issues discussed to ensure understanding by the participants of the choice to follow or not the decisions resulting from the devices (Faraldi & Soclet, 2012:35).

Another risk of participatory democracy would also be to reinforce prejudices that the actors of the participation have among themselves. If the implementation of the participatory democracy procedures is going well, there is no problem. Conversely, if the procedure does not go well initially, the risk would be to reinforce the lack of confidence that citizens towards their representatives, and to reinforce the vision that some elected officials have with regard to citizens, considering them incapable of contributing to the collective good (Carrel & Vercoutere, 2012: 25).

Finally, we highlight the limited scope of discussions on the public decision. Being much supervised and dealing only with minor aspects of the decision, the discussions have a marginal impact on the outcome of the process. We may even go to the point of qualifying them as "occupational democracy", occupying people with secondary questions and diverting their attention from the main issues. To conclude this part, we recall that the implementation of new means of governance is never directly satisfying, and generally requires a rebalancing.

2.6 E-democracy and its participatory role

2.6.1 Democracy in the digital age

Democratic principles are immutable while the way of applying them - the democratic technologies - is changing dramatically. From the Greek Agora where everyone could express themselves in the public enclosure with more recent forms of mass media such as radio or television, and now internet, allowing democratic expression has clearly evolved. However, the emergence

today of new information and communication technologies (ICT) in Western democracies is revolutionizing the way we communicate and interact with each other.

At the crossroads of electronics and computing, these technologies have been constantly improved during these last two decades to the point where today it occupies a preponderant place in the processing and transmission of information. Cell phones, digital televisions, servers, computer networks and internet are now used by all, government, businesses and households. Among these new technologies of communication, the Internet is undoubtedly the one that has most disrupted our way of communication and sharing of information, to the point that its development leads us to question our conception and our practice of democracy (Cardon, 2010: 7).

In fact, the link between democracy and the Internet was asserted late. At its origins, the Internet was in no way connected to the political domain since it is the fruit of a meeting between the American counterculture and the world of Scientific Research. Very quickly, military circles were interested in this means of exchanging information. Quickly, followed by companies that see interesting commercial potential in it. Internet has therefore, before everything, was thought of as a neutral platform, open to modification by all in the hope of promoting the sharing of knowledge and information between Internet users; it is a space of interaction, of an open and decentralized structure (Cardon, 2010: 15). The interest of the political intervenes belatedly since it was only in the early nineties that some politicians shed light on the potential of Internet as a political space. In the wake of a massification movement (Cardon, 2010: 31), which led to a considerable change of scale, traditional political actors (parties, governments, parliaments, administrations) have chosen to use the tools offered by the Internet to disseminate information vertically and get in touch with the citizen. This is how various websites of political parties and administrations; few today do not have one but all of them have presence on social media pages.

Beyond this function of disseminating information to a wider public, ICTs have also attracted the opportunity they offer to create an interaction between the political authorities on the one hand (executive and legislative) and the citizens and, on the other hand, between the citizens themselves. The increased use of ICT reveals thus a potential for transformation of at least two primordial dimensions in any democratic system: information and debate. Added to this, the issue of citizen participation in democratic processes and its openness through ICT. This development has aroused as much hope for a different democracy from the critics of this considered excessive view. It therefore appears relevant to question the relationship between ICT (Internet more precisely) and democracy, by focusing on nevertheless detaching from any form of "technological determinism" postulating that the Internet would improve naturally - and even revolutionize - democracy (Coleman & Blumler, 2009: 8-9).

Indeed, the Internet and other ICTs are not democratically inherited; still these tools can benefit any type of political regime. Technology allows, facilitates or even reinvents certain procedures but it remains dependent on a human political will in the occurrence. Therefore, it is important to take a critical point of view about the relationship between ICT and democracy. It is probably the time, for example, to determine whether e-democracy can genuinely change the balance of power in the governance system.

The state of research allows us to adopt a more forward-looking approach which will analyse the potential impact of ICTs on three fundamental democratic dimensions: information, deliberation and participation. Several questions will be at the centre of this approach: the potential of Internet to break down barriers of information and make it accessible, the opportunities - real or not? - encourage debate in new forms or even improve the possibilities for citizens to participate in democratic processes and influence decisions. More particularly, and in accordance with the participatory approach that we have developed above, we will assess the interest of using ICT to make these three dimensions *interact*

with one another and thus contribute to strengthening the participation of Maghreb citizens in their countries' political systems.

Peters (2020) notes that, in the contemporary era, the use of ICTs by governments is merely becoming a tool of mass-control. Foucault asserted in his work 'plague towns' that the quarantine in Middle Ages had constituted an early form of 'panopticonist' system. The quarantine in Middle Ages had created a segmented and immobile society and each person had a fixed location. Moving out of that location would lead to punishment by the government. Not only the use of ICTs during the covid-19 pandemic, but also the utilization of these technologies by the governments in preserving public order is also characterized as a 'panopticonist' system as the individuals become more and more aware that they are being 'watched' by the state.

2.6.2 E-democracy definition

To reflect the potential of new electronic means of communication within the framework of the democratic relationship between citizens and political representatives, American researchers have, in the nineties, set up the concept of Electronic Democracy.

Governments may embrace technological solutions for more efficiency and more rationalized public expenses. Whether it is deliberately or not, democratic processes could be enhanced with such endeavours. E-democracy and e-government are sometimes used as synonyms, which creates a misconception. (D. F. Norris, 2010) makes a clear distinction between the two terms. He emphasizes that e-democracy (also referred to as e-participation and digital democracy) includes providing accessibility to officials and the archives of government bodies, and permitting citizens' participation through information and communication technologies regarding issues of public interest.

In general, the term "electronic democracy" covers the introduction of ICT in the political process. But this first approach is extremely broad and does not take

into account the potential for the democratization of ICTs, i.e. their relationship to citizen participation in the political process, whether it was horizontal or vertical. It is in this perspective that the UK Hansard Society, a true pioneer in e-democracy, proposed the following definition:

> *"The concept […] Is associated with efforts to broaden political participation by enabling citizens to connect with one another and with their representatives via new information and communication technologies" (Chadwick, 2003).*

While it does reflect the procedural nature of e-democracy, this definition does not say however, nothing of the normative assumptions underlying this concept. A recent study by Europeans researchers proposes to remedy this problem with the following definition:

> *"E-Democracy consists of all electronic means of communication that enable / empower citizens in their efforts to hold rulers / politicians accountable for their actions in the public realm. Depending on the aspect of democracy being promoted, e-democracy can employ different techniques: (1) for increasing the transparency of the political process; (2) for enhancing the direct involvement and participation of citizens; and, (3) improving the quality of opinion formation by opening new spaces of information and deliberation " (Spirakis, G., Spiraki, & Nikolopoulos, 2010) .*

In the light of this last definition, several observations can be made. First, the e-democracy should be understood as the introduction of a set of tools for electronic communication positively influencing the ability of citizens to manage the democratic process and public control of elected representatives. Second, e-democracy includes a more normative dimension since its objective is to act on certain aspects of democracy by modifying them.

E-democracy in this stream can be accepted as the electronic participation of citizens in activities that partially disperse government authority, which allows the citizens to directly influence decision making processes in public-related issues (Bruns, 2012; Freeman & Quirke, 2013; Margolis & Moreno-Riaño, 2009; P. Norris, 2001). E-government according to Freeman & Quirke (2013) has three significant functions: information, transactions, and consultation. Consultation could be either limited engagement or active participation. This latter is known as e-democracy.

The importance of ICT use for democratic processes increases when three factors are guaranteed: information provision, citizens' engagement in policy drawing, and regulatory transformations. This will lead to the partial distribution of authority to citizens through digital participation (Henman, 2010). Yet, civic participation may differs based on the space of participation, e-government platforms allow whether they reach a higher level of deliberation or just be limited to voting (De Blasio & Sorice, 2019). It may still be a Platonic idea to completely involve direct forms of democracy in the Maghreb, but democracy there still needs more deliberative alternatives for real and effective engagement of citizens in politics with and within the existing democratic model, which is a representative model.

2.6.3 The three dimensions of e-democracy

As we have seen in the definition presented above, e-democracy can affect different aspects of democracy. This is a) the transparency of political process, b) the provision of spaces for debate and information and c) citizens' engagement and participation.

However, these three dimensions echo at least two democratic processes deficits: on the one hand, the question of transparency and control, and on the other hand, the marginal place left to citizens in the process of decision. The question of information arises in terms of opening or closing public space. We

will see what these three dimensions cover and what techniques are used in each case.

2.6.3.1 Transparency and information accessibility

E-democracy has great potential to improve the transparency of the policy processes and access to relevant political information. This openness is notably due to what is called "e-access" which consists of using the Internet to improve electronic access to official documents and political information (Aichholzer & Rose, 2020). This process of facilitating access to information is used in a considerable way by the majority of political actors who wish in this way to highlight their transparency: parliaments, political parties, NGOs, intermediary organizations and candidate sites.

Indeed, the Internet represents a considerable advantage over other traditional political information channels (posters, newspapers, television, radio etc.). As Vedel points out, the Internet and the Web make it possible to make information available in an almost unlimited manner and at low cost (Vedel, 2003: 250). This inevitably results in an increase in the amount of accessible information for citizens of documents previously published in brochures viewed by insiders are now found visible to all citizens. However, having access does not necessarily guarantee a good accessibility insofar as it is sometimes not so easy to find the information you are looking for.

E-access is therefore only constructive if it is accompanied by measures to strengthen the accessibility of information. In this regard, a prioritization of information in the form of highlighting the most relevant information appears necessary, but it involves thinking about the expectations and user interests. In this sense, better accessibility improves the quality of information on the Internet, for example through the reproduction of original documents, the possibility of do targeted research and relate documents on the same subject using databases data (Vedel, 2003: 250) .

In short, the promoters of e-democracy believe that improving transparency and the provision of more consistent and easily accessible information can facilitate forming citizen's opinion and thus promoting his involvement in the political debate.

At the level of the Maghreb, the exercise would not be without interest for the institutions that are suffering a lack of transparency and control which implies a form of political alienation of citizens. The institutions in each of the three countries have set up websites to remedy this lacking, with a lot of information intended for a large audience.

2.6.3.2 Increased deliberation

Deliberation, understood as an interaction between different points of view, is constitutive of democracy (Chadwick, 2003:449). This interaction contributes to the formation of citizens' opinions and constitutes an encouragement of greater involvement in the political process. However, ICTs and particularly the Internet are renewing the way in which this interaction can develop.

The main tool for promoting deliberation is the online forum or *e-forum* (Brett, Mompoint-Gaillard, Salema, & Keating-Chetwynd, 2009: 15). These online platforms offer spaces for debate in which Internet users are invited to discuss and share their political opinions among themselves. The supporters of electronic democracy ensure that online deliberation, with its accessibility, speed and convenience, could help revitalize of citizens' opinion formation.

It is worthy to mention that e-forums can be organized either by civil society organizations, in a horizontal perspective, or by the public authorities in a more vertical perspective. In the first case, it is the interaction between citizens which is privileged to favour the constitution of a common position. In the second case, the will of the public authorities to constitute a platform for dialogue with citizens most often responds to a desire for consultation that we will deepen in the next point.

Despite the gradual and concrete success of these forms of interaction in political practice (Chadwick, 2003:450) , analyses carried out by Trechsel, Kies, Mendez and Schmitter (2003) have shown that online forums suffer from various problems including a low participation rate and the very average quality of interventions by Internet users. The results of online deliberation are therefore mixed. The solutions mentioned are for example better media coverage of online debates or even more moderation effective (Perez, Bar-Ilan, Gazit, Aharony, Amichai-Hamburger, & Bronstein, 2018).

2.6.3.3 Online participation

As we saw earlier, participation is a complex concept that has several dimensions. In particular, we distinguished between consultation and participation in decision making. When it comes to online participation, this distinction is not so obvious since participatory and consultative electronic tools share the objective of upgrading the role of the citizen in the decision-making process. However, we take this theoretical distinction in order to clarify our discussion of online participation.

a. *Consultation*

E-consultation is a means of e-participation that belongs to the top-down group of instruments (Aichholzer & Rose, 2020), it refers to the use of the internet to disseminate to the wider public, experts and interests groups developments in a policy field and invite them to respond. This vertical logic (top-down) reveals, that is to say coming from public authorities to citizens. The objective is to obtain feedback from the public (expert or not) on the subjects submitted for consultation. To this end, several tools of electronic democracy are particularly useful. Online forums are a possibility, as are debates with MPs or even the establishment of blogs (which is more of a horizontal approach). But it is the email that stands out as the most widely used tool to collect the opinions of the people or organizations consulted.

However, as the subject of the consultation is by definition delimited, the circle of people consulted is also (sectoral interest groups, experts, etc.). This limitation to a circle of "happy few" is not necessarily the result of a will of the authorities at the origin of the consultation; even if the consultation is completely open to the public, it is likely to witness a *de facto* self-selection of respondents.

In contrast, the e-petition is an e-democracy tool that opens up to a wider audience. Like those on paper, electronic petitions aim to bring together many citizens around a position on a public issue, with the aim of influencing the choices of those in power in this area. From authorities' point of view, setting up such a tool opens up the political process more to citizens who then have the possibility of putting themselves on the political agenda a problem of public interest.

b. Participation in decision-making: e-voting

Online participation in political choices mainly involves Internet voting. Many experiments have been carried out in recent years in Europe with varying degrees of success. In e-voting, voters are offered the possibility of voting from any terminal or computer connected to the internet to cast their vote (Buchsbaum, 2004). Here we can distinguish two types of e-voting: e-referendum and e-election.

The e-referendum refers to the possibility of voting online on a specific subject, generally submitted by public authorities. Its result may or may not be binding, depending on the standards in force in the country.

The e-election aims to facilitate electoral participation by providing voters the opportunity to use the Internet to elect their representatives. These two forms of e-voting can be associated with other e-democracy tools such as online dialogue with deputies or debate platforms.

2.6.4 Convergence with participatory democracy

The different tools that e-democracy includes are not mutually exclusive, on the contrary. Used together, they can strengthen each other and ensure consistency in the participation procedure. Accessible and targeted information is advisable, if not necessary, to discuss public issues or to comment on online consultations. The same reasoning can apply for e-voting that can be combined with tools (e-forums, debate with deputies) facilitating opinion formation of the citizen. In this regard, it is interesting to note that there is a rapprochement with the ideal of the informed and active citizen put forward by participatory democracy theorists. This seems to be everything except fortuitous.

Indeed, this ideal citizen implies an equally demanding conception of participation: if citizens are expected to actively inform themselves and engage in the political process, this requirement also concerns the provision of framework conditions capable of encouraging participation. It is in this is what the supporters of participatory democracy, on the one hand, and of democracy on the other hand to get their countries to introduce elements of participatory governance in its mode of operation.

However, as Chadwick reminds us, e-democracy is simpler to describe than it is to realize (Chadwick, 2003: 448). It is therefore now time to tackle the more concrete part of this memory in us. Focusing on e-democracy experiments carried out in the worldwide in order to confront them with the theory that we have just presented. This approach will then lead us to offer our own reflection on the perspectives of e-democracy as a useful tool of participatory governance in the Maghreb.

2.6.5 The two types of e-democracy

Confronted with the impossibility of giving an exhaustive account of the experiments in electronic democracy, we consider it appropriate to make a first distinction between these in order to limit our field of research.

Coleman and Blumler have established a typology in relation to the use of the Internet for democratic purposes which are particularly useful for our work. They thus distinguish between "e-democracy from below" from "e- democracy from above (Coleman, 2009:90).

These authors first recognize the existence of a vast sphere of autonomous interaction which is not institutionally controlled and which thus stands out from official public discussion spaces (Coleman, 2009:117). These networks, both civic and political, are for example created by marginalized communities but also by transnational social movements or producers of alternative media. The flexibility and fluidity of Internet tools (e-mail campaigns, e-petitions, e-forums, etc.) allow these different networks to facilitate coordination with a view to collective action, whether this falls within the mobilization, putting on the agenda a public interest issue or an instrument directly influencing decisions taken by power. In Europe, a good example of political mobilization coordinated by Internet is provided by the demonstrations - simultaneous in several European capitals - against the 2003 Iraq War. More recently, the Tunisian revolution has shown that social networks like Facebook can be used as an important vehicle for mobilization. This was confirmed again in 2019 by the yellow vests protests in France, the *HIRAK* movement in Algeria, and the Moroccan Rif movement. All of these "from below" initiatives are grouped by Coleman and Blumler under the term of "e-democracy from below".

In contrast, "e-democracy from above" refers to the experiences of electronic democracy created, financed and managed by the State (Coleman, 2009:91). These initiatives take place in a vertical logic (top down) and aim to improve the relationship - even interaction - between public authorities and citizens. In recent years, indeed, the expectations arising from interactive practices between consumers and service providers have increased pressure on the political world; citizens demand a similar interaction, so as to voice their opinion (Coleman, 2009:90-91). This implies reforming the mode of unilateral political communication which had prevailed until then. As a result, both local

and national governments have implemented sets up various participatory mechanisms with the aim of strengthening dialogue with citizens (e-consultation, chat with deputies) and to promote better consideration of their opinion in the political decision-making process (e-petition, e-voting, e-consultation).

Knowing that the objective of this thesis is to determine the potential of e-government as a mechanism of encouraging participation in the Maghreb and without denying the importance of democratic participation initiated "from below", it seems relevant to focus above all on e-democracy experiments undertaken by political authorities in the Maghreb ("e-democracy from above"). Beyond this basic argument, this choice is also based on a more normative thesis which considers that appropriate public policies as well as institutional support are necessary to realize the still fragile democratic potential of the Internet (Coleman, 2009:90-91).

2.6.6 Political expectations around e-democracy

In order to complete the essentially theoretical approach of electronic democracy that we have carried out, it now appears necessary to place this practice. Since there is no available literature on e-democracy in the Maghreb context, we will see some practices from Europe. It is no secret that the three countries are copying European models in many fields, especially the French model.

At the end of the 1990s, the use and diffusion of the Internet created many expectations around political space, including the hope of transforming the relationship between rulers and ruled by promoting Immediate and direct participation in Europe (Tournadre-Plancq, 2009: 66-7). In Europe, various communities and public organizations then began to think about integrating the Internet and ICT in general in the administrative apparatus (e-government) and in the relationship democratic with the citizen (electronic democracy). If the momentum in favour of electronic democracy projects has faded somewhat in

favour of the significant advances made in the field of e-government, the e-democracy theme nevertheless benefits from a renewed interest in the public debate thanks to the distribution of Web 2.0 which guarantees a certain interactivity and places the Internet user at the centre network (Tournadre-Plancq, 2009: 66).

What are the political and institutional motivations that push decision-makers to initiate e-democracy projects? In general, first of all, the participation of the "active citizen" in the policy-making process - at all levels - is now seen as the premise of "good governance". Indeed, governments are gradually realizing that a direct connection with citizens can lead to better decisions and better laws (Coleman, 2009). The potential of new ICTs to create this interaction between rulers and ruled therefore jumps to the fore eyes.

In addition to improving public policies in this way, other objectives have been put forward: the e-democracy could promote strong social inclusion, a consolidation of the confidence of governed in their democratic institutions, a better acceptability of the norm as well as a sharing of responsibilities (Tournadre-Plancq, 2009: 66). All these potentialities have attracted a good number of local decision-makers, national and international.

Consequently, various innovative devices including elements of e-democracy have been implemented across Europe. These experiments were initiated independently by different levels of government, from local to supranational, eager to test the potential of new ICTs in their relationship with their citizens. The tested e-democracy tools thus have considerably varied, the same for the dimensions of e-democracy concerned (information, transparency, deliberation and participation). An example at the local level is provided by the city from Bristol in the United Kingdom who set up the "Community Campaign Creator" program (Coleman & Blumler, 2009). This aims to provide citizens with little political commitment the means to campaign on a local theme. To this end, a campaign management tool in online is available to citizens, as well as a

forum where they can exchange their ideas and share their advice. With the same aim of promoting citizen input, the British government has set up the possibility to sign e-petitions. In Switzerland, the canton of Geneva has now established itself in its legal basis the possibility for its citizens to vote by Internet. Estonia has put in place the "Today I Decide" project: a website is available to citizens so that they can submit to the others a bill. If the proposal receives an absolute majority of Internet users, the proposal is sent to the government, which must provide a reasoned response. In total, these are no less than nine proposals that have been implemented, even partially, by the government thanks to this new kind of e-consultation tool (Glencross, 2017).

Maghreb countries are making efforts to facilitate greater citizen participation in public decision process. They address topics such as how to improve and expand access to administrative records, or how to engage people in a variety of related issues and policies to be followed.

The task of users in a top-down approach is to obtain information and respond to public authorities – initiatives.

The top-down approach alone is not enough to strengthen democracy. Decision-making mechanisms appear to be democratically insufficient, if not fraudulent, unless they are paired with sufficiently fair and abundant opportunities for citizens to contribute to the decision-making agenda.

 The bottom-up approach led by citizens appears as a proactive action rather than mere a reaction in regard to policies making (In order to achieve the necessary influence of citizens in the formulation of policies, technology comes on the scene to help. However, most citizens generally are not involved in the preparation of the policies to be carried out. Rather than responding to a plan set by the government, the bottom-up approach permits civil society organizations and citizens to craft that plan.

CHAPTER 3
RESEARCH MODEL AND HYPOTHESES

This research tries to investigate the direct and indirect relationships between e-government and participatory democracy as shown in Figure 2. For the indirect relationship, we distinguish between the government-driven indirect relationship and the citizens-driven indirect relationship.

In our research model, we suggest that e-government has a direct and immediate effect on participatory democracy by enabling online participation. However, this direct relationship can be moderated by citizens' satisfaction regarding their experience of online participation.

We also assume that the relationship between e-government and participatory democracy is mediated by factors which are necessary for participatory democracy and can be influenced and affected by e-government.

E-government is centred on delivering government services to other governmental agencies G2G, to business G2B, to citizens G2C, and to Employees G2E. Participatory Democracy embodies participation of citizens in electoral and non-electoral forms of political participation like civil society organizations. The common factors between them are the citizen and the government. Therefore our mediators are derived from government performance and citizens' attitude.
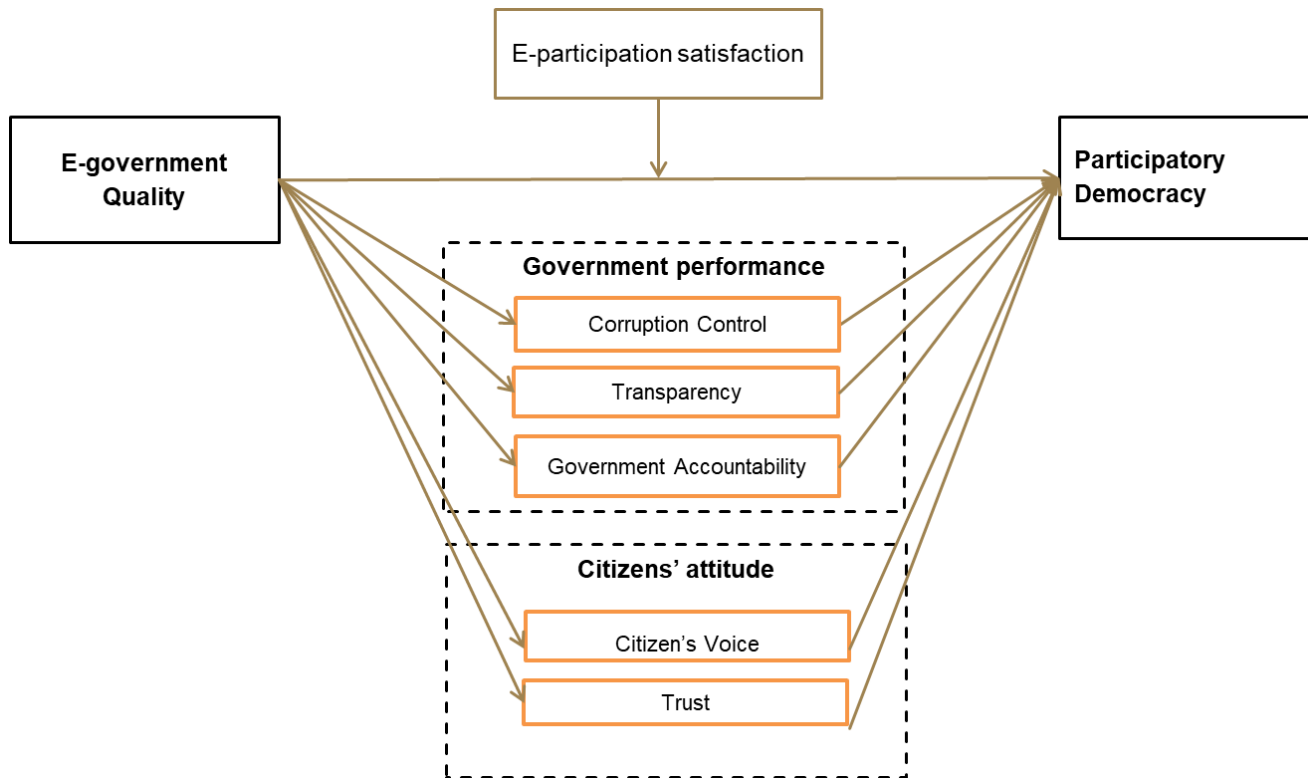
Figure 2 : Research Model

3.1 The direct effect of e-government on participatory democracy

The notion of participatory democracy covers both, electoral and non-electoral political processes, and as highlighted earlier, participatory democracy involves direct democracy as well. Public involvement in political life is being shaped based on the awareness of the general public which, for instance, has created a large debate between the elitist view and the direct participation view of democracy. The expansion of ICT use in governmental and public administration routines has provoked a new way of delivering government services. Therefore, participatory democracy can fit in every democratic model at different levels (Representative model, Pluralist model and Direct Democracy model) which could be also broadened to internet-based public engagement (see Norris (2010)). Hence, the following hypothesis is suggested:

H1: E-government quality has a direct positive effect on participatory democracy.

Figure 3.2: Moderating effect of E-participation satisfaction

Previous research (Van Ryzin, 2007; 2006) assessed citizen satisfaction with government service performance, discovering that citizen satisfaction is primarily determined by their experience of performance. According to Zolotov, Oliveira, Cruz-Jesus, & Martins (2018) citizens who are satisfied by the use of e-participation could be more likely to participate in civic processes and try out new e-participation programs introduced by their governments. As a result, policymakers will determine the best time to promote innovative e-participation technologies by recognizing high levels of citizen satisfaction. Therefore, the following hypothesis is suggested:

H2: The relationship between e-government and participatory democracy is moderated by e-participation.
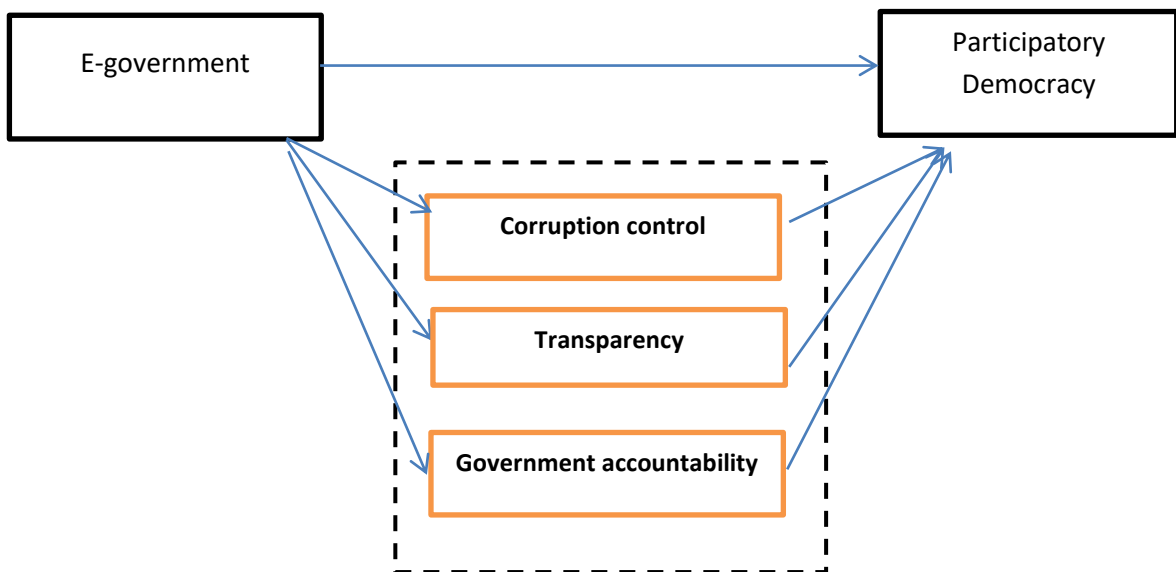
Figure 3: Mediating effect of Corruption control, Transparency and Accountability.

3.2 Government-driven indirect relationship between e-government and participatory democracy

3.2.1 Transparency and Corruption control

E-government is expected to play an effective role in reducing corruption. Governments worldwide have been modernizing their services through an electronic presence for income, sales, and property taxes collection, which are normally expected to be a target for corruption. E-government in this sense can be an effective control tool. Vertical and horizontal integration of government systems across applications not only allows real time authentication, but also assures the traceability of the decisions that are made. The fear of being caught committing wrong-doing and the shame that follows can be a hindrance to corruption-related practices.

When governments share information with the citizens, they actually tend to build accountability through the provision of documentation to citizens, whose endeavour is to restrict corruption. According to Ward (2014), transparency is the ability of the general public to see and review the government's practices. Halachmi & Greiling (2013) argue that transparency is better achieved when the citizens can reach and control different alternatives to access raw government data. In this research, it is assumed that e-government is one of the best government-citizen communication channels that can perfectly serve this purpose.

Although corruption can be found in public and private sectors in different shapes, it still differs conceptually. In the private sector, there are always alternatives, which is not the case in the public sector where the government has the monopoly of service deliverance or goods supply (Bauhr, 2017). Campbell & Lord (2018) referred to corruption in the private sector as corporate crime, which includes mistreatment and immoral behaviours towards the stakeholders. However, corruption in the public sector is the real threat that affects government performance and confidence when citizens are not treated

justly. The proper performance of governments entitles them to solve problems in the private sector. Corruption in the public sector can be divided into petty and grand corruption. According to MacWilliam & Rafferty (2017), grand corruption is normally committed by few individuals who use power for huge benefits or amounts of money, whereas petty corruption is committed by normal citizens at a lower administrative level, usually to avoid paying penalties or accessing extra services. (Friedrichs, 2000) uses the term "political white-collar crime" to describe corruption committed by governmental office holders, which is considered as a state crime. This kind of crimes is defined by the World Bank as "bureaucratic corruption" or "administrative corruption". It can also include petty corruption that it is systematic (Yanguas & Bukenya, 2016).

(Mohtadi & Roe, 2003) believe that corruption augments at the first steps of a country's democratisation process due to the collapse of the old organizational structures. On the other hand, C. J. Anderson & Tverdova (2003) argue that policymakers should consider the fact that corruption weakens citizens' trust in governments. The mediation effect of corruption control and transparency between e-government and participatory democracy is shown in Figure 2. Therefore, the following hypotheses are suggested:

H3: E-government has an indirect positive effect on participatory democracy through increasing corruption control.

H4: E-government has an indirect positive effect on participatory democracy through increasing transparency.

3.2.2 Accountability

Modern political theories emphasise that accountability is a core feature of democracy where public authorities are required to assume responsibility for their actions. Accountability or Government accountability, according to Abels (2007), fundamentally strengthens the legitimacy of a political system. For (Bovens, 2006), accountability refers to the obligation of an "actor" to justify and

explain his actions to a "forum" who is entitled to ask questions, make judgements and force the "actor" to face the consequences of their actions. In this sense, Nietzsche says that people explain and justify their actions only when they are requested, and only when there is power to back the request (Butler, 2005).

Peters & Wright (1996) insist that bureaucrats ought to be accountable to the 'customers' of public services. To do so, Bovens (2006) says that the accountability process needs to be open to the general public and should be related with public matters. Joss and Mohr (2004), discussing the link between accountability and participation, argue that the notion of accountability is directly linked to enhanced citizen participation. Bovens (2006) also links accountability to participation and sees this linkage as a problematic issue since public involvement only plays a preparative role in policy-making and consultation.

E-government, according to several scholars, can play an effective role in enhancing public accountability (Halachmi & Greiling, 2013; Haque & Pathrannarakul, 2013; Wong & Welch, 2004). E-government can be recognized as an effective tool for promoting government accountability,   since it is expected to provide more openness, facilitate citizens' engagement in public decision making, help define and follow suit liability and responsibility, and most importantly, improve controllability over officials (Halachmi & Greiling, 2013; Justice, Melitski, & Smith, 2006; Seongcheol Kim, Kim, & Lee, 2009). Seongcheol Kim et al. (2009) claim that powerful leadership has a significant role in enhancing online procedures, which leads to the minimization of risk. They argue that better responsiveness, corruption control and enhanced transparency can improve accountability. E-government, in this sense, increases information loading and sharing between different departments within the integrated systems of e-government, which improves the responsiveness capacity and service quality to the different stakeholders, and eventually increases government accountability (Pina, Torres, & Acerete, 2007). Considering the above, the following hypothesis is suggested:

H5: E-government has an indirect positive effect on participatory democracy through increasing accountability.

3.3 Citizens-driven indirect relationship between e-government and participatory democracy

3.3.1 Citizens' Voice

People's ability to communicate themselves, as well as the ways in which they do so through a combination of formal and informal networks and processes, is referred to as "Voice." Complaints, organized protests, advocacy, and involvement in decision-making, service delivery, or legislative implementation are also examples of how the vulnerable can get their voices heard by more influential decision-makers. (Goetz and Gaventa 2001).

According to Goetz and Jenkins (2002, 2005), citizens voice is essential for three reasons. First, Voice has inherent value; it is beneficial for citizens to be able to freely share their opinions and desires. Second, Voice is a necessary component of accountability; the disadvantaged have no other way of seeing their interests, beliefs, and views expressed in government agendas and strategies but to speak out – either personally or by platforms such as civil society organizations (CSOs) and parliament. Third, practicing Voice and the debates that follow are critical in allowing societies to mutually determine the principles – the ideals and norms of fairness and morality – by which authorities' acts can be measured.

We assume that e-government provides a tool to promote citizens' voice through its communicative channels which eventually leads to more participatory initiatives. Therefore, we suggest the following hypothesis:

H6: E-government has an indirect positive effect on participatory democracy through increasing citizens' voice.
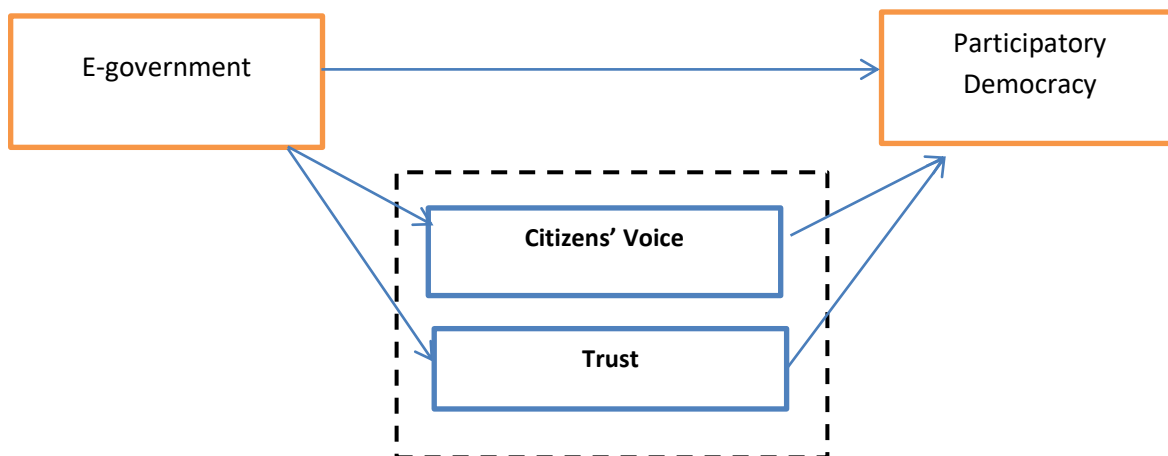
Figure 4: Mediating effect of Citizens' voice and Trust

3.3.2 Trust

Trust is a social construct (Fukuyama, 1994). It is not behaviour but as Lusher, Robins, Pattison, & Lomi, A. (2012) argue, it is a psychological condition which permits the different individuals or groups to collaborate. It therefore enables spontaneous collaboration between citizens and institutions on the basis of shared values.

Indeed, it requires from the trust giver to risk and assume vulnerability toward the trust taker who is supposed to act in a fair and honourable way whatever the situations. Trust therefore establishes dependence relationship between the actors which eventually turns it into a co-developed asset.

There are many forms of trust, but inter-organizational trust, interpersonal trust, and institutional trust are the most common. Interpersonal trust is built on two normative dimensions: the other actor's dignity and fairness, and then his benevolence (Abbes and Perrin, 2005).

Institutional trust, also known as political trust, exists within a specific social framework. People choose to uphold the collective's moral and social constructs. They get relieved from moral worries because of this trust (Villena, Choi, & Revilla, 2019).

Inter-organizational trust is based on principles similar to interpersonal trust principles. The difference is that the first is established between organizations.

Although the types of trust are numerous and widely debated in the literature, the trust that we link with e-government and participatory democracy is the Institutional trust.

External relationships, rather than one's own psychological state, influence one's ability to trust (Tan & Sutherland, 2004). In addition, institutional trust, as described by Zucker (1986) is an individual's view of institutional environments such as structure, policy, law, or systems/technology resources that can make the environment trustworthy.

Using Colquitt et al. (2007)'s trust concept, institutional trust can be interpreted as the willingness to admit vulnerability to institutional environments such as policy, laws, or systems/technology resources.

To be more specific, institutional trust in the sense of e-government is described as the willingness to consider vulnerability in e-government systems/services.

Combining the previous lines, the provision of services through Internet gives citizens freedom to search for information according to their convenience, without the limitations of opening hours to the public and the interactivity improves service delivery and responsiveness to customer demands. Citizens, generate greater trust in the Administration (West, 2004).

According to Volodin, (2019) it is vital for hybrid systems to enhance the level of political trust, since this can leads the people to embrace democratic principles. He argues that a political system can lose its legitimacy if the political trust

declines, whereas in a democratic environment, citizens' political trust in political institutions provides public space, which can inspire political actors to make more innovative policy choices.

According to Warren (2018), democracy ought to benefit from trust and protect it and build upon it since it broadens the scope of self-rule sphere (Uslaner, 2018: 75).

According to Letki (2004), citizens are more inclined to involve in politics if they develop a high degree of trust. There is a lot of support in the literature that the propensity to trust others is strongly linked to political participation.

Scholars believe that there is an overflowing impact, in which citizens who develop high level of trust become more politically active (Keele, 2007; Rothstein and Uslaner, 2005).

Although it may vary from a country to another, considering the type of regime and the freedom that citizens enjoy, Kim, (2014) argues that the individual who enjoys high level of social and/or political trust is better suited and more inclined to get involved in political actions such as voting , boycotting products, signing petitions or joining legal protests.

Considering the above, we suggest the following hypothesis:

H7: E-government has an indirect positive effect on participatory democracy through increasing Trust.

CHAPTER 4
SAMPLING AND METHODS

4.1 Research design, sampling and measurement

This study attempts to explore the role of government in enabling citizens' direct participation through e-government in the Maghreb. For this purpose, a quantitative approach was adopted to examine the relationship between the variables included in the research model.

A five-point Likert-scale questionnaire (varying from "Strongly disagree" to "Strongly Agree") was designed and administered to individuals in the three countries (Algeria, Morocco and Tunisia).

The questionnaire is a suitable method to assess the motivations, attitudes, and behaviours of vast groups of people. As a result, our model will be examined by a questionnaire. This kind of method analysis is one of the most important types of assessment used in social science research.

According to Straub (1989) three types of validation are required to improve the empirical research: instrument validation, internal validity and statistical conclusion validity.

Statistical conclusion validity is left to the results chapter. Whereas the risks of internal validity have been lessened by reviewing the literature in order to understand and spot the possibility of an existing relationships between the variables in our research model.

Instrument validity according to Straub (1989) is composed of three essential validities, which are Content Validity, Construct Validity and Reliability.

To optimize instrument validity, we will go through two stages. At the first stage, a panel of experts evaluated the questionnaire. At the second stage, a pre-test was conducted to ascertain the survey's reliability before it's distributed.

Due to the nature of our study, a non-probability, judgement sampling method was adopted to focus on a population with a specific knowledge and expertise of the process being studied, which is e-government and participatory democracy.

The term Judgement Sampling was used by Deming in his book *Some Theory of Sampling* in 1950 and before that in 1947 in the Journal of Marketing1. This term was introduced to oppose the probability sampling method in the context of surveys.

The questionnaire was distributed to the respondents face-to-face and 702 responses were collected.

4.2 Operationalization the constructs

The content of our questionnaire is shown in the appendices. Our Constructs Operationalization is based on the literature as the following.

E-government: we have adopted e-govQual developed by Papadomichelaki & Mentzas (2012) for e-administration and e-service dimensions , whereas a measurement of the e-democracy dimension was developed based on the citizens web-based political Involvement Indicators of Scott (2006).

E-govQual covers four dimensions which are: efficiency, privacy and security, reliability, and citizens' support.

 Efficiency dimension is measured using five items asking about the clarity and easiness use of government websites, customization of government websites

toward individual users' needs, details of The information on government websites, and freshness and adequacy information displayed on government websites.

Privacy and security dimension is measured using 4 items asking about security of username and password acquisition in government websites, data provided for authentication , securely of archiving and use of provided data.

Reliability dimension is measured using 5 items asking about permanent availability and accessibility of government websites, timely services provision, technical problems, availability of downloadable forms, and successful services upon the first request on government websites.

Citizen support dimension is measured using four items asking about responsiveness and problem solving sincere interest of employees, knowledge adequacy of employees, availability of contact centres to communicate with citizens, and ability of employees to install trust and confidence.

E-democracy dimension is measured using five items asking about availability of information about elected officials and information to reach them, possibility for direct access government official notices and records, availability of e-comment forms, availability of information and links of civic organizations, and availability of online chat or discussion rooms.

Participatory democracy: we have adapted the V-Dem participatory survey developed by Fuchs & Roller (2018) considering the electoral and non-electoral dimensions of participatory democracy.

Electoral dimension of participatory democracy is measured using seven items asking about responsiveness of rulers to citizens, freedom of activity for civil society and political organization, legitimacy of elections, freedom of electing, competitiveness of elections, and the effect of elections on the chief executive composition.

None-electoral dimension of participatory democracy is measured using five items asking about non-centrality of legislative candidate selection within parties, women encouragement to involve in civil society organizations, equality between men and women, people involvement in civil society organizations, and the ability of people to change laws in referendums.

E-participation satisfaction: we have adopted Soonhee Kim et., al (2012) measurement using five items asking about user's impression about his experience using government websites regarding easiness of content searching, availability of effective functions to answer user's questions, the good design of website and content structure, content-rich services availability, and the possibility to submit ideas and get feedback.

Corruption control: we have adapted from Charron, Lapuente, & Annoni (2019) and considered respondents' perceptions and experience regarding the corruption phenomenon in their countries.

Respondents' perceptions regarding corruption is measured using seven items asking about need corruption (when citizens engage in corruption to receive services that they are entitled to) and greed corruption (when citizens engage in corruption to receive extra advantages), clean elections, difficulties to enforce Law due to administrative corruption or interference, position abuse and legal consequences, and role of ICT preventing position abuse.

Respondents' experience was explored using three items asking about frequency of being asked to pay a bribe, being obliged to pay a bribe, and general complaining about the corruption among the surrounding of the participants.

Transparency: we have adopted the measurement from Soonhee Kim & Lee (2012) using four items asking about respondents judgment regarding governments' online services in terms of increased transparency, reduction of

Public employees' engagement in corruption, providing the citizens equal opportunities to participate in the rulemaking process,

Government Accountability: we have adopted the measurement of Said, Alam, & Aziz (2015) using six items asking about whether the government: supports the process of learning from mistakes and successes and consider external views for improvement, has a regular reporting system on the achievements and results of programs or projects against objectives, recognizes the responsibilities of the organization toward its community, society, and the environment, follows treasury rules and regulations in all circumstances, ensures proper usage of funds in an authorized manner, provides higher responsibility to employees to become highly efficient and effective

Citizens' voice: we have Adopted a measurement from World Bank Group, Kaufmann, Kraay, & Mastruzzi (2010) (Voice and Accountability Index VAI) using four items asking whether the citizens: are able to participate in selecting their government, enjoy freedom of expression, enjoy freedom of association, enjoy free media.

Trust: we have Adopted a measurement from Colesca (2009) using four items asking whether the respondents: trust their government agencies, think that their governments agencies keep citizens' best interests in mind, think their governments agencies to be trustworthy, believe that trust in a governmental agency increases once with its reputation.

Abbreviations of the constructs are shown in table 5.1.

Table 4.1: Constructs abbreviations

Construct Name	Abbreviation
E-government	E_gov
Participatory Democracy	Part_dem
E-participation Satisfaction	E_part
Corruption control	Crptnctrl
Transparency	Tran
Government Accountability	Gov_acc
Citizens' voice	Ctzn_V
Trust	Trust

The content of the questionnaire is shown Appendix A. Five professors evaluated the preliminary version of the questionnaire. Seven professors with field knowledge participated in the evaluation of the final version of the questionnaire, the translation from English to Arabic, and terms familiarization. All referees decided that the questionnaire is a fair measurement.

4.3 Pre-test

To qualitatively evaluate all validities, a pre-test was used as a draft tool. It is a step in which we revise the substance of our survey in general. The pre-test is used to assess the questionnaire's reliability and find there are any incorrectly worded statements in the draft version.

Ten people who have the same traits as the target audience helped by answering the questionnaire and reporting their thoughts and opinions. After five participants provided input on items that were not very clear or were not well-worded, the survey was updated.

As a result, the survey was updated based on their comments, and the same procedure was followed until the other five participants returned their evaluations. The survey could take 10 to 15 minutes to complete.

4.4 Statistical measurement of data

Statistical analyses for accepting and validating the questionnaire and in the main study for hypotheses testing are as well performed using SPSS version 25.0.

To assess the questionnaire's scales reliability, Cronbach's α is used. If α value is greater than 0.7 then according to Guilford (1965), reliability is adequate. Regression analysis is used statistic method to analyse our research model.

CHAPTER 5
RESULTS

The responses and findings of the survey are presented and analysed in this chapter. We use SPSS version 25.0 to summarize and analyse demographics and descriptive statistics of the respondents' answers. The results of the research's hypotheses testing, as well as the reliability and validity assessments, are delivered.

5.1 Data descriptions

5.1.1 Demographic characteristics of the sample

A total of 900 questionnaires were distributed and 702 responses were collected across the three countries: 250 in Algeria, 232 in Morocco, and 220 in Tunisia. The following Table 5.1, table 5.2 table 5.3, and table 5.4 summarize the demographic characteristics of our sample in the three countries.

In the following table 5.1, we present respondents' ages in the three countries. Age categories were divided into six categories.

Table 5.1: Distribution of participants from the three countries according to age categories

AGE	ALGERIA	MOROCCO	TUNISIA	TOTAL	%
18-25	30	32	16	78	11%
26-30	32	76	63	171	24%
31-35	65	65	69	199	28%
36-40	37	37	39	113	16%
41-50	37	6	20	63	9%
51-60	49	16	13	78	11%

68% of the respondents are aged between 26 and 40 years old. 12% of Algerian respondents are aged between 18-25 compared to 13.79% of Moroccan respondents and 7.27% of Tunisian respondents in the same age category.

For the respondents aged between 26 and 30 years old, we find that Algerian respondents are 12.8% whereas Moroccan respondents are 32.75% and Tunisian respondents are 28.63%.

The age category that has the highest number of participants is the third category whose participants' age is between 31 and 35 years with 199 respondents out of 702 which is 28% in total. Algerian respondents in this category represent 26% of the total of 250 collected responses from Algeria, whereas Moroccans are 28% and Tunisians are 31.36%.

14.8% of Algerian respondents are aged between 36 and 40 years old. In the same category among Moroccan respondents is 15.94% and among Tunisian respondents is 17.72%. The fourth age category is aged between 41 to 50 in which Algerian respondents represent 14.8% of Algerian responses, while the same category represents 2.6% among Moroccan respondents and 9.09% among Tunisian respondents.

Since we have not received any answer from respondents aged more than 60 years old, the last category is aged between 51 and 60 years old. Algerian respondents in this category represent 19.6% of Algerian participants whereas Moroccan respondents are 6.89% and Tunisian respondents are 5.90%.

In the following table 5.2, we present respondents' gender in the three countries.

Table 5.2 : Distribution of participants from the three countries according to gender

GENDER	ALGERIA	MOROCCO	TUNISIA	TOTAL	%
FEMALE	120	104	95	319	45%
MALE	130	128	125	383	55%

The number of respondents in the questionnaire of both genders is close, with 45% for females, and 55% for males in total. In Algeria, female respondents represent 48% whereas in Morocco female respondents were 44.82% and 43.18 in Tunisia.

In the following table 5.3, we present respondents' level of education in the three countries.

Table 5.3: Distribution of participants from the three countries according to academic level

EDUCATION	ALGERIA	MOROCCO	TUNISIA	TOTAL	%
BACHELOR'S	114	120	104	338	48%
MASTER'S	98	75	81	254	36%
PHD	38	37	35	110	16%

52% of total participants have pursued postgraduate studies. The numbers in the three countries are approximately the same. For Algerian participants, 39.2% have Master's degrees while 15% have PhD degrees. For Moroccan participants, 32.32% have Master's degrees while 15.94% have PhD degrees.

For Tunisian participants, 36.81% have Master's degrees while 15.90% have PhD degrees.

In the following table 5.4, we present respondents' professional background in the three countries.

Table 5.4: Distribution of participants from the three countries according to profession categories background

CATEGORIES	ALGERIA	MOROCCO	TUNISIA	TOTAL	%
EXPERTS (ICT, MEDIA, ACADEMICIANS)	39	37	38	114	16%
GOVERNMENT OFFICERS	45	38	34	117	17%
LAWMEN	40	36	32	108	15%
NGO	39	40	38	117	17%
POLITICAL PARTIES	41	38	42	121	17%
PUBLIC ADMINISTRATORS	46	43	36	125	18%

The first category is experts with a percentage of 16% among all participants. This category includes ICT experts, Media professionals and journalists, and Academicians. This category represents 15.6% among Algerian participants, 15.94% among Moroccan participants and 17.27% among Tunisian participants.

The second category is Government officers with a percentage of 17% among all participants. This category includes officers from central and local governments with higher positions in different ministries. This category represents 18% among Algerian participants, 19.56% among Moroccan participants and 15.45% among Tunisian participants.

The third category is Lawmen with a percentage of 15% among all participants. This category includes law experts among Lawyers and Judges. This category represents 16% among Algerian participants, 15.51% among Moroccan participants and 14.54% among Tunisian participants.

The fourth category is NGO activists with a percentage of 17% among all participants. This category includes different non-governmental and civil society organizations operating on local and national level. This category represents 15.6% among Algerian participants, 17.24% among Moroccan participants and 17.27% among Tunisian participants.

The fifth category is Political parties with a percentage of 17% among all participants. This category includes elected deputies (Local and central governments) and heads of local and regional branches. This category represents 16.4 % among Algerian participants, 16.37% among Moroccan participants and 19.9% among Tunisian participants.

The last category is public administrators with a percentage of 18% among all participants. This category is the first line citizens face in regard to e-government services. This category represents 18.4% among Algerian participants, 18.53% among Moroccan participants and 16.36% among Tunisian participants.

5.1.2 The result of participants' responses to the questionnaire items

All constructs are measured using five point Likert-scale and the participants rate the items from strongly disagree to strongly agree. In this part, we present the results of participants' responses in the Maghreb in a table for each variable followed by a detailed reading of each country results. Detailed results of countries are shown in Appendix C.

A) E-government

The following table 5.5 summarizes the results of participants' responses on E-government measurement items in the Maghreb

Table 5.5 : The responses on E-government measurement items in the Maghreb

Dimension	Item	SD	D	N	A	SA	∑	Mean	St.D
Efficiency	**E-gov1**	33	58	242	311	58	702	3.43	0,93
	E-gov2	61	96	283	218	44	702	3.13	1,01
	E-gov3	36	62	221	317	66	702	3.45	0,96
	E-gov4	30	56	215	329	72	702	3.51	0,90
	E-gov5	55	90	277	230	50	702	3.19	1,01
Privacy and security	**E-gov6**	62	74	87	262	217	702	3.71	1,25
	E-gov7	53	65	90	272	222	702	3.78	1,17
	E-gov8	47	78	120	198	259	702	3.77	1,24
	E-gov9	40	68	113	251	230	702	3.8	1,20
Reliability	**E-gov10**	66	81	108	233	214	702	3.64	1,28
	E-gov11	139	241	223	58	41	702	2.46	1,08
	E-gov12	54	69	120	257	202	702	3.69	1,30
	E-gov13	57	70	113	243	219	702	3.71	1,26
	E-gov14	126	254	213	72	37	702	2.49	1,08
Citizen Support	**E-gov15**	134	231	253	55	29	702	2.45	1,02
	E-gov16	84	120	278	185	35	702	2.95	1,05
	E-gov17	70	115	268	204	45	702	3.06	1,01
	E-gov18	117	274	236	50	25	702	2.42	1,08
E-democracy	**E-gov19**	64	112	199	271	56	702	3.2	1,09
	E-gov20	68	105	211	264	54	702	3.19	1,09
	E-gov21	89	102	144	287	80	702	3.24	1,21
	E-gov22	164	244	217	48	29	702	2.34	1,04
	E-gov23	87	47	201	224	143	702	3.41	1,24

E-government is measured by egovQual that covers four dimensions in addition to e-democracy dimension

Efficiency

In terms of efficiency, Tunisia stands out compared to Algeria and Morocco.

1- 52.56% of the respondents at least agree that government websites structure in the Maghreb is clear and easy to follow while 34.47% are neutral. Only 12.96% disagree.

In Algeria , 29.60 % of the respondents at least agree that government websites structure is clear and easy to follow while 40.80% are neutral. 29.60% disagree. In Morocco, 56.47% of the respondents at least agree that government websites structure is clear and easy to follow while 37.07% are neutral. Only 6.47% disagree. In Tunisia 74.55% of the respondents at least agree that government websites structure is clear and easy to follow while 24.55% are neutral. Only less than 1% disagrees.

2- 37.32% of the respondents agree that government websites in the Maghreb are well customized to individual users' needs, whereas 40.31% are neutral. Only 22.36% disagree.

In Algeria, 25.20 % agree that government websites are well customized to individual users' needs, whereas 38% are neutral. 36.8% disagree. In Morocco, 32.33% agree that government websites are well customized to individual users' needs, whereas 41.81% are neutral. 25.86% disagree. In Tunisia, 56.36% agree that government websites are well customized to individual users' needs, whereas 41.36% are neutral. Only 2.27% disagree.

3- 54.56% of the respondents agree that the information displayed in government websites in the Maghreb is appropriately detailed while 31.48% are neutral. Only 13.96% disagree.

In Algeria, 34.80% of the respondents agree that the information displayed in government websites is appropriately detailed while 33.60% are neutral. Only 31.60% disagree. In Morocco, 56.90% of the respondents agree that the information displayed in government websites is appropriately detailed while 35.78% are neutral. Only 7.33% disagree. In Tunisia, 74.55% of the respondents agree that the information displayed in government websites is appropriately detailed while 24.55% are neutral.

4- 57.12% of the respondents agree that the information displayed in government websites in the Maghreb is fresh, while 30.61% are neutral. Only 12.25% disagree.

In Algeria, 38% of the respondents agree that the information displayed in government websites is fresh, while 32.80% are neutral. 29.20% disagree. In Morocco, 59.48% of the respondents agree that the information displayed in government websites in the Maghreb is fresh, while 34.91% are neutral. Only 5.60% disagree. In Tunisia, 76.36% of the respondents agree that the information displayed in government websites in the Maghreb is fresh, while 23.64% are neutral.

5- 39.89 % of the respondents agree that information about field's completion in government websites in the Maghreb is enough while 39.46 % are neutral. Only 20.66 % disagree.

In Algeria, 27.60 % of the respondents agree that information about field's completion in government websites is enough while 37.20 % are neutral. 35.20% disagree. In Morocco, 34.91% of the respondents agree that information about field's completion in government websites is enough while 40.95 % are neutral. 24.14% disagree. In Tunisia, 59.09 % of the respondents agree that information about field's completion in government websites is enough while 40.45 % are neutral.

Privacy and security

1- 68.23% of the respondents agree that acquisition of username and password in government websites in the Maghreb is secure while 12.39% are neutral. Only 19.37% disagree.

In Algeria, 46% of the respondents agree that acquisition of username and password in government websites is secure while 20% are neutral. 34% disagree. In Morocco, 64.66% of the respondents agree that acquisition of username and password in government websites is secure while 13.79% are neutral. Only 21.55% disagree. In Tunisia, 97.27% of the respondents agree that acquisition of username and password in government websites is secure.

2- 60.37% of the respondents agree that only necessary personal data are provided for authentication on e-government websites in the Maghreb while 12.82% are neutral. Only 16.81% disagree.

In Algeria, 50% of the respondents agree that only necessary personal data are provided for authentication on e-government websites while 20.80% are neutral. 29.20% disagree. In Morocco, 64.81% of the respondents agree that only necessary personal data are provided for authentication on e-government websites while 14.22% are neutral. 18.97% disagree. In Tunisia, 97% of the respondents agree that only necessary personal data are provided for authentication on e-government websites.

3- 65.10% of the respondents agree that data provided by users in government websites in the Maghreb is archived securely while 17.09% are neutral. Only 17.81% disagree.

In Algeria, 40.40% of the respondents believe that data provided by users in government websites is archived securely while 29.60% are neutral. 30% disagree. In Morocco, 59.91% of the respondents believe that data provided by users in government websites is archived securely while 18.97% are neutral.

21.12% disagree. In Tunisia, more than 98% of the respondents believe that data provided by users in government websites is archived securely.

4- 68.52% of the respondents agree that data provided in government websites are used only for the reason submitted while 16.10% are neutral. Only 15.38% disagree.

In Algeria, 46.80% of the respondents agree that data provided in government websites are used only for the reason submitted while 28% are neutral. 25.20% disagree. In Morocco, 63.36% of the respondents agree that data provided in government websites are used only for the reason submitted while 17.67% are neutral. Only 18.97% disagree. In Tunisia, nearly 99% of the respondents agree that data provided in government websites are used only for the reason submitted.

Reliability

1- 63.68% of the respondents agree that government websites are available and accessible whenever you need it while 15.38% are neutral. Only 20.94% disagree.

In Algeria, 10- 40.80% of the respondents agree that government websites are available and accessible whenever you need it while 23.20% are neutral. 36% disagree. In Morocco, 56.47% of the respondents agree that government websites are available and accessible whenever you need it while 19.40% are neutral. 24.14% disagree. In Tunisia, nearly 98% of the respondents agree that government websites are available and accessible whenever you need it.

2- 54.13% of the respondents disagree that government websites in the Maghreb provides services in time while 31.77% are neutral. Only 14.10% agree.

In Algeria, 47.20% of the respondents disagree that government provides services in time while 25.20% are neutral. Only 40.80% agree. In Morocco,

60.34% of the respondents disagree that   government websites provides services in time while 28.02% are neutral. Only 11.64% agree. In Tunisia, 54.13% of the respondents disagree that government websites provides services in time while 31.77% are neutral. Only 14.10% agree.

3- 65.38% of the respondents agree that   government websites in the Maghreb never witness technical problems while 17.09% are neutral. Only 17.52% disagree.

In Algeria, 44.40% of the respondents agree that   government websites never witness technical problems while 26.80% are neutral. 28.80% disagree. In Morocco, 57.76% of the respondents agree that government websites never witness technical problems while 20.69% are neutral. 21.55% disagree. In Tunisia, 97.27% of the respondents agree that   government websites never witness technical problems.

4- 65.81% of the respondents agree that   forms in government websites in the Maghreb are downloaded in short time while 16.10% are neutral. Only 18.09% disagree.

In Algeria, 44.80% of the respondents agree that forms in government websites are downloaded in short time while 24.80% are neutral. Only 30.80% disagree. In Morocco, 58.62% of the respondents agree that forms in government websites are downloaded in short time while 19.83% are neutral. Only 21.55% disagree. In Tunisia, 97% of the respondents agree that forms in government websites are downloaded in short time.

5- 54.13% of the respondents **disagree** that government websites in the Maghreb perform their services successfully upon first request while 30.34% are neutral. Only 15.53% agree.

In Algeria, 47.20% of the respondents **disagree** that government websites perform their services successfully upon first request while 23.20% are neutral.

Only 29.60% agree. In Morocco, 60.34% of the respondents **disagree** that government websites perform their services successfully upon first request while 27.16% are neutral. Only 15.53% agree. In Tunisia, 12.50% of the respondents **disagree** that government websites perform their services successfully upon first request while 30.34% are neutral. Only 15.53% agree.

Citizen Support

1- 51.99% of the respondents **disagree** that employees in public administrations in the Maghreb are responsive and show a sincere interest in solving users' problem and inquiries while 36.04% are neutral. Only 11.97% agree.

In Algeria, 56.40% of the respondents **disagree** that employees in public administrations are responsive and show a sincere interest in solving users' problem and inquiries while 21.60% are neutral. 22% agree. In morocco, 52.16% of the respondents **disagree** that employees in public administrations are responsive and show a sincere interest in solving users' problem and inquiries while 37.07% are neutral. Only 10.78% agree. In Tunisia, 46.82% of the respondents disagree that employees in public administrations are responsive and show a sincere interest in solving users' problem and inquiries while 51.36% are neutral.

2- 31.34% of the respondents agree that employees in public administrations in -the Maghreb have the adequate knowledge to answer users' questions while 39.60% are neutral. 29.06% disagree.

In Algeria, 25% of the respondents agree that employees in public administrations have the adequate knowledge to answer users' questions while 25% are neutral. Whereas half of the respondents disagree. In Morocco, 29.74% of the respondents agree that employees in public administrations have the adequate knowledge to answer users' questions while 40.5% are neutral. 29.74% disagree. In Tunisia, 40% of the respondents agree that employees in

public administrations have the adequate knowledge to answer users' questions while 55% are neutral. 5% disagree.

3- 35.47% of the respondents agree that local governments in the Maghreb have set up a contact centres to communicate with citizens while 38.18% are neutral. 26.35% disagree.

In Algeria, 33.20% of the respondents agree that local governments have set up a contact centres to communicate with citizens while 22.40% are neutral. 44.40% disagree. In Morocco, 33.62% of the respondents agree that local governments have set up a contact centres to communicate with citizens while 39.22% are neutral. 27.16% disagree. In Tunisia, 40% of the respondents agree that local governments have set up a contact centres to communicate with citizens while 55% are neutral. 5% disagree.

4- 55.70% of the respondents **disagree** that employees in public administrations in the Maghreb have the ability to convey trust and confidence while 33.62% are neutral. Only 10.68% agree.

In Algeria, 63.60% of the respondents **disagree** that employees in public administrations have the ability to convey trust and confidence while 16.80% are neutral. Only 19.60% agree. In Morocco, 55.60% of the respondents **disagree** that employees in public administrations have the ability to convey trust and confidence while 34.91% are neutral. Only 9.48% agree. In Tunisia, 46.82% of the respondents **disagree** that employees in public administrations have the ability to convey trust and confidence while 51.36% are neutral. Only less than 2% agree.

E-democracy

1- 46.58% of the respondents agree that government websites provide information about and communication with elected officials while 28.35% are neutral. Only 25.07% disagree.

In Algeria, 28.80 % of the respondents agree that government websites provide information about and communication with elected officials while 32% are neutral. 39.20% disagree. In Morocco, 45.26 % of the respondents agree that government websites provide information about and communication with elected officials while 23.71% are neutral. 31.03% disagree. In Tunisia, 68.18% of the respondents agree that government websites provide information about and communication with elected officials while 29.09% are neutral. Only 2.73% disagree.

2- 35.60% of the respondents agree that   e-government allows direct access to official government notices and records while 24% are neutral. 40% disagree.

In Algeria, 45.30% of the respondents agree that e-government allows direct access to official government notices and records while 30.06% are neutral. 24.64% disagree. In Morocco, 34.48% of the respondents agree that e-government allows direct access to official government notices and records while 35.34% are neutral. 30.17% disagree. In Tunisia, 67.73% of the respondents agree that e-government allows direct access to official government notices and records while 31.36% are neutral.

3- 52.28% of the respondents agree that   e-comment forms are available on e-government websites and social media while 20.51% are neutral. 27.21% disagree.

In Algeria, 29.60% of the respondents agree that e-comment forms are available on e-government websites and social media while 27.60% are neutral. 42.80% disagree. In Morocco, 46.55% of the respondents agree that e-comment forms are available on e-government websites and social media while 18.97% are neutral. 34.48% disagree. In Tunisia, 84.09% of the respondents agree that   e-comment forms are available on e-government websites and social media while 14.09% are neutral.

4- 58.12% of the respondents **disagree** that links to other local civic organizations are available and indexed on governmental websites while 30.91%bare neutral. Only 10.97% agree.

In Algeria, 56% of the respondents **disagree** that links to other local civic organizations are available and indexed on governmental websites while 28 % are neutral. Only 16% agree. In Morocco, 63.36% of the respondents **disagree** that   links to other local civic organizations are available and indexed on governmental websites while 26.29%bare neutral. Only 10.34% agree. In Tunisia, 55% of the respondents **disagree** that   links to other local civic organizations are available and indexed on governmental websites while 39.09%bare neutral. Only 5.91% agree.

5- 52.28% of the respondents agree that online issue chat rooms or discussion forums while 28.63% are neutral. Only 19.09% disagree.

In Algeria, 50.80% of the respondents agree that online issue chat rooms or discussion forums while 18.40% are neutral. Only 30.80% disagree. In Morocco, 49.14% of the respondents agree that online issue chat rooms or discussion forums while 28.45% are neutral. Only 22.41% disagree. In Tunisia, 57.27% of the respondents agree that online issue chat rooms or discussion forums while 40.45% are neutral. Only 2.27% disagree.

Overall, e-government in the Maghreb still needs enhancements on the five dimensions whose results were presented. While Algeria seems to be struggling to deliver better e-government services, Morocco and Tunisia seem to be heading in the right direction. Still Tunisia, by numbers stands out as a regional leader.

B) Participatory democracy

The following table 6.6 shows results of participants responses on participatory democracy variable.

Table 5.6: The responses on Participatory democracy measurement items in the Maghreb

Dimension	Item	SD	D	N	A	SA	∑	Mean	St.D
Electoral	**Part-Dem1**	102	131	308	128	33	702	2.8	1,05
	Part-Dem2	87	97	94	279	145	702	3.42	1,30
	Part-Dem3	167	55	106	273	101	702	3.12	1,41
	Part-Dem4	157	45	90	299	111	702	3.23	1,41
	Part-Dem5	80	88	100	289	145	702	3.47	1,30
	Part-Dem6	112	141	278	136	35	702	2.77	1,05
	Part-Dem7	158	61	100	278	105	702	3.16	1,41
	Part-Dem8	165	131	286	76	44	702	2.58	1,14
	Part-Dem9	40	66	165	316	115	702	3.57	1,05
Non-Electoral	**Part-Dem10**	63	65	87	237	250	702	3.78	1,27
	Part-Dem11	44	136	336	130	56	702	3.03	0,97
	Part-Dem12	297	172	100	74	59	702	2.18	1,31

Participatory democracy items are divided into two dimensions, electoral and non-electoral

Electoral dimension

1- 22.93% of the respondents at least agree that rulers are responsive to citizens while 43.87% are neutral. 33.19% disagree.

In Algeria, 24.80% of the respondents at least agree that rulers are responsive to citizens while 27.20% are neutral. 48% disagree. In Morocco, 22.84% of the respondents at least agree that rulers are responsive to citizens while 34.05% are neutral. 43.10% disagree. In Tunisia, 20.91% of the respondents at least agree that rulers are responsive to citizens while 73.18% are neutral. 5.91% disagree.

2- 60.40% of the respondents at least agree that political and civil society organizations can operate freely while 13.39% are neutral. 26.21% disagree.

In Algeria, 34% of the respondents at least agree that political and civil society organizations can operate freely while 21.60% are neutral. 44.40% disagree. In Morocco, 54.31% of the respondents at least agree that political and civil society organizations can operate freely while 15.95% are neutral. 29.27% disagree. In Tunisia, nearly 97% of the respondents at least agree that political and civil society organizations can operate freely.

3- 53.28% of the respondents at least agree that elections are clean and not marred by fraud or systematic irregularities while 15.10% are neutral. 31.62% disagree.

In Algeria, 29.60% of the respondents at least agree that elections are clean and not marred by fraud or systematic irregularities while 16% are neutral. 54.40% disagree. In Morocco, half of the respondents at least agree that elections are clean and not marred by fraud or systematic irregularities while 15.22% are neutral. 35.78% disagree. In Tunisia, 83.64% of the respondents at least agree that elections are clean and not marred by fraud or systematic irregularities while 15 % are neutral.

4- 58.40% of the respondents at least agree that people choose their leaders in free elections while 12.82% are neutral. 28.77% disagree.

In Algeria, 39.60% of the respondents at least agree that people choose their leaders in free elections while 11.60% are neutral. 48.80% disagree.In Morocco, 54.74% of the respondents at least agree that people choose their leaders in free elections while 12.07% are neutral. 33.19% disagree. In Tunisia, 83.64% of the respondents at least agree that people choose their leaders in free elections while 15% are neutral.

5- 61.82% of the respondents at least agree that electoral competition for the electorate's approval under circumstances when suffrage is extensive while 14.25% are neutral. 23.93% disagree.

In Algeria, 36.80% of the respondents at least agree that electoral competition for the electorate's approval under circumstances when suffrage is extensive while 23.20% are neutral. 40% disagree. In Morocco, 55.60% of the respondents at least agree that electoral competition for the electorate's approval under circumstances when suffrage is extensive while 16.80% are neutral. 27.59% disagree. In Tunisia, 96.82% of the respondents at least agree that electoral competition for the electorate's approval under circumstances when suffrage is extensive.

6- 24.36% of the respondents at least agree that elections affect the composition of the chief executive of the country while 39.60% are neutral. 36.04% disagree.

In Algeria, 26% of the respondents at least agree that elections affect the composition of the chief executive of the country while 22.80% are neutral. 51.20% disagree. In Morocco, 24.14% of the respondents at least agree that elections affect the composition of the chief executive of the country while 30.17% are neutral. 54.69% disagree. In Tunisia, 22.73% of the respondents at least agree that elections affect the composition of the chief executive of the country while 68.64% are neutral. 8.64% disagree.

7- 54.56% of the respondents at least agree that in between elections, there is freedom of expression and an independent media capable of presenting alternative views on matters of political relevance while 14.25% are neutral and 31.20% disagree.

In Algeria, 32% of the respondents at least agree that in between elections, there is freedom of expression and an independent media capable of presenting alternative views on matters of political relevance while 14.40% are neutral and 53.60% disagree. In Morocco, 51.29% of the respondents at least agree that in between elections, there is freedom of expression and an independent media capable of presenting alternative views on matters of political relevance while 13.36% are neutral and 35.34% disagree. In Tunisia, 83.64% of the respondents at least agree that in between elections, there is freedom of expression and an independent media capable of presenting alternative views on matters of political relevance while 15% are neutral.

Non-Electoral Dimension

1- 42.17% of the respondents at least disagree that   Legislative candidate selection within the parties is NOT centralized while 40.74% are neutral. Only 17.09% agree.

In Algeria, 58% of the respondents at least **disagree** that   Legislative candidate selection within the parties is NOT centralized while 24% are neutral. Only 18% agree. In Morocco, 38.79% of the respondents at least disagree that Legislative candidate selection within the parties is NOT centralized while 39.22% are neutral. Only 21.98% agree. In Tunisia, 27.73% of the respondents at least disagree that   Legislative candidate selection within the parties is NOT centralized while 61.36% are neutral. Only 10.91% agree.

2- 61.40% of the respondents at least agree that   Women are encouraged to participate in civil society organizations (CSOs) while 23.50% are neutral. Only 15.10 % disagree.

In Algeria, 46% of the respondents at least agree that   Women are encouraged to participate in civil society organizations (CSOs) while 26% are neutral. Only 28 % disagree. In Morocco, 60.34% of the respondents at least agree that Women are encouraged to participate in civil society organizations (CSOs) while 25% are neutral. Only 14.66% disagree. In Tunisia, 80% of the respondents at least agree that   Women are encouraged to participate in civil society organizations (CSOs) while 19.09% are neutral.

3- 69.37% of the respondents at least agree that   Women have the same rights as men while 12.39% are neutral. Only 18.23% disagree.

In Algeria, 46.40% of the respondents at least agree that   Women have the same rights as men while 20.80% are neutral. Only32.80% disagree. In Morocco, 66.38% of the respondents at least agree that Women have the same rights as men while 14.66% are neutral. Only 18.97% disagree. In Tunisia, 98.64% of the respondents at least agree that   Women have the same rights as men.

4- 26.50% of the respondents at least agree that   people are involved in civil society organizations (CSOs) while 47.86% are neutral and 25.64% disagree.

In Algeria, 36.40% of the respondents at least agree that   people are involved in civil society organizations (CSOs) while 32% are neutral and 31.60% disagree. In Morocco, 24.57% of the respondents at least agree that   people are involved in civil society organizations (CSOs) while 45.26% are neutral and 30.17% disagree. In Tunisia, 17.27% of the respondents at least agree that   people are involved in civil society organizations (CSOs) while 68.64% are neutral and 14.09% disagree.

5- 66.81% of the respondents at least **disagree** that people can change the laws in referendums while 14.25% are neutral. Only 18.95% agree.

In Algeria, 440% of the respondents at least disagree that people can change the laws in referendums while 22.40% are neutral. 33.6% agree. In Morocco, 66.81% of the respondents at least disagree that people can change the laws in referendums while 13.36% are neutral. Only 19.83% agree. In Tunisia, 92.73% of the respondents at least disagree that people can change the laws in referendums while 5.91% are neutral.

C) E-participation satisfaction

Table 5.7: The responses on E-participation satisfaction measurement items in the Maghreb

Item	SD	D	N	A	SA	Σ	Mean	St.D
E-part1	72	110	215	252	53	702	3,15	1,10
E-part2	94	106	152	275	75	702	3,19	1,21
E-part3	79	89	269	229	36	702	3,08	1,05
E-part4	69	116	147	288	82	702	3,28	1,21
E-part5	106	234	234	92	36	702	2,60	1,03

1- 43.45%of the respondents at least agree that Government websites are easy to search for content while 30.63% are neutral and 25.93% disagree.

In Algeria, 31.60%of the respondents at least agree that Government websites are easy to search for content while 24.40% are neutral and 44% disagree. In Morocco, 33.19%of the respondents at least agree that Government websites are easy to search for content while 36.64% are neutral and 30.17% disagree. In Tunisia 67.30%of the respondents at least agree that Government websites are easy to search for content while 31.36% are neutral and only 0.91% disagree.

2- 49.86% of the respondents at least agree that Government websites provide effective functions that deal with my questions (Help desk, Q&A, contact information) while 21.65% are neutral and 28.49% disagree.

In Algeria, 24% of the respondents at least agree that Government websites provide effective functions that deal with my questions (Help desk, Q&A, contact information) while 29.60% are neutral and 46.40% disagree. In Morocco, 45.26% of the respondents at least agree that Government websites provide effective functions that deal with my questions (Help desk, Q&A, contact information) while 20.26% are neutral and 34.48% disagree. In Tunisia, 84.09% of the respondents at least agree that Government websites provide effective functions that deal with my questions (Help desk, Q&A, contact information) while 14.09% are neutral and only 1.82% disagree.

3- 37.75% of the respondents at least agree that Government websites provide well-designed content structure while 38.32% are neutral and 23.93% disagree.

In Algeria, 24.80% of the respondents at least agree that Government websites provide well-designed content structure while 36% are neutral and 39.20% disagree. In Morocco, 29.31% of the respondents at least agree that Government websites provide well-designed content structure while 42.24% are neutral and 28.45% disagree. In Tunisia 61.36% of the respondents at least agree that Government websites provide well-designed content structure while 38.82% are neutral and only 1.82% disagree.

4- 52.71% of the respondents at least agree that Government websites have content-rich services while 20.94% are neutral and 26.35% disagree.

In Algeria, 28.80% of the respondents at least agree that Government websites have content-rich services while 28.40% are neutral and 42.40% disagree. In Morocco, 48.28% of the respondents at least agree that Government websites have content-rich services while 19.40% are neutral and 32.33% disagree. In

Tunisia, 84.09% of the respondents at least agree that Government websites have content-rich services while 14.09% are neutral and only 1.82% disagree.

5- 48.43% of the respondents at least agree that Government websites provide the functions that are easy to submit ideas and to get feedback while 33.33% are neutral and 18.23% disagree.

In Algeria, 24.80% of the respondents at least agree that Government websites provide the functions that are easy to submit ideas and to get feedback while 21.60% are neutral and 56.60% disagree. In Morocco, only 15.52% of the respondents at least agree that Government websites provide the functions that are easy to submit ideas and to get feedback while 28.45 are neutral and 56.03% disagree. In Tunisia, only 13.64% of the respondents at least agree that Government websites provide the functions that are easy to submit ideas and to get feedback while 51.82% are neutral and 34.55% disagree.

D) Corruption control

Table 5.8 : The responses on Corruption control measurement items in the Maghreb

Dimension	Item	SD	D	N	A	SA	∑	Mean	St.D
Perception	**Crptn-ctrl1**	244	246	97	45	70	702	2.22	1,26
	Crptn-ctrl2	358	237	53	25	29	702	1.76	1,02
	Crptn-ctrl3	167	55	106	273	101	702	3.12	1,41
	Crptn-ctrl4	97	118	247	103	137	702	3.09	1,28
Experience	**Crptn-ctrl5**	88	106	238	123	147	702	3.19	1,28
	Crptn-ctrl6	92	56	181	177	196	702	3.47	1,32
	Crptn-ctrl7	85	49	170	192	206	702	3.55	1,32

Perceptions

1- 69.80% of the respondents at least disagree that   there is need corruption in their country while 13.82% are neutral and 16.38% agree.

In Algeria, 54.80% of the respondents at least disagree that   there is need corruption in their country while 16.40% are neutral and 28.80% agree. In Morocco, 70.69% of the respondents at least disagree that   there is need corruption in their country while 13.79% are neutral and 15.52% agree. In Tunisia, 85.91% of the respondents at least disagree that   there is need corruption in their country while 10.91% are neutral and only 3.18% agree.

2- 84.76% of the respondents at least disagree that there is greed corruption in my country while 7.55% are neutral and 7.69% agree.

In Algeria, 71.60% of the respondents at least disagree that there is greed corruption in my country while 13.60 are neutral and 14.80% agree. In Morocco, 84.91% of the respondents at least disagree that there is greed corruption in my country while 8.19% are neutral and only 6.90% agree. In Tunisia, 99.55% of the respondents at least disagree that there is greed corruption in my country while 0% are neutral and only 0.45% agree

3- 53.28% of the respondents at least agree that Elections are clean from corruption while 15.10% are neutral and 31.62% disagree.

In Algeria, 29.60% of the respondents at least agree that Elections are clean from corruption while 16% are neutral and 54.40% disagree. In Morocco, 50% of the respondents at least agree that Elections are clean from corruption while 14.22% are neutral and 35.78% disagree. In Tunisia, 83.64% of the respondents at least agree that Elections are clean from corruption while 15% are neutral and only 1.36% disagree.

4- 34.19% of the respondents at least agree that Law enforcement faces difficulties due to administrative corruption or interference of people from higher authorities while 35.19% are neutral and 30.63% disagree.

In Algeria, 50% of the respondents at least agree that Law enforcement faces difficulties due to administrative corruption or interference of people from higher authorities while 18.80% are neutral and 30.80% disagree. In morocco, 28.45% of the respondents at least agree that Law enforcement faces difficulties due to administrative corruption or interference of people from higher authorities while 36.21% are neutral and 35.34% disagree. In Tunisia, 21.82% of the respondents at least agree that Law enforcement faces difficulties due to administrative corruption or interference of people from higher authorities while 52.73% are neutral and 25.45% disagree.

Experiences

5- 38.46% of the respondents at least admit that they are frequently asked to pay a bribe for a public service while 33.33% are neutral and 27.64%disagree.

In Algeria, 54.40% of the respondents at least admit that they are frequently asked to pay a bribe for a public service while 17.60% are neutral and 28%disagree. In morocco, 33.62% of the respondents at least admit that they are frequently asked to pay a bribe for a public service while 34.91% are neutral and 31.47%disagree. In Tunisia, 25.45% of the respondents at least admit that they are frequently asked to pay a bribe for a public service while 51.36% are neutral and 23.18%disagree.

6- 53.13% of the respondents at least agree that they were frequently obliged to pay a bribe for a public service while 25.78% are neutral and 21.08% disagree.

In Algeria, 56.80% of the respondents at least agree that they were frequently obliged to pay a bribe for a public service while 14.40% are neutral and 28.80% disagree. In Morocco, 44.83% of the respondents at least agree that they were frequently obliged to pay a bribe for a public service while 29.74% are neutral and 25.43% disagree. In Tunisia 57.73% of the respondents at least agree that they were frequently obliged to pay a bribe for a public service while 34.55% are neutral and only 7.73% disagree.

7- 56.70% of the respondents at least agree that they frequently hear their acquaintances   complaining about the corruption in public administration while 24.22% are neutral and 19.9% disagree.

In Algeria 62% of the respondents at least agree that they frequently hear their acquaintances complaining about the corruption in public administration while 11.60% are neutral and 26.40% disagree. In Morocco, 48.28% of the respondents at least agree that they frequently hear their acquaintances complaining about the corruption in public administration while 28.88% are neutral and 22.84% disagree. In Tunisia, 59.55% of the respondents at least agree that they frequently hear their acquaintances   complaining about the corruption in public administration while 33.64% are neutral and only 5.82% disagree.

E) Transparency

Table 5.9 : The responses on Transparency measurement items in the Maghreb

Item	SD	D	N	A	SA	$\sum$	Mean	St.D
Tran1	74	147	296	135	50	702	2,91	1,05
Tran2	173	213	230	44	42	702	2,39	1,10
Tran3	220	260	146	42	34	702	2,16	1,08
Tran4	173	236	207	54	32	702	2,34	1,07

1- 26.35% of the respondents at least agree that Governments' online services have been more transparent while 42.17% are neutral and 31.48%disagree.

In Algeria, 35.20% of the respondents at least agree that Governments' online services have been more transparent while 24.80% are neutral and 40% disagree. In Morocco, 20.26% of the respondents at least agree that Governments' online services have been more transparent while 45.26% are neutral and 34.48% disagree. In Tunisia, 22.73% of the respondents at least agree that Governments' online services have been more transparent while 58.64% are neutral and 18.64%disagree.

2- 54.99% of the respondents at least disagree that Public employees' engagement in corruption has been reduced while 32.76% are neutral and 12.25% agree.

In Algeria, 60.40% of the respondents at least disagree that Public employees' engagement in corruption has been reduced while 20% are neutral and 19.60% agree. In Morocco, 59.05% of the respondents at least disagree that Public employees' engagement in corruption has been reduced while 27.16% are

neutral and 13.79% agree. In Tunisia, 44.55% of the respondents at least disagree that Public employees' engagement in corruption has been reduced while 53.18% are neutral and only 2.27% agree.

3- 68.38% of the respondents at least disagree that Government websites have provided the citizens with greater opportunities to participate in the rulemaking process while 20.80% are neutral and 10.83% agree.

In Algeria, 56.80% of the respondents at least disagree that Government websites have provided the citizens with greater opportunities to participate in the rulemaking process while 24.80% are neutral and 18.40% agree. In Morocco, 66.81% of the respondents at least disagree that Government websites have provided the citizens with greater opportunities to participate in the rulemaking process while 21.55% are neutral and 11.64% agree. In Tunisia, 83.18% of the respondents at least disagree that Government websites have provided the citizens with greater opportunities to participate in the rulemaking process while 15.45% are neutral and only 1.36% agree.

4- 58.26% of the respondents at least disagree that E-government has provided the citizens with an equal opportunity to participate in the rule making process while 29.49% are neutral and 12.25% agree.

In Algeria, 56% of the respondents at least disagree that E-government has provided the citizens with an equal opportunity to participate in the rule making process while 26.40% are neutral and 17.60% agree. In Morocco, 63.79% of the respondents at least disagree that E-government has provided the citizens with an equal opportunity to participate in the rule making process while 23.71% are neutral and 12.50% agree. In Tunisia, 55% of the respondents at least disagree that E-government has provided the citizens with an equal opportunity to participate in the rule making process while 39.09% are neutral and only 5.91% agree.

F) Accountability

Table 5.10: The responses on Accountability measurement items in the Maghreb

Item	SD	D	N	A	SA	∑	Mean	St.D
Gov-acc1	136	101	288	146	31	702	2.76	1,12
Gov-acc2	120	91	274	176	41	702	2.90	1,15
Gov-acc3	114	75	260	216	37	702	2.98	1,13
Gov-acc4	100	69	240	241	52	702	3.11	1,20
Gov-acc5	167	158	269	83	25	702	2.49	1,08
Gov-acc6	150	140	287	90	35	702	2.60	1,06

1- 25.21% of the respondents at least agree that The government supports the process of learning from mistakes and successes and consider external views for improvement while 41.03% are neutral and 33.76% disagree.

In Algeria, 19.20% of the respondents at least agree that The government supports the process of learning from mistakes and successes and consider external views for improvement while 29.20% are neutral and 51.60% disagree. In morocco, 24.14% of the respondents at least agree that The government supports the process of learning from mistakes and successes and consider external views for improvement while 40.52% are neutral and 35.34% disagree. In Tunisia, 33.18% of the respondents at least agree that The government supports the process of learning from mistakes and successes and consider external views for improvement while 55% are neutral and 11.82% disagree.

2- 30.91% of the respondents at least agree that the government has a regular reporting system on the achievements and results of programs or projects against objectives while 39.03% are neutral and 30.06% disagree.

In Algeria, 31.20% of the respondents at least agree that the government has a regular reporting system on the achievements and results of programs or projects against objectives while 24.80% are neutral and 44% disagree. In Morocco 28.45% of the respondents at least agree that The government has a regular reporting system on the achievements and results of programs or projects against objectives while 39.22% are neutral and 32.33% disagree. In Tunisia, 33.18% of the respondents at least agree that The government has a regular reporting system on the achievements and results of programs or projects against objectives while 55% are neutral and 11.82% disagree.

3- 36.04% of the respondents at least agree that The Government recognizes the responsibilities of the organization toward its community, society, and the environment while 37.04% are neutral and 26.92% disagree.

In Algeria, 28% of the respondents at least agree that The Government recognizes the responsibilities of the organization toward its community, society, and the environment while 27.20% are neutral and 44.80% disagree. In Morocco, 26.29% of the respondents at least agree that The Government recognizes the responsibilities of the organization toward its community, society, and the environment while 42.24% are neutral and 31.47% disagree. In Tunisia, 55.45% of the respondents at least agree that The Government recognizes the responsibilities of the organization toward its community, society, and the environment while 42.73% are neutral.

4- 41.74% of the respondents at least agree that The government follows treasury rules and regulations in all circumstances while 34.19% are neutral and 24.07% disagree.

In Algeria, 39.20% of the respondents at least agree that   the government follows treasury rules and regulations in all circumstances while 21.60% are neutral and 39.20% disagree. In Morocco, 31.47% of the respondents at least agree that   the government follows treasury rules and regulations in all circumstances while 39.66% are neutral and 28.88% disagree. In Tunisia, 55.45% of the respondents at least agree that   the government follows treasury rules and regulations in all circumstances while 42.73% are neutral and 1.82% disagrees.

5- 15.38% of the respondents at least agree that the government ensure proper usage of funds in an authorized manner while 38.32% are neutral and 46.30% disagree.

In Algeria, 22% of the respondents at least agree that the government ensure proper usage of funds in an authorized manner while 22.80% are neutral and 55.20% disagree. In Morocco, 16.81% of the respondents at least agree that the government ensure proper usage of funds in an authorized manner while 42.67% are neutral and 40.52% disagree. In Tunisia, 6.36% of the respondents at least agree that the government ensure proper usage of funds in an authorized manner while 51.36% are neutral and 37.% disagree.

6- 17.81% of the respondents at least agree that The Government Provide higher responsibility to employees to become highly efficient and effective while 40.88% are neutral and 41.31% disagree.

In Algeria, 24.40% of the respondents at least agree that The Government Provide higher responsibility to employees to become highly efficient and effective while 25.20% are neutral and 50% disagree. In morocco, 18.97% of the respondents at least agree that The Government Provide higher responsibility to employees to become highly efficient and effective while 45.26% are neutral and 35.78% disagree. In Tunisia, only 8.64% of the respondents agree that The Government Provide higher responsibility to employees to become highly efficient and effective while 54.09% are neutral and 37.27% disagree.

G) Citizens' voice

Table 5.11: The responses on Citizens' voice measurement items in the Maghreb

Item	SD	D	N	A	SA	$\sum$	Mean	St.D
Ctzn-V1	139	40	131	231	161	702	3,33	1,41
Ctzn-V2	117	37	74	257	217	702	3,60	1,40
Ctzn-V3	71	67	69	239	256	702	3,77	1,31
Ctzn-V4	95	66	85	256	200	702	3,57	1,35

1- 55.84% of the respondents at least agree that Country's citizens are able to participate in selecting their government while 18.66% are neutral and 25.50%disagree.

In Algeria, 42.40% of the respondents at least agree that Country's citizens are able to participate in selecting their government while 13.60% are neutral and 44% disagree. In Morocco, 41.81% of the respondents at least agree that Country's citizens are able to participate in selecting their government while 29.74% are neutral and 28.45% disagree. In Tunisia, 85.91% of the respondents at least agree that Country's citizens are able to participate in selecting their government while 12.73% are neutral and only 1.36%disagree.

2- 67.52% of the respondents at least agree that Country's citizens enjoy freedom of expression while 10.54% are neutral and 21.94% disagree.

In Algeria, 42.40% of the respondents at least agree that Country's citizens enjoy freedom of expression while 17.20% are neutral and 40.40% disagree. In Morocco, 65.95% of the respondents at least agree that Country's citizens enjoy freedom of expression while 12.07% are neutral and 21.98% disagree. In

Tunisia, 97.73% of the respondents at least agree that Country's citizens enjoy freedom of expression while 1.36% are neutral and only 0.91% disagree.

3- 70.51% of the respondents at least agree that Country's citizens enjoy freedom of association while 9.83% are neutral and 19.66%disagree.

In Algeria, 48.80% of the respondents at least agree that Country's citizens enjoy freedom of association while 16.80% are neutral and 34.40% disagree. In Morocco, 68.10% of the respondents at least agree that Country's citizens enjoy freedom of association while 11.64% are neutral and 20.26% disagree. In Tunisia, 97.73% of the respondents at least agree that Country's citizens enjoy freedom of association while 0% are neutral and only 2.27% disagree.

4- 64.96% of the respondents at least agree that Country's citizens enjoy free media while 12.11% are neutral and 22.93% disagree.

In Algeria, 39.60% of the respondents at least agree that Country's citizens enjoy free media while 18.40% are neutral and 42% disagree. In Morocco, 62.93% of the respondents at least agree that Country's citizens enjoy free media while 14.66% are neutral and 22.41% disagree. In Tunisia, 95.91% of the respondents at least agree that Country's citizens enjoy free media while 2.27% are neutral and only 1.82% disagree.

H) Trust

Table 5.12: The responses on Trust measurement items in the Maghreb

Item	SD	D	N	A	SA	Σ	Mean	St.D
Trust1	158	114	346	54	30	702	2,55	1,05
Trust2	163	141	264	109	25	702	2,56	1,11
Trust3	161	99	345	67	30	702	2,58	1,07
Trust4	87	47	201	224	143	702	3,41	1,24

1- Only 11.97% of the respondents at least confirm that they trust their government agencies while 49.29% are neutral and 38.75% disagree.

In Algeria, 22% of the respondents at least confirm that they trust their government agencies while 28.40% are neutral and 49.60% disagree. In Morocco, Only 9.48% of the respondents at least confirm that they trust their government agencies while 47.84% are neutral and 42.67% disagree. In Tunisia, Only 3.18% of the respondents at least confirm that they trust their government agencies while 74.55% are neutral and 22.27% disagree.

2- 19.09 % of the respondents at least believe that Government agencies keep their best interests in mind while 37.61% are neutral and 43.30 % disagree.

In Algeria, 22 % of the respondents at least believe that Government agencies keep their best interests in mind while 22% are neutral and 56 % disagree. In Morocco, 11.21% of the respondents at least believe that Government agencies keep their best interests in mind while 36.64% are neutral and 52.16 % disagree. In Tunisia, 24.09 % of the respondents at least believe that Government agencies keep their best interests in mind while 56.36% are neutral and 19.55 % disagree.

3- 13.82% of the respondents at least think that, government agencies are trustworthy while 49.15 % are neutral and 37.04% disagree.

In Algeria, 24% of the respondents at least think that, government agencies are trustworthy while 23.20 % are neutral and 52.80% disagree. In Morocco, only 10.34% of the respondents at least think that, government agencies are trustworthy while 50.43 % are neutral and 39.22% disagree. In Tunisia, only 5.91% of the respondents at least think that, government agencies are trustworthy while 77.27 % are neutral and 16.82% disagree.

4- 52.28% of the respondents at least agree that the trust in a governmental agency increase once with its reputation while 28.63% are neutral and 19.09% disagree.

In Algeria, 50.80% of the respondents at least agree that the trust in a governmental agency increase once with its reputation while 18.40% are neutral and 30.80% disagree. In Morocco, 49.14 of the respondents at least agree that the trust in a governmental agency increase once with its reputation while 28.45% are neutral and 22.41% disagree. In Tunisia, 57.27% of the respondents at least agree that the trust in a governmental agency increase once with its reputation while 40.45% are neutral and only 2.27% disagree.

5.2 Reliability, Validities and Correlations

In this study, regression analysis is used to analyse the relationship between the different variables. To validate the measurement model, it is necessary to assess the content, convergent, and discriminant validities as well as the reliability. Analyses are performed using SPSS.25.Content validity was confirmed by fitting our measurements with the literature.

5.2.1 Measurements' reliabilities

To assess reliability, Chin (1998) recommended a Cronbach's alpha threshold of 0.7 for each construct. The following table 5.13 shows reliability of our measurements using Cronbach's alpha.

Table 5.13 : Cronbach's alpha

Variables	Number of items	Mean	Std. Deviation	Cronbach's Alpha
E-gov	23	3.22	0.846	0.956
E-part	5	3.043	0.974	0.914
Part-dem	12	3.093	0.861	0.905
Crptn-ctrl	7	2.915	0.908	0.787
Trans	4	2.45	0.875	0.829
Gov-acc	6	2.581	1.017	0.956
Ctzn-v	4	3.568	1.240	0.928
Trust	4	2.775	0.947	0.867
Total	65			0.971

As shown in table 5.13, all measurements scores are higher than the required threshold and therefore reliabilities of all constructs are confirmed.

5.2.2 Convergent validity

For convergent validity, we adopt Hair, Anderson, Tatham, & Black (1998) suggestion using average variance extracted (AVE) and internal composite reliability (ICR). The values of 0.7 for composite reliability and 0.5 for AVE for all measurements as recommended to assure significance and convergent validity, as suggested by Fornell & Larcker (1981). Table 5.14 shows that the reliability, composite reliability and the average variances extracted values are higher than the recommended values where composite reliability values are between 0.776 and 0.940 and the average variances extracted are between 0.511 and 0.673, which means the measurements meet the reliability threshold and acceptability value, and therefore, the reliability and convergent validity of all constructs are confirmed.

Table 5.14 : Cronbach's alpha, Composite Reliability and Average Variance Extracted (AVE)

Variables	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)	Squar root of AVE
E_gov	0.956	0.940	0.568	0.753
E_part	0.914	0.849	0.673	0.821
Part_dem	0.905	0.872	0.589	0.767
Crptnctrl	0.787	0.787	0.529	0.728
Tran	0.829	0.797	0.591	0.769
Gov_acc	0.956	0.817	0.528	0.727
Ctzn_V	0.928	0.776	0.565	0.752
Trust	0.867	0.788	0.511	0.715

5.2.3 Discriminant validity

The square root of the AVE value has to be higher than its correlation for every variable to confirm the discriminant validity according to Chin (1998), which is in our case confirmed and demonstrated in Table 5.15.

Table 5.15 : Correlation matrix and square root of AVE

Variables	E_gov	E_part	Part_dem	Crptnctrl	Tran	Gov_acc	Ctzn_V	Trust	Square root of AVE
E_gov	1								
E_part	.810**	1							0.821
Part_dem	.701**	.688**	1						0.767
Crptnctrl	.317**	.117**	.384**	1					0.728
Tran	.525**	.505**	.581**	.306**	1				0.769
Gov_acc	.564**	.523**	.548**	.341**	.533**	1			0.727
Ctzn_V	.553**	.531**	.637**	.262**	.358**	.654**	1		0.752
Trust	.647**	.575**	.603**	.117**	.579**	.724**	.620**	1	0.715

** Correlation is significant at the 0.01 level (2-tailed).

5.2.4 Correlations

After ensuring the reliability and validity of our instrument and data, we come back to table 5.15 to discuss the main correlations in our research model.

As table 5.15 shows, Pearson correlation results indicate that there a significant positive association between the dependent variable Participatory democracy and the independent variable E-government,(r(700)=.701, p=0.01). Correlation results also indicate significant positive association of e-government with: e-participation satisfaction ,(r(700)=.810, p=0.01); corruption control, (r(700)=.317, p=0.01); transparency, (r(700)=.525, p=0.01); government accountability, (r(700)=.564, p=0.01) ; citizens' voice (r(700)=.553, p=0.01) ; and trust (r(700)=.647, p=0.01).

Correlation results also indicate significant positive association of Participatory democracy with: e-participation satisfaction, (r(700)=.688, p=0.01); corruption control, ,(r(700)=.384, p=0.01); transparency, ,(r(700)=.581, p=0.01); government accountability, (r(700)=.548, p=0.01) ; citizens' voice (r(700)=.637, p=0.01) ; and trust (r(700)=.603, p=0.01).

We can also highlight strong positive correlations between corruption control, and transparency, (r(700)=.306, p=0.01); between corruption control and government accountability ,(r(700)=. 341, p=0.01); and between transparency and government accountability ,(r(700)=. 533, p=0.01).

 It is worthy to mention that government accountability has positive and significant correlations with citizens voice (r(700)=. 654, p=0.01) and with Trust (r(700)=. 724, p=0.01).

5.3 Analysis of constructs and hypotheses tests

Hypothesis 1 and 2 will be evaluated based on the significance of t-statistic, R^2, and coefficient value of the regression model between the dependent and independent variable. On the other hand, hypotheses from 3 to 7 will be

evaluated based on the significance of the same values in the two-stage regression model, where in model 1, e-government is the independent variable and participatory democracy is the dependent variable. In model 2, e-government and the mediator are considered as independent variables, whereas participatory democracy is the dependent variable.

5.3.1 Hypothesis 1

H1: E-government has a direct positive effect on participatory democracy.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.701[a]	.491	.490	.61502

a. Predictors: (Constant), E_GOV

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	255.111	1	255.111	674.458	.000[b]
	Residual	264.772	700	.378		
	Total	519.882	701			

a. Dependent Variable: PART_DEM

b. Predictors: (Constant), E_GOV

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.773	.092		8.428	.000
	E_GOV	.713	.027	.701	25.970	.000

a. Dependent Variable: PART_DEM

Results of the linear regression indicated that there was a significant effect between e-government and participatory democracy, ($F_{(1, 700)}$ = 674.458, p< .001, R2 = .491, R^2 $_{Adjusted}$ = .490). The predictor was examined further and indicated that e-government (t = 25.970, p < .001) was a significant predictors in the model. Therefore Hypothesis 1 is accepted.

5.3.2 Hypothesis 2

H2: The relationship between e-government and participatory democracy is moderated by e-participation

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.701[a]	.491	.490	.61522

a. Predictors: (Constant), Moderator_Egov_Epart, E_GOV

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	255.311	2	127.655	337.266	.000[b]
	Residual	264.572	699	.379		
	Total	519.882	701			

a. Dependent Variable: PART_DEM

b. Predictors: (Constant), Moderator_Egov_Epart, E_GOV

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.819	.111		7.380	.000
	E_GOV	.703	.031	.691	22.973	.000
	Moderator_Egov_Epart	-.017	.023	-.022	-.727	.467

a. Dependent Variable: PART_DEM

Results of the linear regression indicated that there was an non-significant moderation effect of e-participation satisfaction on the relationship between e-government and participatory democracy, $(F(2, 699) = 337.266$, $p < .001$, $R^2 = .491$, $R^2_{Adjusted} = .490$). The predictors was were further and indicated that moderator effect of e-participation satisfaction ($t = -.727$, $p < .467$) was not a significant predictors in the model. Therefore Hypothesis 2 is rejected.

5.3.3 Hypothesis 3

H3: E-government has an indirect positive effect on participatory democracy through increasing corruption control

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
					Change Statistics				
1	.701ª	.491	.490	.61502	.491	674.458	1	700	.000
2	.702ᵇ	.492	.491	.61451	.002	2.164	1	699	.040

a. Predictors: (Constant), E_GOV

b. Predictors: (Constant), E_GOV, CRPTNCTRL

ANOVAª

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	255.111	1	255.111	674.458	.000ᵇ
	Residual	264.772	700	.378		
	Total	519.882	701			
2	Regression	255.928	2	127.964	338.872	.000ᶜ
	Residual	263.954	699	.378		
	Total	519.882	701			

a. Dependent Variable: PART_DEM

b. Predictors: (Constant), E_GOV

c. Predictors: (Constant), E_GOV, CRPTNCTRL

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.773	.092		8.428	.000
	E_GOV	.713	.027	.701	25.970	.000
2	(Constant)	.641	.128		5.003	.000
	E_GOV	.715	.027	.702	26.029	.000
	CRPTNCTRL	.040	.027	.040	1.471	.040

a. Dependent Variable: PART_DEM

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics Tolerance
1	CRPTNCTRL	.040[b]	1.471	.040	.056	.999

a. Dependent Variable: PART_DEM

b. Predictors in the Model: (Constant), E_GOV

In the first stage of the mediation model, where shown as model 1, the regression of e-government on participatory democracy, ignoring the mediator corruption control, was significant, ($F_{(1, 700)} = 674.458$, p< .001, $R^2 = .491$, $R^2_{Adjusted} = .490$).

The second stage, where shown as model 2, the multiple linear regression indicated that the effect of e-government and corruption control as predictors on participatory democracy is significant, ($F_{(2, 699)} = 338.872$, p< .001, R2 = .492, $R^2_{Adjusted} = .491$). The predictors were examined further and indicated that e-government (t = 26.029, p p< .001) and corruption control (t = 1.471, p =. 05) were significant predictors in the model.

In the third stage the excluded model that shows the relationship between the independent variable e-government and the mediator corruption control is significant (t = 1.471, p =. 05).

Considering that the T-statistic, R^2, coefficient value of the model 2 are all significant, the R^2 shows an important increase in comparison to model 1, the e-government coefficient in model 2 decreases compared to the e-government coefficient in model 1, and the excluded model showing regression model between e-government as independent variable and the mediator as dependent variable are significant as well, corruption control partially mediates the relationship between e-government and participatory democracy and therefore hypothesis 3 is accepted.

5.3.4 Hypothesis 4

H4: E-government has an indirect positive effect on participatory democracy through increasing Transparency

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.701[a]	.491	.490	.61502
2	.744[b]	.554	.552	.57616

a. Predictors: (Constant), Egov

b. Predictors: (Constant), Egov, Tran

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	255.111	1	255.111	674.458	.000[b]
	Residual	264.772	700	.378		
	Total	519.882	701			
2	Regression	287.839	2	143.920	433.539	.000[c]
	Residual	232.043	699	.332		
	Total	519.882	701			

a. Dependent Variable: PartDem

b. Predictors: (Constant), Egov

c. Predictors: (Constant), Egov, Tran

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.773	.092		8.428	.000
	Egov	.713	.027	.701	25.970	.000
2	(Constant)	.572	.088		6.474	.000
	Egov	.556	.030	.546	18.385	.000
	Tran	.290	.029	.295	9.929	.000

a. Dependent Variable: PartDem

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics Tolerance
1	Tran	.295[b]	9.929	.000	.352	.725

a. Dependent Variable: PartDem

b. Predictors in the Model: (Constant), Egov

In the first stage of the mediation model, where shown as model 1, the regression of e-government on participatory democracy, ignoring the mediator Transparency, was significant, ($F_{(1, 700)} = 674.458$, $p < .001$, $R2 = .491$, $R^2_{Adjusted} = .490$).

The second stage, where shown as model 2, the multiple linear regression indicated that the effect of e-government and transparency as predictors on participatory democracy is significant, ($F_{(2, 699)} = 433.539$, $p < .001$, $R^2 = .554$, $R^2_{Adjusted} = .552$). The predictors were examined further and indicated that e-government ($t = 18.385$, $p < .001$) and transparency ($t = 9.929$, $p < .001$) were significant predictors in the model.

In the third stage the excluded model that shows the relationship between the independent variable e-government and the mediator transparency is significant ($t = 9.929$, $p < .001$).

Considering that the T-statistic, R^2, coefficient value of the model 2 are all significant, the R^2 shows an important increase in comparison to model 1, the e-government coefficient in model 2 decreases compared to the e-government coefficient in model 1, and the excluded model showing regression model between e-government as independent and variable transparency the mediator as dependent variable are significant as well, transparency partially mediates the relationship between e-government and participatory democracy and therefore hypothesis 4 is accepted.

5.3.5 Hypothesis 5

H5: E-government has an indirect positive effect on participatory democracy through increasing government accountability.

Model Summary

Mode l	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.701[a]	.491	.490	.61502	.491	674.458	1	700	.000
2	.725[b]	.525	.524	.59439	.034	50.414	1	699	.000

a. Predictors: (Constant), E_GOV

b. Predictors: (Constant), E_GOV, GOV_ACC

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	255.111	1	255.111	674.458	.000[b]
	Residual	264.772	700	.378		
	Total	519.882	701			
2	Regression	272.922	2	136.461	386.242	.000[c]
	Residual	246.960	699	.353		
	Total	519.882	701			

a. Dependent Variable: PART_DEM

b. Predictors: (Constant), E_GOV

c. Predictors: (Constant), E_GOV, GOV_ACC

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.773	.092		8.428	.000
	E_GOV	.713	.027	.701	25.970	.000
2	(Constant)	.662	.090		7.356	.000
	E_GOV	.584	.032	.574	18.184	.000
	GOV_ACC	.192	.027	.224	7.100	.000

a. Dependent Variable: PART_DEM

Excluded Variables^a

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics Tolerance
1	GOV_ACC	.224^b	7.100	.000	.259	.682

a. Dependent Variable: PART_DEM

b. Predictors in the Model: (Constant), E_GOV

In the first stage of the mediation model, where shown as model 1, the regression of e-government on participatory democracy, ignoring the mediator government accountability, was significant, ($F_{(1, 700)} = 674.458$, $p < .001$, $R2 = .491$, $R^2_{Adjusted} = .490$).

The second stage, where shown as model 2, the multiple linear regression indicated that the effect of e-government and government accountability as predictors on participatory democracy is significant,   ($F_{(2, 699)} = 386.242$, $p < .001$, $R2 = .525$, $R^2_{Adjusted} = .524$). The predictors were examined further and indicated that e-government ($t = 18.184$, p $p < .001$) and government accountability ($t = 7.100$, $p < .001$) were significant predictors in the model.

In the third stage the excluded model that shows the relationship between the independent variable e-government and the mediator government accountability is significant ($t = 7.100$, $p < .001$).

Considering that the T-statistic, R^2, coefficient value of the model 2 are all significant, the R^2 shows an important increase in comparison to model 1, the e-government coefficient in model 2 decreases compared to the e-government coefficient in model 1, and the excluded model showing regression model between e-government as independent variable and the mediator as dependent variable are significant as well, it is found that government accountability partially mediates the relationship between e-government and participatory democracy and therefore hypothesis 5 is accepted.

5.3.6 Hypothesis 6

H6: E-government has an indirect positive effect on participatory democracy through increasing Citizen's Voice

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
					Change Statistics				
1	.701[a]	.491	.490	.61502	.491	674.458	1	700	.000
2	.762[b]	.580	.579	.55858	.090	149.593	1	699	.000

a. Predictors: (Constant), E_GOV

b. Predictors: (Constant), E_GOV, CTZN_V

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	255.111	1	255.111	674.458	.000[b]
	Residual	264.772	700	.378		
	Total	519.882	701			
2	Regression	301.785	2	150.893	483.611	.000[c]
	Residual	218.097	699	.312		
	Total	519.882	701			

a. Dependent Variable: PART_DEM

b. Predictors: (Constant), E_GOV

c. Predictors: (Constant), E_GOV, CTZN_ACC

Coefficients^a

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	.773	.092		8.428	.000
	E_GOV	.713	.027	.701	25.970	.000
2	(Constant)	.537	.086		6.278	.000
	E_GOV	.511	.030	.502	17.054	.000
	CTZN_ACC	.250	.020	.360	12.231	.000

a. Dependent Variable: PART_DEM

Excluded Variables^a

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics Tolerance
1	CTZN_ACC	.360^b	12.231	.000	.420	.694

a. Dependent Variable: PART_DEM

b. Predictors in the Model: (Constant), E_GOV

In the first stage of the mediation model, where shown as model 1, the regression of e-government on participatory democracy, ignoring the mediator Citizens' Voice, was significant, ($F_{(1, 700)}$ = 674.458, $p < .001$, $R2$ = .491, $R^2_{Adjusted}$ = .490).

The second stage, where shown as model 2, the multiple linear regression indicated that the effect of e-government and Citizens' Voice as predictors on participatory democracy is significant,   ($F_{(2, 699)}$ = 383.611, $p < .001$, $R2$ = .580, $R^2_{Adjusted}$ = .579). The predictors were examined further and indicated that e-government (t = 17.054, $p < .001$) and Citizens' Voice (t = 12.231, $p < .001$) were significant predictors in the model.

In the third stage the excluded model that shows the relationship between the independent variable e-government and the mediator Citizens' Voice is significant (t = 12.231, $p < .001$).

Considering that the T-statistic, R^2, coefficient value of the model 2 are all significant, the R^2 shows an important increase in comparison to model 1, the e-government coefficient in model 2 decreases compared to the e-government coefficient in model 1, and the excluded model showing regression model between e-government as independent variable and the mediator as dependent variable are significant as well, it is found that Citizens' Voice partially mediates the relationship between e-government and participatory democracy and therefore hypothesis 6 is accepted.

5.3.7 Hypothesis 7

H7: E-government has an indirect positive effect on participatory democracy through increasing trust.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
					Change Statistics				
1	.701[a]	.491	.490	.61502	.491	674.458	1	700	.000
2	.727[b]	.529	.528	.59171	.039	57.236	1	699	.000

a. Predictors: (Constant), E_GOV

b. Predictors: (Constant), E_GOV, TRUST

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	255.111	1	255.111	674.458	.000[b]
	Residual	264.772	700	.378		
	Total	519.882	701			
2	Regression	275.150	2	137.575	392.939	.000[c]
	Residual	244.733	699	.350		
	Total	519.882	701			

a. Dependent Variable: PART_DEM

b. Predictors: (Constant), E_GOV

c. Predictors: (Constant), E_GOV, TRUST

Coefficients[a]

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	.773	.092		8.428	.000
	E_GOV	.713	.027	.701	25.970	.000
2	(Constant)	.672	.089		7.520	.000
	E_GOV	.544	.035	.534	15.701	.000
	TRUST	.234	.031	.257	7.565	.000

a. Dependent Variable: PART_DEM

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics Tolerance
1	TRUST	.257[b]	7.565	.000	.275	.582

a. Dependent Variable: PART_DEM

b. Predictors in the Model: (Constant), E_GOV

In the first stage of the mediation model, where shown as model 1, the regression of e-government on participatory democracy, ignoring the mediator Trust, was significant, ($F_{(1, 700)} = 674.458$, $p < .001$, R2 = .491, $R^2_{Adjusted} = .490$).

The second stage, where shown as model 2, the multiple linear regression indicated that the effect of e-government and Trust as predictors on participatory democracy is significant, ($F_{(2, 699)} = 392.939$, $p < .001$, R2 = .580, $R^2_{Adjusted} = .528$). The predictors were examined further and indicated that e-government (t = 15.701, $p < .001$) and Trust (t = 7.565, $p < .001$) were significant predictors in the model.

In the third stage the excluded model that shows the relationship between the independent variable e-government and the mediator Trust is significant (t=7.565, $p < .001$).

Considering that the T-statistic, R^2, coefficient value of the model 2 are all significant, the R^2 shows an important increase in comparison to model 1, the e-government coefficient in model 2 decreases compared to the e-government coefficient in model 1, and the excluded model showing regression model between e-government as independent variable and the mediator as dependent variable are significant as well, it is found that Trust partially mediates the relationship between e-government and participatory democracy and therefore hypothesis 7 is accepted.

To summarize, for H1, the results confirm the direct relationship between e-government and participatory democracy. For H2 the results reject the assumption of a moderation effect of e-participation satisfaction on the relationship of e-government and participatory democracy.

The hypotheses from H3 to H7 are accepted since the T-statistic, R^2, coefficient value of the relevant model 2 (as shown in table 6.17) are all significant for the five hypotheses, the R^2 in each test shows an important increase in comparison to model 1, the e-government coefficients in model 2 for the hypotheses from H3 to H7 decrease compared to the e-government coefficient in model 1, and the excluded model showing regression model between e-government as independent variable and the mediator as dependent variable are significant as well.

Table 5.16 shows the summary of hypotheses testing process and results whereas table 5.17 shows hypotheses testing results.

Table 5.16: Summary of hypotheses testing process and results

Hypotheses	Models	Effect	R^2	Coefficient(β)	T-Statistic	Remarks
H1	model 1	E-gov --> Part-dem	0.491	0.701	25.97	Supported
H2	model 2	Moderation effect	0.491	β1 = 0.703 , β2 = -0.170	T1 = 22.973 T2 = -0.727	Rejected
H3	model 2	E-gov , crptnctrl --> Part-dem	0.52	β1 = 0.643 , β2 = 0.180	T1 = 23.288 , T2 = 6.513	Supported
	excluded model	E-gov --> crptnctrl		0.295	9.929	
H4	model 2	E-gov, trans --> Part-dem	0.525	β1 = 0.584 , β2 = 0.192	T1 = 18.184 , T2 = 7.100	Supported
	excluded model	E-gov --> trans		0.224	7.1	
H5	model 2	E-gov, acc --> Part-dem	0.540	β1 = 0.436 , β2 = 0.370	T1 = 10.568 , T2 = 8.697	Supported
	excluded model	E-gov --> acc		0.277	8.697	
H6	model 2	E-gov, Ctzn.V --> Part-dem	0.580	β1 = 0.511 , β2 = 0.250	T1 = 17.054 , T2 = 12.231	Supported
	excluded model	E-gov --> Ctzn.V		0.360	12.231	
H7	model 2	E-gov, Trust--> Part-dem	0.529	β1 = 0.544 , β2 = 0.234	T1 = 15.701 , T2 = 7.565	Supported
	excluded model	E-gov --> Trust		0.257	7.565	

$P < 0.001.$

Table 5.17: Hypotheses testing results

Hypothesis	Result
H1: E-government has a direct positive effect on participatory democracy.	Supported
H2: The relationship between e-government and participatory democracy is moderated by e-participation	Rejected
H3: E-government has an indirect positive effect on participatory democracy through increasing corruption control	Supported
H4: E-government has an indirect positive effect on participatory democracy through increasing Transparency	Supported
H5: E-government has an indirect positive effect on participatory democracy through increasing government accountability.	Supported
H6: E-government has an indirect positive effect on participatory democracy through increasing Citizen's Voice	Supported
H7: E-government has an indirect positive effect on participatory democracy through increasing trust.	Supported

CHAPTER 6
CONCLUSIONS

In this chapter, we conclude our study by providing a summary and analysis of the research findings. Some recommendations are suggested, and contribution and future research are presented.

6.1 Conclusion

Our results explicitly indicate that e-government is indeed positively associated with participatory democracy. Therefore, the performance of governments in the Maghreb countries plays a crucial role stimulating citizens' participation. Statistical analysis confirms the relationship between e-government adoption and participatory democracy in the Maghreb. This means that the more the governments of the three countries enable online communication channels, the more citizens' engagement will increase. Which is consistent with the recent studies (Goodman & Stokes, 2018; Yu, 2019; LeRoux, Fusi, & Brown, 2020; Gerunov, 2020). We found that the non-electoral dimension of participatory democracy is significant in the Maghreb countries, although Tunisia slightly stands out in terms of women's empowerment and civil society participation.

Algeria, like Morocco and Tunisia, has been modernizing public administration online services in terms of readiness, effectiveness, responsiveness and security through vertical and horizontal integration of government systems. Experts' answers reflect a very positive impression regarding the quality of e-government in each country. The world pandemic crisis of COVID19 came to

emphasize the importance of digitalizing governmental services and workflows which took place throughout the last decade.

According to the E-government development index, Tunisia is a regional leader. Although our respondents showed a low satisfaction regarding their e-participation experience, their participation, was not affected. It could be explained by the necessity to be involved in political decision making regardless the quality of the relative online services. Since the spark of Arab Spring up to now, citizens of the Maghreb became more politicized and are ready to take advantage of any available tool and benefit from every opportunity to participate and voice out. Politics is no longer a marginal interest, rather it became a priority. Citizens in the three countries understood that the origins of their problems are mainly the political choices that they were not involved in. After to Algerian *Hirak* and before that, the Arab spring, citizens of the Maghreb feel their capacity to make radical change rather than participation. Based on this view, E-participation currently in the Maghreb, is not regarded as a luxury service that could be abandoned for a low satisfaction. Another complementary explanation is the possibility to use social media to overcome the shortcoming of the electronic government. Whether or not to qualify the Arab uprisings as a "Facebook revolution" or a "Twitter revolution" is an out-dated debate that deserves to be overcome. Social media are extremely prevalent today, including in developing countries, and it is now difficult to imagine that social mobilization could happen without them. In other words, the revolt will take place in a network or not. The network revolt is not a mono-causal phenomenon and it would be absurd to think that social media alone could spark an uprising. But they will be there, one way or another.

Algeria and Tunisia offer two different examples of how social media can come into play. In the case of Algeria in 2019, long-term activism has developed on the Internet. In Tunisia, such activism failed to flourish due to state censorship and repression, but social media played an important role in bringing the regime down in 2011. Social media can both provide momentum for political and social

reforms and function fully in times of crisis as mobilization tools and information banks.

In the case of Algeria as in that of Tunisia, the outcome of the mobilization was hardly predictable. A network revolt can just as easily lead to the overthrow of the current regime as to bloody repression. A satisfactory theory of the relationship between digital activism and regime change will probably never be able to be worked out. These changes depend on many factors, in particular those identified more commonly by political scientists such as the economic and social situation, divisions within the regime or the degree of repression.

Tunisia and Algeria provided two very different examples of digital activism and housed two communities of activists with distinct capacities. And yet, social media has been as important in Tunisia as it has in Algeria.

Our statistical conclusion indicates that e-government has a significant role– and are already resulting benefits regarding corruption control. Shim & Eom (2008) explained this relationship claiming that increasing the effectiveness of internal controllability over managers through e-government prevents corruption attempts and reinforces government accountability and transparency.

The fact that e-government has anti-corruption capabilities is based on its ability to trace operations processes, in terms of both delivered services and internal work-flows. Therefore, e-government helps to enhance vertical surveillance over public servants and their activities. However, the introduction of e-government may not be the sole method of confronting corrupt activities. Nevertheless, the maturity and the security levels of the system play significant roles in the success of e-government in general and its anti-corruption role in particular.

E-government can detect whether regulations and rules are respected while performing procedures. When anomalies appear, they must be confronted with strict correcting re-actions that must be taken immediately. Otherwise, the role of e-government will be very limited in corruption control. To reinforce the role of e-

government systems confronting corruption, features such as whistle-blowers and laws to protect the whistle-blower should be considered. By reducing direct contact between citizens and public servants, e-government restricts the opportunity to request bribes (J. Anderson, 2009). Previous experiences of countries in Europe, the Americas and Asia have confirmed the efficiency of e-government in corruption control (Bhatnagar, 2003; Shim & Eom, 2008).

The other outcome of e-government is enhanced transparency, which represents a good way of supporting the application of already existing laws that emphasize the rights of citizens to access information. Until recently, many countries indeed applied secrecy laws that constrained citizens and public opinion. In parallel with the adoption of e-government and the growth of freedom of information access rights that are pushed by citizens and supported by laws in North Africa, strict secrecy laws have retreated. These kinds of laws are a feature of many developing countries; therefore, e-government represents a real challenge against these secrecy laws. It requires a strong will from the government towards real and factual openness. Optimal implementation of transparency laws is subject to the comprehensive use of ICTs to deliver government services (Relly & Sabharwal, 2009). E-government in general and in the Maghreb in particular must not be considered as a tool only used to increase access to information, but rather as a means to ensure that rules and regulations are transparent and respected as well. This would make it possible to trace any action or decision made through e-government systems.

Our results show that e-government has a significant positive effect on public accountability. This confirms the claims of several scholars (Halachmi & Greiling, 2013; Haque & Pathrannarakul, 2013; Justice et al., 2006; Seongcheol Kim et al., 2009; Wong & Welch, 2004). E-government can increase public accountability by promoting good and transparent governance, increasing managerial surveillance, reducing opportunities for corrupt behaviours, and giving a chance to citizens to track transactions and complain to higher management. By providing openness and defining the hierarchy of liability and

responsibility of back-stage users, e-government can enhance controllability over officials.

In fact, the three notions of transparency, corruption control and accountability are complementarily inter-related and ultimately serve the purpose of each other. Therefore, the fact that e-government is proved as a factor that enhances transparency explains why it should be able to enhance corruption control and public accountability. The transparency of transactions enabled by e-government can detect and trace back mistakes and corrupt behaviours in case any action was against the rules and regulations and against the public interest, and ultimately, the involved parties will be held accountable for their actions.

On another dimension, e-government can stimulates citizens' participation through creating a direct communication channels with citizens. The element that would boost citizens' voice and increase citizens' trust.

The fact that citizens' being able to communicate themselves is actually enhanced by e-government as our results indicate. By creating formal spaces and networks besides the informal ones, e-government helps citizens be better heard from their representatives as well as from local and central governments.

 E-government platforms therefore, by providing possibility for online complaints, advocacy, and involvement in decision-making, are indeed increasing civic participation through enhanced citizens' voice.

As Goetz and Jenkins (2002, 2005) suggest, it is beneficial for citizens to be able to freely share their opinions and desires. E-government in this sense is a suitable incubator that brings citizens and decision makers closer which allows an effective participation of citizens. Via its communication networks, e-government offers a tool for promoting citizens' voice, which ultimately leads to more civic engagement.

Our results indicate that trust is an important factor that mediates the relationship between e-government and participatory democracy. It is the willingness to consider vulnerability in e-government systems/services which eventually leads to more participation initiatives.

The availability of resources through the Internet allows people to browse for information any time they wish, improves service delivery and responsiveness to citizen, which generates greater trust in the Administration.

Governments in the Maghreb need to enhance the level of political trust, since this can leads the people to embrace democratic principles which agrees with the claims of Volodin (2019). A political system's credibility will be eroded if citizens' political trust in political institutions decreases.

Citizens are more inclined to involve in politics if they develop a high degree of trust. Trust therefore is strongly associated with political participation, which is consistent with the claims of Letki (2004) and Kim(2014). Our findings is also consistent with the arguments of several scholars (Keele, 2007; Putnam, 2000; Rothstein and Uslaner, 2005) who believe that citizens who have high level of trust are more likely to be politically active.

Participatory democracy is affected indirectly by e-government through enhanced government performance in terms of transparency, corruption control and accountability and through citizens' attitude in terms of citizens' voice and trust. When citizens see their contributions rewarded and their will implemented, their engagement increases. Citizens' engagement in the electoral and non-electoral dimensions of participatory democracy is related to their ability to control and question government choices, and their ability and free will to choose and change. Therefore, e-government is not only regarded as a direct enabler of participation through its e-democracy dimension, but also as an indirect factor that motivates citizens' participation through its influence on government performance and legitimacy.

We have focused on participatory democracy as it is a crossroads whereby developing countries have the opportunity to catch-up with developed countries in their democratic experience. While democracy in developing countries is similar to that in developed countries in form but not necessarily in content, the practice of democracy in both worlds differs due to the cultural heritage, the length of experience and traditions that spans centuries, which distinguishes the occident. Giving way to participatory democracy in developing countries would return to it the missed content and decrease the gap. We have found that e-government is a way of shortening distance and reducing time to the Maghreb countries to revive the democratic experience by intensifying citizen participation.

One of the most serious issues of democracy in developing countries is the vague state that surrounds various government measures and decisions. As a result, corruption spreads due to the lack of standards in decision-making, the selection of individuals and the distribution of positions. This fact leads to a state of negativity among citizens and lack of confidence in the government's seriousness to carry out its tasks and the real involvement of citizens in decision-making.

In light of this view, e-government can enhance transparency, reduce corruption, and raise the degree of accountability. This would boost citizens' empowerment endeavours and their involvement in civil society organizations.

This study focused on the enhancement of government performance via e-government, and citizens' attitude, which ultimately lead to better engagement of citizens in public issues.

6.2 Recommendations

Pushed by their peoples' pressure and strong will, the Maghreb countries have been positively responding to their citizens' demands in terms of better administration and also in terms of democracy. In this part, we suggest some

recommendations to the three countries and conclude with some lessons learned from this study.

Our results show that Algeria is still lagging behind. Therefore, qualitative and quantitative objectives should be clearly defined in order to pursue special and common goals, affecting five pillars, as follows: Completion of informatics infrastructure; Develop integrated systems; Dissemination of distinct sectorial applications; Development of human competencies; Developing electronic services for the benefit of citizens, companies, and other departments.

An operational approach should be adopted in its projects, it is identified in the major objectives and special objectives, and each objective includes a set of tasks for its implementation. For example, within the axis of the application of receiving information and communication technologies in the administration, the main objective is the modernization of the administration through the enhanced use of information and communication technologies. Within this goal, the infrastructure of the intranet and local networks will be completed in the form of WAN and LAN networks, the renovation of the information equipment shed, the acquisition of information systems, enterprise resource planning systems, databases and the acquisition of applications and programs for the administration, such as the development of platforms for electronic learning, human resource management and training. Within this axis, the goal of bringing the administration closer to the citizen should be also set out through several goals and special operations, such as the development of sectorial applications that mislead citizens, money and companies (G2C, G2E, G2B).

As for the corporate axis, the specific objectives should support the economic sector by integrating information and communication technologies, through operations related to offering electronic services to companies with main and subsidiary activities. These operations are represented in the provision of e-banking and electronic investment. E-investment, e-business, e-procurement, e-commerce, and outsourcing.

According to the Ministry of Post, Information and Communication Technologies, Algeria currently has 587 of government websites affiliated with ministries and public authorities. Despite these relatively significant numbers, all of these sites provide only 29 electronic transactions, and they also provide only 265 documents (or extracts) that can be received.

In another endeavour, an electronic portal (www.elmoutine.dz) was launched. it serves as a link between the citizen and a significant group of administrations that provide different information to the citizen in many fields, as well as links, laws and news services. More than 400 approved administrative procedures, make it easier for the citizen to obtain information without the hassle of moving and inquiring on the spot. Still, Algeria has to enhance government websites structures and customize them according to the need of users providing more details. On another hand, the public administration has to work on their public services and train their employees to enhance their responsiveness, knowledge and their ability to solve problems. Services such as call centres on local governments' level should be activated.

Algeria has to pay more attention e-democracy services. Features such as online voting can be activated on local level. But before that, government websites should provide more information about and communication with elected officials.

Algeria has to follow the example of e-government in Tunisia in terms of e-comment and generalize it. It is only available in justice sector in Algeria. In order to enhance communication with civil society, links of local civic organizations can be provided and indexed on governmental websites. Although chat rooms, blogs and forums are available, it seems that citizens are not largely aware of them or do not intensively participate. local governments are urged to promote them.

- There is a general feeling that rulers are not very responsive to citizens, therefore more online tools for citizens should be introduce to bring them closer

to citizens.   Political and civil society organizations also need more facilities to operate freely. The Algerian government should provide more guarantees and transparency for fair elections and introduce online voting methods at least on local level. Moreover, citizens should be encouraged to be more participative in neighbourhood councils to get prepared for more complicated issues.

In Morocco, the government can enhance the e-government services through: making the information technology sector:

- Oriented towards human development;
- A source of productivity and added value for the rest of the economic and administrative sectors generality;
- One of the pillars of the economy;

The government should focus its strategy around:

- Social transformation by enabling citizens to access the high-flow Internet and encouraging access and exchange of information;
- Achieving public services directed to those dealing with the administration by bringing the administration closer to the needs of its customers in terms of effectiveness, quality and transparency;
- Developing the information technology industry through the development of a local branch of information technologies by supporting the establishment and growth of local actors and by encouraging the emergence of poles of excellence capable of exporting.

The social transformation should seek to transform from the existing status and achievements to a better status. This transformation should be impacted on the number of household connected to the Internet and government presence on the official websites as well as on social media.

The government should consider e-democracy within its e-government projects. Elected officials communicate with citizens using social media. Being limited to

social media is not enough since social media does not have mandatory obligations toward citizens.

Morocco should follow the example of e-government in Tunisia in terms of e-comment and generalize it. It is only available in tourism sector in Morocco. In order to enhance communication with civil society, links of local civic organizations can be provided and indexed on governmental websites. Although chat rooms, blogs and forums are available, it seems that citizens are not largely aware of them or do not intensively participate. Local governments are urged to promote them.

- There is a general feeling that rulers are not very responsive to citizens, therefore more online tools for citizens should be introduce to bring them closer to citizens. Political and civil society organizations also need more facilities to operate freely. The Moroccan government should provide more guarantees and transparency for fair elections and introduce online voting methods at least on local level. Moreover, citizens should be encouraged to be more participative in neighbourhood councils to get prepared for more complicated issues

Since its establishment, E-government unit in Tunisia has established relationships with many experts at the global level from the public and private sectors in order to benefit from the experiences of others and to be familiar with them whenever possible. At the level of each ministry, a coordinator for the management program was appointed.

Currently, the e- administration program in Tunisia should enhance the integrity of administration that serves the citizen and development" by providing services aimed at facilitating transactions with the administration. And instead of services that respond to the aspirations of the citizen and the various Administration modernization aspects of social and economic life at all levels, based on the possibilities it provides information and communication technologies. To fulfil this role, the E-Government Unit should rely on strategies that include organizational and technical competencies as well as it can resort to some competencies from

the public and private sectors whenever necessary. Therefore, an action plan should be set for the development of electronic management during the coming period. This plan should be based on a number of strategic objectives in the field, which are categorized as follows:

Develop a number of interactive online administrative services: the goal is to gradually reaching, for each sector, a new set of services to be put online, taking into consideration the improvement of responding to users' needs, and improving the quality of administrative services.

The specifics of its needs and aspirations that distinguish it from other users:

For Citizens, the government should ensure that administrative transactions are facilitated and brought closer to citizens. This could be achieved by enabling them to view at any time and from any place the necessary information related to the procedures and conditions for obtaining the administrative service and completing the administrative procedures and transactions electronically without the need to call or visit the public facility.

For employees, the level of efficiency and effectiveness of the public servant in various public structures should be raised. This can be achieved through training them to acquire new experiences and skills necessitated by the increasing use of information and communication technologies within the administration. Simplifying procedures by relying on these technologies and enabling them to obtain the information they needs to accomplish their tasks can help them to solve their problem exchange information with other employees more quickly and efficiently.

To embody these various goals, an executive work plan should be set within the framework of the strategic plan, based on the following main axes:

• Supporting the institutional framework supervising the implementation of the e-management development strategy.

• Amending and developing the legal and regulatory framework to respond to the requirements of electronic management.

• Integrating and rehabilitating information systems to make them interactive.

• Developing the infrastructure, equipment and electronic equipment in the Tunisian administration.

• Training and qualifying human resources.

• Provide common specifications and references and share them with all structures involved in the programme.

• Universal access and facilitation of websites and their content.

• Strengthening the communication mechanisms inside and outside the administration to introduce the e-administration services and activate their use.

Within the framework of the Tunisian national strategy, e-government should seek to provide more online services, raise the level of user satisfaction.

Tunisia should pay more attention e-democracy services. Features such as online voting can be activated on local level. But before that, government websites should provide more information about and communication with elected officials.

Tunisia should value the gains of e-comment and be better in responding to citizens' views and demands. In order to enhance communication with civil society, links of local civic organizations can be provided and indexed on governmental websites. Although chat rooms, blogs and forums are available, it seems that citizens are not largely engaged.

Respondents feels that rulers are not very responsive to citizens, therefore more online tools for citizens should be introduced to bring them closer to

citizens. Citizens should be encouraged to be more participative in neighbourhood councils to get prepared for more complicated issues.

6.3 Implications and contribution

Based on the recommendations for the three countries, we can generalize some recommendations to countries that are similar to them.

We recommend developing countries and the countries that are in democratization process to take advantage and benefit from information and communication technologies in order to foster their democratic experience. This goes through enhancing their e-government services especially e-democracy since it is proved to be an effective tool that stimulates citizens' participation.

E-government therefore is considered as a new element that can foster the democratic transition for similar countries. The transition in this case can be achieved when the government is supporting and leading the change. This requires that the government itself should be impartial and willing to serve its citizens and willing to truly involve them in public decision making. The same way as e-government phenomenon is a part of ICTs spread in various fields, the democratic role of e-government is a part of the democratic role of ICTs. Therefore, whenever governments disrupt the democratic role of e-government, their citizen will mobilize using social media to force the government, to change rules, or even to bring regimes down.

These countries usually suffer from corruption, lack of transparency and eventually an absence of accountability. Modernizing E-government would help them to overcome these serious issues.

E-government cannot be effective if there is no law enforcement, therefore, a serious political intention to solve this problem is a necessity to best benefit from

e-government outcomes. Therefore legislative and judicial authorities have to play their role effectively.

Citizens should be encouraged to participate in order to share responsibility with them. Different models can be adopted according to the requirement of the situation in each country and citizens predispositions (Deliberative model for communities of mind, Participatory model for issues that affect all citizens, and Strong democracy model when self-management is applicable).

Governments of similar countries should collaborate with universities to investigate further factors and deepen the current understanding of how ICT and e-government are associated with the social participation.

In the last decade, many academic researches addressed e-government topic and participatory democracy topic. Few studies focused on democratic role of e-government from e-democracy perspective.

This work is the first and the only study in the region that investigates the relationship between e-government and participatory democracy. It is also the first study that suggests and empirically tests the indirect effects of e-government on social participation.

This study contributes to the literature from three perspectives. The first perspective is that our study focuses on the direct and indirect relationship between e-government and participatory democracy.

The second perspective is that our study focuses on a region that is not well-known for the academic society which is the Maghreb (Algeria, Morocco, and Tunisia). The third perspective is that our study focuses the potential of e-government to play a facilitating role in the democratic change process that is taking place in non-democratic countries.

This study contributes directly to the literature of e-government in developing countries and to the literature of participatory democracy in addition to linking

the two concepts together and enriching the topic with new insights regarding its quantitative approach and the sample chosen based on expertise.

6.4 Limitations and future research

This study has two limitations. The first limitation is related to the research model in which variables are extracted based on common factors between e-government and participatory democracy that are measurable. The second limitation is related to the genre of countries from which we have generated our data and results. The countries of the Maghreb are developing countries in democratization process. Therefore, our conclusion can be generalized to countries who are in the same process, but not necessarily to countries who are in different stages compared to the Maghreb countries.

At the end of this study, some research topics rise. The first topic we would like to suggest is the pedagogical role of democracy in developing political tacit knowledge of the masses in developing countries. The second topic we would like to suggest is the relationship between citizenship and online political engagement. Some other questions we would like ask in a provocation for researchers, "Does e-democracy threaten the traditional political ideologies?". Further questions are raised in order to provoke future research areas as follows: Marx argues that the 'consciousness of workers creates suitable conditions for the revolution. Does e-government or the use of ICT help this? Likewise, participation is very suitable for liberalism. Does today's use of technology help individuals' participation in an ideal way? The use of ICTs, particularly social media enables nationalists to abuse the masses. Most probably because the masses are somehow 'open' to manipulations, Can e-government and social media in this sense be reliable? Or can they be the protecting arm against the manipulations by offering always the opportunity to for many opinions?

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APPENDENCES

Appendix A: Research constructs

Measurement	Items	Source
E-government quality	**Efficiency**	(Papadomichelaki, & Mentzas, 2012)
	Government websites structure is clear and easy to follow.	
	Government websites are well customized to individual users' needs.	
	The information displayed in government websites are appropriately detailed.	
	The information displayed in this e-government site is fresh.	
	Information about field's completion in this e-government site is enough.	
	Privacy and security	
	Acquisition of username and password in Government websites site is secure.	
	Only necessary personal data are provided for authentication on this e-government site.	
	Data provided by users in Government websites are archived securely.	
	Data provided in Government websites are used only for the reason submitted.	
	Reliability	
	Government websites are available and accessible whenever you need it.	
	Government websites provides services in time.	
	Government websites never witness technical problems	
	Forms in this government websites are downloaded in short time.	
	This e-government site performs the service	

	successfully upon first request.	
	Citizen Support	
	Employees are responsive and show a sincere interest in solving users' problem and inquiries.	
	Employees have the adequate knowledge to answer users' questions.	
	Local governments have set up a contact centres to communicate with citizens	
	Employees have the ability to convey trust and confidence.	
	E-democracy	Scott (2006)
	Government websites provide information about and communication with elected officials	
	E-government allows direct access to official government notices and records	
	E-comment forms are available on e-government websites and social media	
	Links to other local civic organizations are available and indexed on governmental websites	
	Online issue chat rooms or discussion forums	
Participatory Democracy	**Electoral democracy**	Adopting V-dem participatory survey Fuchs, D., & Roller, E. (2018)
	Rulers are responsive to citizens.	
	Political and civil society organizations can operate freely.	
	Elections are clean and not marred by fraud or systematic irregularities.	
	People choose their leaders in free elections.	
	Electoral competition for the electorate's approval under circumstances when suffrage is extensive;	
	Elections affect the composition of the chief executive of the country.	
	In between elections, there is freedom of expression and an independent media capable of presenting alternative views on matters of political relevance.	
	Non-Electoral	
	Legislative candidate selection within the parties is NOT centralized.	

	Women are encouraged to participate in civil society organizations (CSOs).	
	Women have the same rights as men.	
	People are involved in civil society organizations (CSOs).	
	People can change the laws in referendums.	
E-participation Satisfaction	Government websites are easy to search for content	(Soonhee Kim et al 2012)
	Government websites provide effective functions that deal with my questions (Help desk, Q&A, contact information).	
	Government websites provide well-designed content structure.	
	Government websites have content-rich services.	
	Government websites provide the functions that are easy to submit ideas and to get feedback.	
Corruption control	**perceptions**	
	There is need corruption* in my country.	Adapted from (Charron et al., 2019)
	There is greed corruption** in my country.	
	Elections are clean from corruption.	
	Law enforcement faces difficulties due to administrative corruption or interference of people from higher authorities	
	experiences	
	I am frequently asked to pay a bribe for a public service	
	I am frequently obliged to pay a bribe for a public service	
	I frequently hear my acquaintances complaining about the corruption in public administration	
Transparency	Governments' online services have been more transparent.	Soonhee Kim et al 2012
	Public employees' engagement in corruption has been reduced.	
	Government websites have provided the citizens with greater opportunities to participate in the rulemaking process.	

	E-government has provided the citizens with an equal opportunity to participate in the rule making process.	
Government's accountability	The Government supports the process of learning from mistakes and successes and consider external views for improvement	Said, J., Alam, M. M., & Aziz, M. A. (2015)
	The Government has a regular reporting system on the achievements and results of programs or projects against objectives	
	The Government recognizes the responsibilities of the organization toward its community, society, and the environment	
	The Government follows treasury rules and regulations in all circumstances	
	The Government ensure proper usage of funds in an authorized manner	
	The Government Provide higher responsibility to employees to become highly efficient and effective	
Citizens' Voice	Country's citizens are able to participate in selecting their government	Adopted from World Bank Group, Kaufmann, D., Kraay, A., & Mastruzzi, M. (2010). (Voice and Accountability Index VAI)
	Country's citizens enjoy freedom of expression,	
	Country's citizens enjoy freedom of association,	
	Country's citizens enjoy free media.	
Trust	I trust government agencies.	Colesca, S. E. (2009).
	Government agencies keep my best interests in mind.	
	In my opinion, government agencies are trustworthy.	
	The trust in a governmental agency increase once with its reputation.	

Appendix B: UN E-Government Development Index in the Maghreb

UN E-Government Development Index in Algeria

Algeria	2020	2018	2016	2014	2012	2010	2008	2005	2004	2003
E-Government Development Index rank	120	130	150	136	132	131	121	123	118	91
E-Government Development Index value	0.5173	0.4227	0.29991	0.31064	0.36077	0.3181	0.3515	0.32423	0.32476	0.36993
E-Participation Index rank	183	165	167	172	124	157	152	105	97	91
E-Participation Index value	0.1548	0.2022	0.11864	0.07843	0.0526	0.01428	0.02272	0.03174	0.03278	0.0517
Online Service Index value	0.2765	0.2153	0.06522	0.07874	0.2549	0.09841	0.22408	0.24615	0.25096	0.38427
Telecommunication Infrastructure Index value	0.5787	0.3889	0.19336	0.19885	0.18116	0.12481	0.12298	0.03654	0.03334	0.03552
Human Capital Index value	0.6966	0.664	0.64116	0.6543	0.64626	0.73773	0.7114	0.69	0.69	0.69

UN E-Government Development Index in Morocco

Morocco	2020	2018	2016	2014	2012	2010	2008	2005	2004	2003
E-Government Development Index rank	106	110	85	82	120	126	140	138	138	131
E-Government Development Index value	0.5729	0.5214	0.51858	0.50598	0.4209	0.32872	0.2944	0.27738	0.2641	0.26549
E-Participation Index rank	106	56	17	17	38	86	170	105	97	61
E-Participation Index value	0.5119	0.7753	0.83051	0.80392	0.3947	0.12857	0	0.03174	0.03278	0.1379
Online Service Index value	0.5235	0.6667	0.73913	0.69291	0.54248	0.23809	0.20735	0.23846	0.23166	0.2358
Telecommunication Infrastructure Index value	0.58	0.3697	0.3429	0.33499	0.2772	0.17688	0.13491	0.06368	0.06066	0.06067
Human Capital Index value	0.6152	0.5278	0.47372	0.4901	0.44303	0.57393	0.54368	0.53	0.5	0.5

UN E-Government Development Index in Tunisia

Tunisia	2020	2018	2016	2014	2012	2010	2008	2005	2004	2003
E-Government Development Index rank	91	80	72	75	103	66	124	121	120	108
E-Government Development Index value	0.6526	0.6254	0.56823	0.53895	0.48327	0.48257	0.3458	0.33103	0.3227	0.32924
E-Participation Index rank	73	53	43	33	42	39	152	151	123	123
E-Participation Index value	0.6905	0.7978	0.69492	0.64705	0.3684	0.3	0.02272	0	0.01639	0.0172
Online Service Index value	0.6235	0.8056	0.71739	0.63779	0.47712	0.48253	0.13043	0.15384	0.15444	0.17903
Telecommunication Infrastructure Index value	0.6369	0.4066	0.34761	0.30741	0.28856	0.19415	0.16359	0.09925	0.08367	0.08869
Human Capital Index value	0.6974	0.664	0.6397	0.6717	0.68414	0.77103	0.74978	0.74	0.73	0.72

Appendix C: Summary of Participants responses

The responses on E-government measurement items in the Maghreb

Item	SD		D		N		A		SA		∑		Mean	St.D
E-gov1	33	4.70%	58	8.26%	242	34.47%	311	44.30%	58	8.26%	702	100.00%	3.43	0,93
E-gov2	61	8.69%	96	13.68%	283	40.31%	218	31.05%	44	6.27%	702	100.00%	3.13	1,01
E-gov3	36	5.13%	62	8.83%	221	31.48%	317	45.16%	66	9.40%	702	100.00%	3.45	0,96
E-gov4	30	4.27%	56	7.98%	215	30.63%	329	46.87%	72	10.26%	702	100.00%	3.51	0,96
E-gov5	55	7.83%	90	12.82%	277	39.46%	230	32.76%	50	7.12%	702	100.00%	3.19	1,01
E-gov6	62	8.83%	74	10.54%	87	12.39%	262	37.32%	217	30.91%	702	100.00%	3.71	1,25
E-gov7	53	7.55%	65	9.26%	90	12.82%	272	38.75%	222	31.62%	702	100.00%	3.78	1,25
E-gov8	47	6.70%	78	11.11%	120	17.09%	198	28.21%	259	36.89%	702	100.00%	3.77	1,24
E-gov9	40	5.70%	68	9.69%	113	16.10%	251	35.75%	230	32.76%	702	100.00%	3.80	1,24
E-gov10	66	9.40%	81	11.54%	108	15.38%	233	33.19%	214	30.48%	702	100.00%	3.64	1,28
E-gov11	139	19.80%	241	34.33%	223	31.77%	58	8.26%	41	5.84%	702	100.00%	2.46	1,08
E-gov12	54	7.69%	69	9.83%	120	17.09%	257	36.61%	202	28.77%	702	100.00%	3.69	1,28
E-gov13	57	8.12%	70	9.97%	113	16.10%	243	34.62%	219	31.20%	702	100.00%	3.71	1,28
E-gov14	126	17.95%	254	36.18%	213	30.34%	72	10.26%	37	5.27%	702	100.00%	2.49	1,08
E-gov15	134	19.09%	231	32.91%	253	36.04%	55	7.83%	29	4.13%	702	100.00%	2.45	1,02
E-gov16	84	11.97%	120	17.09%	278	39.60%	185	26.35%	35	4.99%	702	100.00%	2.95	1,05
E-gov17	70	9.97%	115	16.38%	268	38.18%	204	29.06%	45	6.41%	702	100.00%	3.06	1,05
E-gov18	117	16.67%	274	39.03%	236	33.62%	50	7.12%	25	3.56%	702	100.00%	2.42	1,02
E-gov19	64	9.12%	112	15.95%	199	28.35%	271	38.60%	56	7.98%	702	100.00%	3.20	1,09
E-gov20	68	9.69%	105	14.96%	211	30.06%	264	37.61%	54	7.69%	702	100.00%	3.19	1,09
E-gov21	89	12.68%	102	14.53%	144	20.51%	287	40.88%	80	11.40%	702	100.00%	3.24	1,21
E-gov22	164	23.36%	244	34.76%	217	30.91%	48	6.84%	29	4.13%	702	100.00%	2.34	1,04
E-gov23	87	12.39%	47	6.70%	201	28.63%	224	31.91%	143	20.37%	702	100.00%	3.41	1,24

The responses on E-government measurement items in   Algeria

Dimension	Item	SD		D		N		A		SA		∑	Mean	St.D
Efficiency	**E-gov1**	26	10.40%	48	19.20%	102	40.80%	45	18.00%	29	11.60%	250	3,01	1,12
	E-gov2	37	14.80%	55	22.00%	95	38.00%	38	15.20%	25	10.00%	250	2,84	1,16
	E-gov3	29	11.60%	50	20.00%	84	33.60%	50	20.00%	37	14.80%	250	3,06	1,20
	E-gov4	27	10.80%	46	18.40%	82	32.80%	56	22.40%	39	15.60%	250	3,06	1,20
	E-gov5	35	14.00%	53	21.20%	93	37.20%	42	16.80%	27	10.80%	250	2,84	1,16
Privacy and security	**E-gov6**	39	15.60%	46	18.40%	50	20.00%	58	23.20%	57	22.80%	250	3,19	1,38
	E-gov7	33	13.20%	40	16.00%	52	20.80%	65	26.00%	60	24.00%	250	3,19	1,38
	E-gov8	28	11.20%	47	18.80%	74	29.60%	47	18.80%	54	21.60%	250	3,21	1,28
	E-gov9	23	9.20%	40	16.00%	70	28.00%	85	34.00%	32	12.80%	250	3,21	1,28
Reliability	**E-gov10**	38	15.20%	52	20.80%	58	23.20%	66	26.40%	36	14.40%	250	3,04	1,29
	E-gov11	53	21.20%	65	26.00%	63	25.20%	42	16.80%	27	10.80%	250	2,70	1,27
	E-gov12	29	11.60%	43	17.20%	67	26.80%	84	33.60%	27	10.80%	250	3,04	1,29
	E-gov13	33	13.20%	44	17.60%	62	24.80%	72	28.80%	40	16.00%	250	3,04	1,29
	E-gov14	46	18.40%	72	28.80%	58	23.20%	49	19.60%	25	10.00%	250	2,70	1,27
Citizen Support	**E-gov15**	78	31.20%	63	25.20%	54	21.60%	35	14.00%	20	8.00%	250	2,42	1,28
	E-gov16	59	23.60%	65	26.00%	63	25.20%	40	16.00%	23	9.20%	250	2,61	1,26
	E-gov17	49	19.60%	62	24.80%	56	22.40%	53	21.20%	30	12.00%	250	2,61	1,26
	E-gov18	66	26.40%	93	37.20%	42	16.80%	32	12.80%	17	6.80%	250	2,42	1,28
E-democracy	**E-gov19**	34	13.60%	64	25.60%	80	32.00%	48	19.20%	24	9.60%	250	2,86	1,16
	E-gov20	42	16.80%	59	23.60%	60	24.00%	61	24.40%	28	11.20%	250	2,90	1,26
	E-gov21	50	20.00%	57	22.80%	69	27.60%	46	18.40%	28	11.20%	250	2,78	1,27
	E-gov22	86	34.40%	54	21.60%	70	28.00%	26	10.40%	14	5.60%	250	2,31	1,20
	E-gov23	56	22.40%	21	8.40%	46	18.40%	46	18.40%	81	32.40%	250	3,30	1,54

The responses on E-government measurement items in   Tunisia

Dimension	Item	SD		D		N		A		SA		∑	Mean	St.D
Efficiency	**E-gov1**	5	2.16%	10	4.31%	86	37.07%	122	52.59%	9	3.88%	232	3.52	0,74
	E-gov2	21	9.05%	39	16.81%	97	41.81%	64	27.59%	11	4.74%	232	3.02	1,00
	E-gov3	5	2.16%	12	5.17%	83	35.78%	123	53.02%	9	3.88%	232	3.51	0,75
	E-gov4	3	1.29%	10	4.31%	81	34.91%	127	54.74%	11	4.74%	232	3.51	0,75
	E-gov5	19	8.19%	37	15.95%	95	40.95%	68	29.31%	13	5.60%	232	3.02	1,00
Privacy and security	**E-gov6**	23	9.91%	27	11.64%	32	13.79%	95	40.95%	55	23.71%	232	3.57	1,24
	E-gov7	20	8.62%	24	10.34%	33	14.22%	98	42.24%	57	24.57%	232	3.57	1,24
	E-gov8	19	8.19%	30	12.93%	44	18.97%	83	35.78%	56	24.14%	232	3.55	1,22
	E-gov9	17	7.33%	27	11.64%	41	17.67%	98	42.24%	49	21.12%	232	3.55	1,22
Reliability	**E-gov10**	28	12.07%	28	12.07%	45	19.40%	104	44.83%	27	11.64%	232	3.32	1,19
	E-gov11	56	24.14%	84	36.21%	65	28.02%	15	6.47%	12	5.17%	232	2.32	1,07
	E-gov12	25	10.78%	25	10.78%	48	20.69%	110	47.41%	24	10.34%	232	3.32	1,19
	E-gov13	25	10.78%	25	10.78%	46	19.83%	108	46.55%	28	12.07%	232	3.32	1,19
	E-gov14	53	22.84%	87	37.50%	63	27.16%	18	7.76%	11	4.74%	232	2.32	1,07
Citizen Support	**E-gov15**	43	18.53%	78	33.62%	86	37.07%	19	8.19%	6	2.59%	232	2.43	0,97
	E-gov16	24	10.34%	45	19.40%	94	40.52%	59	25.43%	10	4.31%	232	2.94	1,02
	E-gov17	20	8.62%	43	18.53%	91	39.22%	65	28.02%	13	5.60%	232	2.94	1,02
	E-gov18	38	16.38%	91	39.22%	81	34.91%	17	7.33%	5	2.16%	232	2.43	0,97
E-democracy	**E-gov19**	28	12.07%	44	18.97%	55	23.71%	83	35.78%	22	9.48%	232	3.12	1,18
	E-gov20	26	11.21%	44	18.97%	82	35.34%	69	29.74%	11	4.74%	232	2.98	1,06
	E-gov21	37	15.95%	43	18.53%	44	18.97%	96	41.38%	12	5.17%	232	3.01	1,20
	E-gov22	56	24.14%	91	39.22%	61	26.29%	10	4.31%	14	6.03%	232	2.29	1,07
	E-gov23	30	12.93%	22	9.48%	66	28.45%	77	33.19%	37	15.95%	232	3.3	1,22

The responses on E-government measurement items in   Morocco

Dimension	Item	SD		D		N		A		SA		∑	Mean	St.D
Efficiency	**E-gov1**	2	0.91%	0	0.00%	54	24.55%	144	65.45%	20	9.09%	220	3,82	0,62
	E-gov2	3	1.36%	2	0.91%	91	41.36%	116	52.73%	8	3.64%	220	3,56	0,65
	E-gov3	2	0.91%	0	0.00%	54	24.55%	144	65.45%	20	9.09%	220	3,82	0,62
	E-gov4	0	0.00%	0	0.00%	52	23.64%	146	66.36%	22	10.00%	220	3,82	0,62
	E-gov5	1	0.45%	0	0.00%	89	40.45%	120	54.55%	10	4.55%	220	3,56	0,65
Privacy and security	**E-gov6**	0	0.00%	1	0.45%	5	2.27%	109	49.55%	105	47.73%	220	4,45	0,57
	E-gov7	0	0.00%	1	0.45%	5	2.27%	109	49.55%	105	47.73%	220	4,45	0,57
	E-gov8	0	0.00%	1	0.45%	2	0.91%	68	30.91%	149	67.73%	220	4,66	0,52
	E-gov9	0	0.00%	1	0.45%	2	0.91%	68	30.91%	149	67.73%	220	4,66	0,52
Reliability	**E-gov10**	0	0.00%	1	0.45%	5	2.27%	63	28.64%	151	68.64%	220	4,65	0,55
	E-gov11	30	13.64%	92	41.82%	95	43.18%	1	0.45%	2	0.91%	220	2,33	0,75
	E-gov12	0	0.00%	1	0.45%	5	2.27%	63	28.64%	151	68.64%	220	4,65	0,55
	E-gov13	0	0.00%	1	0.45%	5	2.27%	63	28.64%	151	68.64%	220	4,65	0,55
	E-gov14	27	12.27%	95	43.18%	92	41.82%	5	2.27%	1	0.45%	220	2,33	0,75
Citizen Support	**E-gov15**	13	5.91%	90	40.91%	113	51.36%	1	0.45%	3	1.36%	220	2,50	0,68
	E-gov16	1	0.45%	10	4.55%	121	55.00%	86	39.09%	2	0.91%	220	3,35	0,60
	E-gov17	1	0.45%	10	4.55%	121	55.00%	86	39.09%	2	0.91%	220	3,35	0,60
	E-gov18	13	5.91%	90	40.91%	113	51.36%	1	0.45%	3	1.36%	220	2,50	0,68
E-democracy	**E-gov19**	2	0.91%	4	1.82%	64	29.09%	140	63.64%	10	4.55%	220	3,69	0,63
	E-gov20	0	0.00%	2	0.91%	69	31.36%	134	60.91%	15	6.82%	220	3,74	0,59
	E-gov21	2	0.91%	2	0.91%	31	14.09%	145	65.91%	40	18.18%	220	4,00	0,66
	E-gov22	22	10.00%	99	45.00%	86	39.09%	12	5.45%	1	0.45%	220	2,41	0,76
	E-gov23	1	0.45%	4	1.82%	89	40.45%	101	45.91%	25	11.36%	220	3,66	0,72

The responses on Participatory Democracy measurement items in the Maghreb

Dimension	Item	SD		D		N		A		SA		∑		Mean	St.D
Electoral	**Part-Dem1**	102	14.53%	131	18.66%	308	43.87%	128	18.23%	33	4.70%	702	100.00%	2,80	1,05
	Part-Dem2	87	12.39%	97	13.82%	94	13.39%	279	39.74%	145	20.66%	702	100.00%	3,42	1,30
	Part-Dem3	167	23.79%	55	7.83%	106	15.10%	273	38.89%	101	14.39%	702	100.00%	3,12	1,41
	Part-Dem4	157	22.36%	45	6.41%	90	12.82%	299	42.59%	111	15.81%	702	100.00%	3,12	1,41
	Part-Dem5	80	11.40%	88	12.54%	100	14.25%	289	41.17%	145	20.66%	702	100.00%	3,42	1,30
	Part-Dem6	112	15.95%	141	20.09%	278	39.60%	136	19.37%	35	4.99%	702	100.00%	2,80	1,05
	Part-Dem7	158	22.51%	61	8.69%	100	14.25%	278	39.60%	105	14.96%	702	100.00%	3,12	1,41
Non-Electoral	**Part-Dem8**	165	23.50%	131	18.66%	286	40.74%	76	10.83%	44	6.27%	702	100.00%	2,58	1,14
	Part-Dem9	40	5.70%	66	9.40%	165	23.50%	316	45.01%	115	16.38%	702	100.00%	3,57	1,05
	Part-Dem10	63	8.97%	65	9.26%	87	12.39%	237	33.76%	250	35.61%	702	100.00%	3,78	1,27
	Part-Dem11	44	6.27%	136	19.37%	336	47.86%	130	18.52%	56	7.98%	702	100.00%	3,03	0,97
	Part-Dem12	297	42.31%	172	24.50%	100	14.25%	74	10.54%	59	8.40%	702	100.00%	2,18	1,31

The responses on Participatory Democracy measurement items in Algeria

Dimension	Item	SD		D		N		A		SA		∑	Mean	St.D
Electoral	**Part-Dem1**	57	22.80%	63	25.20%	68	27.20%	43	17.20%	19	7.60%	250	2,62	1,22
	Part-Dem2	49	19.60%	62	24.80%	54	21.60%	53	21.20%	32	12.80%	250	2,83	1,31
	Part-Dem3	103	41.20%	33	13.20%	40	16.00%	40	16.00%	34	13.60%	250	2,48	1,49
	Part-Dem4	96	38.40%	26	10.40%	29	11.60%	61	24.40%	38	15.20%	250	2,48	1,49
	Part-Dem5	44	17.60%	56	22.40%	58	23.20%	60	24.00%	32	12.80%	250	2,83	1,31
	Part-Dem6	61	24.40%	67	26.80%	57	22.80%	44	17.60%	21	8.40%	250	2,62	1,22
	Part-Dem7	97	38.80%	37	14.80%	36	14.40%	43	17.20%	37	14.80%	250	2,48	1,49
Non-Electoral	**Part-Dem8**	105	42.00%	40	16.00%	60	24.00%	22	8.80%	23	9.20%	250	2,27	1,33
	Part-Dem9	27	10.80%	43	17.20%	65	26.00%	67	26.80%	48	19.20%	250	3,26	1,25
	Part-Dem10	39	15.60%	43	17.20%	52	20.80%	39	15.60%	77	30.80%	250	3,29	1,45
	Part-Dem11	29	11.60%	50	20.00%	80	32.00%	55	22.00%	36	14.40%	250	3,08	1,21
	Part-Dem12	72	28.80%	38	15.20%	56	22.40%	47	18.80%	37	14.80%	250	2,76	1,42

Appendix C : The responses on Participatory Democracy measurement items in Morocco

Dimension	Item	SD		D		N		A		SA		∑	Mean	St.D
Electoral	**Part-Dem1**	43	18.53%	57	24.57%	79	34.05%	40	17.24%	13	5.60%	232	2,67	1,13
	Part-Dem2	36	15.52%	33	14.22%	37	15.95%	101	43.53%	25	10.78%	232	3,20	1,26
	Part-Dem3	62	26.72%	21	9.05%	33	14.22%	99	42.67%	17	7.33%	232	2,95	1,37
	Part-Dem4	59	25.43%	18	7.76%	28	12.07%	**105**	45.26%	22	9.48%	232	2,95	1,37
	Part-Dem5	34	14.66%	30	12.93%	39	16.81%	104	44.83%	25	10.78%	232	3,20	1,26
	Part-Dem6	46	19.83%	60	25.86%	70	30.17%	43	18.53%	13	5.60%	232	2,67	1,13
	Part-Dem7	59	25.43%	23	9.91%	31	13.36%	101	43.53%	18	7.76%	232	2,95	1,37
Non-Electoral	**Part-Dem8**	51	21.98%	39	16.81%	91	39.22%	34	14.66%	17	7.33%	232	2,69	1,18
	Part-Dem9	13	5.60%	21	9.05%	58	25.00%	94	40.52%	46	19.83%	232	3,60	1,07
	Part-Dem10	22	9.48%	22	9.48%	34	14.66%	89	38.36%	65	28.02%	232	3,66	1,24
	Part-Dem11	14	6.03%	56	24.14%	105	45.26%	38	16.38%	19	8.19%	232	2,97	0,99
	Part-Dem12	112	48.28%	43	18.53%	31	13.36%	26	11.21%	20	8.62%	232	2,13	1,35

Appendix C : The responses on Participatory Democracy measurement items in Tunisia

Dimension	Item	SD		D		N		A		SA		∑	Mean	St.D
Electoral	**Part-Dem1**	2	0.91%	11	5.00%	161	73.18%	45	20.45%	1	0.45%	220	3,15	0,54
	Part-Dem2	2	0.91%	2	0.91%	3	1.36%	125	56.82%	88	40.00%	220	4,34	0,64
	Part-Dem3	2	0.91%	1	0.45%	33	15.00%	134	60.91%	50	22.73%	220	4,04	0,69
	Part-Dem4	2	0.91%	1	0.45%	33	15.00%	134	60.91%	50	22.73%	220	4,04	0,69
	Part-Dem5	2	0.91%	2	0.91%	3	1.36%	125	56.82%	88	40.00%	220	4,34	0,64
	Part-Dem6	5	2.27%	14	6.36%	151	68.64%	49	22.27%	1	0.45%	220	3,15	0,54
	Part-Dem7	2	0.91%	1	0.45%	33	15.00%	134	60.91%	50	22.73%	220	4,04	0,69
Non-Electoral	**Part-Dem8**	9	4.09%	52	23.64%	135	61.36%	20	9.09%	4	1.82%	220	2,81	0,73
	Part-Dem9	0	0.00%	2	0.91%	42	19.09%	155	70.45%	21	9.55%	220	3,89	0,56
	Part-Dem10	2	0.91%	0	0.00%	1	0.45%	109	49.55%	108	49.09%	220	4,46	0,61
	Part-Dem11	1	0.45%	30	13.64%	151	68.64%	37	16.82%	1	0.45%	220	3,03	0,58
	Part-Dem12	113	51.36%	91	41.36%	13	5.91%	1	0.45%	2	0.91%	220	1,58	0,71

The responses on E-participation satisfaction measurement items in the Maghreb

Item	SD		D		N		A		SA		∑	Mean	St.D
E-part1	72	10.26%	110	15.67%	215	30.63%	252	35.90%	53	7.55%	702	3,15	1,10
E-part2	94	13.39%	106	15.10%	152	21.65%	275	39.17%	75	10.68%	702	3,19	1,21
E-part3	79	11.25%	89	12.68%	269	38.32%	229	32.62%	36	5.13%	702	3,08	1,05
E-part4	69	9.83%	116	16.52%	147	20.94%	288	41.03%	82	11.68%	702	3,19	1,21
E-part5	106	15.10%	234	33.33%	234	33.33%	92	13.11%	36	5.13%	702	2,60	1,05

The responses on E-participation satisfaction measurement items in   Algeria

Item	SD		D		N		A		SA		∑	Mean	St.D
E-part1	46	18.40%	64	25.60%	61	24.40%	51	20.40%	28	11.20%	250	2,80	1,27
E-part2	55	22.00%	61	24.40%	74	29.60%	36	14.40%	24	9.60%	250	2,65	1,24
E-part3	46	18.40%	52	20.80%	90	36.00%	40	16.00%	22	8.80%	250	2,76	1,18
E-part4	38	15.20%	68	27.20%	71	28.40%	44	17.60%	**29**	11.60%	250	2,65	1,24
E-part5	64	25.60%	70	28.00%	54	21.60%	40	16.00%	22	8.80%	250	2,54	1,27

The responses on E-participation satisfaction measurement items in   Morocco

Item	SD		D		N		A		SA		∑	Mean	St.D
E-part1	26	11.21%	44	18.97%	85	36.64%	67	28.88%	10	4.31%	232	2,96	1,05
E-part2	37	15.95%	43	18.53%	47	20.26%	94	40.52%	11	4.74%	232	3,00	1,19
E-part3	33	14.22%	33	14.22%	98	42.24%	58	25.00%	10	4.31%	232	2,91	1,06
E-part4	29	12.50%	46	19.83%	45	19.40%	98	42.24%	14	6.03%	232	3,00	1,19
E-part5	38	16.38%	92	39.66%	66	28.45%	24	10.34%	12	5.17%	232	2,48	1,05

The responses on E-participation satisfaction measurement items in   Tunisia

Item	SD		D		N		A		SA		∑	Mean	St.D
E-part1	0	0.00%	2	0.91%	69	31.36%	134	60.91%	15	6.82%	220	3,74	0,59
E-part2	2	0.91%	2	0.91%	31	14.09%	145	65.91%	40	18.18%	220	4,00	0,66
E-part3	0	0.00%	4	1.82%	81	36.82%	131	59.55%	4	1.82%	220	3,61	0,56
E-part4	2	0.91%	2	0.91%	31	14.09%	145	65.91%	40	18.18%	220	4,00	0,66
E-part5	4	1.82%	72	32.73%	114	51.82%	28	12.73%	2	0.91%	220	2,78	0,72

The responses on Corruption control measurement items in the Maghreb

Dimension	Item	SD		D		N		A		SA		∑	Mean	St.D
Perception	**Crptn-ctrl1**	244	34.76%	246	35.04%	97	13.82%	45	6.41%	70	9.97%	702	2.22	1,26
	Crptn-ctrl2	358	51.00%	237	33.76%	53	7.55%	25	3.56%	29	4.13%	702	1.76	1,02
	Crptn-ctrl3	167	23.79%	55	7.83%	106	15.10%	273	38.89%	101	14.39%	702	3.12	1,41
	Crptn-ctrl4	97	13.82%	118	16.81%	247	35.19%	103	14.67%	137	19.52%	702	3.09	1,28
Experience	**Crptn-ctrl5**	88	12.54%	106	15.10%	238	33.90%	123	17.52%	147	20.94%	702	3.19	1,28
	Crptn-ctrl6	92	13.11%	56	7.98%	181	25.78%	177	25.21%	196	27.92%	702	3.47	1,32
	Crptn-ctrl7	85	12.11%	49	6.98%	170	24.22%	192	27.35%	206	29.34%	702	3.55	1,32

The responses on Corruption control measurement items in   Algeria

Dimension	Item	SD		D		N		A		SA		∑	Mean	St.D
Perception	**Crptn-ctrl1**	104	41.60%	33	13.20%	41	16.40%	28	11.20%	44	17.60%	250	2,50	1,54
	Crptn-ctrl2	131	52.40%	48	19.20%	34	13.60%	14	5.60%	23	9.20%	250	2,00	1,31
	Crptn-ctrl3	103	41.20%	33	13.20%	40	16.00%	40	16.00%	34	13.60%	250	2,48	1,49
	Crptn-ctrl4	54	21.60%	23	9.20%	47	18.80%	37	14.80%	89	35.60%	250	3,34	1,55
Experience	**Crptn-ctrl5**	51	20.40%	19	7.60%	44	17.60%	43	17.20%	93	37.20%	250	3,34	1,55

Crptn-ctrl6	53	21.20%	19	7.60%	36	14.40%	36	14.40%	106	42.40%	250	3,49	1,59
Crptn-ctrl7	50	20.00%	16	6.40%	29	11.60%	45	18.00%	110	44.00%	250	3,49	1,59

The responses on Corruption control measurement items in   Morocco

Dimension	Item	SD		D		N		A		SA		∑	Mean	St.D
Perception	**Crptn-ctrl1**	83	35.78%	81	34.91%	32	13.79%	13	5.60%	23	9.91%	232	2,19	1,26
	Crptn-ctrl2	127	54.74%	70	30.17%	19	8.19%	10	4.31%	6	2.59%	232	1,70	0,97
	Crptn-ctrl3	62	26.72%	21	9.05%	33	14.22%	99	42.67%	17	7.33%	232	2,95	1,37
	Crptn-ctrl4	42	18.10%	40	17.24%	84	36.21%	26	11.21%	40	17.24%	232	2,92	1,30
Experience	**Crptn-ctrl5**	37	15.95%	36	15.52%	81	34.91%	34	14.66%	44	18.97%	232	2,92	1,30
	Crptn-ctrl6	38	16.38%	21	9.05%	69	29.74%	45	19.40%	59	25.43%	232	3,28	1,37
	Crptn-ctrl7	35	15.09%	18	7.76%	67	28.88%	48	20.69%	64	27.59%	232	3,28	1,37

The responses on Corruption control measurement items in   Tunisia

Dimension	Item	SD		D		N		A		SA		∑	Mean	St.D
Perception	**Crptn-ctrl1**	57	25.91%	132	60.00%	24	10.91%	4	1.82%	3	1.36%	220	1,93	0,75
	Crptn-ctrl2	100	45.45%	119	54.09%	0	0.00%	1	0.45%	0	0.00%	220	1,55	0,52
	Crptn-ctrl3	2	0.91%	1	0.45%	33	15.00%	134	60.91%	50	22.73%	220	4,04	0,69
	Crptn-ctrl4	1	0.45%	55	25.00%	116	52.73%	40	18.18%	8	3.64%	220	3,00	0,77
Experience	**Crptn-ctrl5**	0	0.00%	51	23.18%	113	51.36%	46	20.91%	10	4.55%	220	3,00	0,77
	Crptn-ctrl6	1	0.45%	16	7.27%	76	34.55%	96	43.64%	31	14.09%	220	3,64	0,83
	Crptn-ctrl7	0	0.00%	15	6.82%	74	33.64%	99	45.00%	32	14.55%	220	3,64	0,83

The responses on Transparency measurement items in the Maghreb

Item	SD		D		N		A		SA		∑	Mean	St.D
Tran1	74	10.54%	147	20.94%	296	42.17%	135	19.23%	50	7.12%	702	2,91	1,05
Tran2	173	24.64%	213	30.34%	230	32.76%	44	6.27%	42	5.98%	702	2,39	1,10
Tran3	220	31.34%	260	37.04%	146	20.80%	42	5.98%	34	4.84%	702	2,16	1,08
Tran4	173	24.64%	236	33.62%	207	29.49%	54	7.69%	32	4.56%	702	2,34	1,07

The responses on Transparency measurement items in Algeria

Item	SD		D		N		A		SA		∑	Mean	St.D
Tran1	46	18.40%	54	21.60%	62	24.80%	56	22.40%	32	12.80%	250	2,90	1,30
Tran2	94	37.60%	57	22.80%	50	20.00%	23	9.20%	26	10.40%	250	2,32	1,33
Tran3	95	38.00%	47	18.80%	62	24.80%	28	11.20%	18	7.20%	250	2,31	1,28
Tran4	91	36.40%	49	19.60%	66	26.40%	28	11.20%	16	6.40%	250	2,32	1,25

The responses on Transparency measurement items in Morocco

Item	SD		D		N		A		SA		∑	Mean	St.D
Tran1	46	18.40%	54	21.60%	62	24.80%	56	22.40%	32	12.80%	250	2,90	1,30
Tran2	94	37.60%	57	22.80%	50	20.00%	23	9.20%	26	10.40%	250	2,32	1,33
Tran3	95	38.00%	47	18.80%	62	24.80%	28	11.20%	18	7.20%	250	2,31	1,28
Tran4	91	36.40%	49	19.60%	66	26.40%	28	11.20%	16	6.40%	250	2,32	1,25

The responses on Transparency measurement items in Tunisia

Item	SD		D		N		A		SA		∑	Mean	St.D
Tran1	46	18.40%	54	21.60%	62	24.80%	56	22.40%	32	12.80%	250	2,90	1,30
Tran2	94	37.60%	57	22.80%	50	20.00%	23	9.20%	26	10.40%	250	2,32	1,33
Tran3	95	38.00%	47	18.80%	62	24.80%	28	11.20%	18	7.20%	250	2,31	1,28
Tran4	91	36.40%	49	19.60%	66	26.40%	28	11.20%	16	6.40%	250	2,32	1,25

The responses on Government accountability measurement items in the Maghreb

Item	SD		D		N		A		SA		∑	Mean	St.D
Gov-acc1	136	19.37%	101	14.39%	288	41.03%	146	20.80%	31	4.42%	702	2.765	1,12
Gov-acc2	120	17.09%	91	12.96%	274	39.03%	176	25.07%	41	5.84%	702	2.896	1,12
Gov-acc3	114	16.24%	75	10.68%	260	37.04%	216	30.77%	37	5.27%	702	2.981	1,13
Gov-acc4	100	14.25%	69	9.83%	240	34.19%	241	34.33%	52	7.41%	702	3.108	1,13
Gov-acc5	167	23.79%	158	22.51%	269	38.32%	83	11.82%	25	3.56%	702	2.489	1,08
Gov-acc6	150	21.37%	140	19.94%	287	40.88%	90	12.82%	35	4.99%	702	2.601	1,08

The responses on Government accountability measurement items in Algeria

Item	SD		D		N		A		SA		∑	Mean	St.D
Gov-acc1	93	37.20%	36	14.40%	73	29.20%	28	11.20%	20	8.00%	250	2,38	1,30
Gov-acc2	81	32.40%	29	11.60%	62	24.80%	53	21.20%	25	10.00%	250	2,38	1,30
Gov-acc3	75	30.00%	37	14.80%	68	27.20%	50	20.00%	20	8.00%	250	2,61	1,31
Gov-acc4	65	26.00%	33	13.20%	54	21.60%	69	27.60%	29	11.60%	250	2,61	1,31
Gov-acc5	99	39.60%	39	15.60%	57	22.80%	38	15.20%	17	6.80%	250	2,34	1,31
Gov-acc6	92	36.80%	33	13.20%	63	25.20%	41	16.40%	21	8.40%	250	2,34	1,31

The responses on Government accountability measurement items in Morocco

Item	SD		D		N		A		SA		∑	Mean	St.D
Gov-acc1	42	18.10%	40	17.24%	94	40.52%	46	19.83%	10	4.31%	232	2,75	1,10
Gov-acc2	38	16.38%	37	15.95%	91	39.22%	51	21.98%	15	6.47%	232	2,75	1,10
Gov-acc3	38	16.38%	35	15.09%	98	42.24%	50	21.55%	11	4.74%	232	2,83	1,09
Gov-acc4	34	14.66%	33	14.22%	92	39.66%	56	24.14%	17	7.33%	232	2,83	1,09
Gov-acc5	52	22.41%	42	18.10%	99	42.67%	32	13.79%	7	3.02%	232	2,57	1,07
Gov-acc6	47	20.26%	36	15.52%	105	45.26%	34	14.66%	10	4.31%	232	2,57	1,07

The responses on Government accountability measurement items in Tunisia

Item	SD		D		N		A		SA		∑	Mean	St.D
Gov-acc1	1	0.45%	25	11.36%	121	55.00%	72	32.73%	1	0.45%	220	3,21	0,66
Gov-acc2	1	0.45%	25	11.36%	121	55.00%	72	32.73%	1	0.45%	220	3,21	0,66
Gov-acc3	1	0.45%	3	1.36%	94	42.73%	116	52.73%	6	2.73%	220	3,56	0,60
Gov-acc4	1	0.45%	3	1.36%	94	42.73%	116	52.73%	6	2.73%	220	3,56	0,60
Gov-acc5	16	7.27%	77	35.00%	113	51.36%	13	5.91%	1	0.45%	220	2,57	0,73
Gov-acc6	11	5.00%	71	32.27%	119	54.09%	14	6.36%	5	2.27%	220	2,57	0,73

The responses on Citizens' voice measurement items in the Maghreb

Item	SD		D		N		A		SA		∑	Mean	St.D
Ctzn-V1	139	19.80%	40	5.70%	131	18.66%	231	32.91%	161	22.93%	702	3,33	1,41
Ctzn-V2	117	16.67%	37	5.27%	74	10.54%	257	36.61%	217	30.91%	702	3,60	1,40
Ctzn-V3	71	10.11%	67	9.54%	69	9.83%	239	34.05%	256	36.47%	702	3,77	1,31
Ctzn-V4	95	13.53%	66	9.40%	85	12.11%	256	36.47%	200	28.49%	702	3,57	1,35

The responses on Citizens' voice measurement items in Algeria

Item	SD		D		N		A		SA		∑	Mean	St.D
Ctzn-V1	88	35.20%	22	8.80%	34	13.60%	40	16.00%	66	26.40%	250	2,90	1,64
Ctzn-V2	80	32.00%	21	8.40%	43	17.20%	46	18.40%	60	24.00%	250	2,94	1,58
Ctzn-V3	46	18.40%	40	16.00%	42	16.80%	56	22.40%	66	26.40%	250	3,22	1,46
Ctzn-V4	63	25.20%	42	16.80%	46	18.40%	44	17.60%	55	22.00%	250	2,94	1,49

The responses on Citizens' voice measurement items in Morocco

Item	SD		D		N		A		SA		∑	Mean	St.D
Ctzn-V1	48	20.69%	18	7.76%	69	29.74%	69	29.74%	28	12.07%	232	3,05	1,30
Ctzn-V2	36	15.52%	15	6.47%	28	12.07%	111	47.84%	42	18.10%	232	3,47	1,29
Ctzn-V3	24	10.34%	23	9.91%	27	11.64%	107	46.12%	51	21.98%	232	3,59	1,22
Ctzn-V4	30	12.93%	22	9.48%	34	14.66%	112	48.28%	34	14.66%	232	3,42	1,23

Appendix C: The responses on Citizens' voice measurement items in Tunisia

Item	SD		D		N		A		SA		∑	Mean	St.D
Ctzn-V1	3	1.36%	0	0.00%	28	12.73%	122	55.45%	67	30.45%	220	4,14	0,73
Ctzn-V2	1	0.45%	1	0.45%	3	1.36%	100	45.45%	115	52.27%	220	4,49	0,60
Ctzn-V3	1	0.45%	4	1.82%	0	0.00%	76	34.55%	139	63.18%	220	4,58	0,64
Ctzn-V4	2	0.91%	2	0.91%	5	2.27%	100	45.45%	111	50.45%	220	4,44	0,67

The responses on Trust measurement items in the Maghreb

Item	SD		D		N		A		SA		∑	Mean	St.D
Trust1	158	22.51%	114	16.24%	346	49.29%	54	7.69%	30	4.27%	702	2,55	1,05
Trust2	163	23.22%	141	20.09%	264	37.61%	109	15.53%	25	3.56%	702	2,56	1,11
Trust3	161	22.93%	99	14.10%	345	49.15%	67	9.54%	30	4.27%	702	2,58	1,07
Trust4	87	12.39%	47	6.70%	201	28.63%	224	31.91%	143	20.37%	702	3,41	1,24

The responses on Trust measurement items in Algeria

Item	SD		D		N		A		SA		∑	Mean	St.D
Trust1	99	39.60%	25	10.00%	71	28.40%	37	14.80%	18	7.20%	250	2,40	1,33
Trust2	99	39.60%	41	16.40%	55	22.00%	39	15.60%	16	6.40%	250	2,33	1,31
Trust3	101	40.40%	31	12.40%	58	23.20%	41	16.40%	19	7.60%	250	2,38	1,35
Trust4	56	22.40%	21	8.40%	46	18.40%	46	18.40%	81	32.40%	250	3,30	1,54

The responses on Trust measurement items in Morocco

Item	SD		D		N		A		SA		∑	Mean	St.D
Trust1	56	24.14%	43	18.53%	111	47.84%	12	5.17%	10	4.31%	232	2,47	1,05
Trust2	60	25.86%	61	26.29%	85	36.64%	18	7.76%	8	3.45%	232	2,37	1,05
Trust3	57	24.57%	34	14.66%	117	50.43%	15	6.47%	9	3.88%	232	2,50	1,05
Trust4	30	12.93%	22	9.48%	66	28.45%	77	33.19%	37	15.95%	232	3,30	1,22

The responses on Trust measurement items in Tunisia

Item	SD		D		N		A		SA		∑	Mean	St.D
Trust1	3	1.36%	46	20.91%	164	74.55%	5	2.27%	2	0.91%	220	2,80	0,53
Trust2	4	1.82%	39	17.73%	124	56.36%	52	23.64%	1	0.45%	220	3,03	0,71
Trust3	3	1.36%	34	15.45%	170	77.27%	11	5.00%	2	0.91%	220	2,89	0,53
Trust4	1	0.45%	4	1.82%	89	40.45%	101	45.91%	25	11.36%	220	3,66	0,72

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