

# The Public Value of E-government: A Qualitative Study from the Perspective of Private-Sector Professionals in Morocco

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## Abstract

This paper focuses on assessing the public value of e-government in Morocco, using Delone and Mclean's (2016) Information Systems (IS) success model as a reference framework. The methodology is based on a qualitative exploratory study involving 13 companies, including law firms, architecture firms, and real estate developers firms. An interview guide was designed to collect data, which were analyzed using Nvivo Qsr 12 software. The analysis identified six variables, namely: "Human Capital, Telecommunication Infrastructure, Willingness to Use, State Strategy, Continuous Education, and Culture," which were added to the seven predetermined variables of the Delone and Mclean (2016) IS Success Model. This research outlines practical implications that are essential for the long-term success of e-government initiatives in Morocco. These include investing in skills development, effectively communicating the benefits of e-government, promoting collaboration between the public and private sectors, recognizing organizational culture, putting mechanisms in place to measure performance and user satisfaction, as well as making adjustments to organizational processes and rigorously managing data security. On a political level, these adjustments underline the importance of a coherent government strategy, which focuses on strengthening human capital and telecommunications infrastructures, in order to promote a successful digital transformation and

achieve the objectives of trust, transparency, and efficiency in public services.

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**Keywords:** Public value, Public administrations, Private sector, Evaluation, Delone and Mclean (2016) Information Systems Success Model

## 1. Introduction

Information and Communication Technologies (ICT) have revolutionized the dynamics of interactions between public administrations, citizens, and businesses. Online services, also known as electronic services, provide users with a variety of digital solutions that facilitate efficient, transparent, and equitable access to public services. The deployment of electronic services by public administrations extends far beyond the simple modernization of administrative processes. It is a reflection of profound and multidimensional public value. These services help to strengthen trust between citizens and government, increase transparency, promote civic participation, and improve equitable access to information and services.

A new approach to performance, centered on public values, captures interest (Zumofen, 2016). In contrast to the previous New Public Management (NPM) paradigm, this approach prioritizes generating value for citizens over classical performance. Inspired by Moore's work (Moore, 1995), this transition shifts the priorities of public managers from efficiency and objectives to a broader vision centered on public value. This evolution redefines the roles of managers and their relationships with citizens, extending beyond measurable indicators.

Public value is based on evaluating the benefits offered by public services to citizens (Kelly *al.*, 2002). It is measured through three key indicators: service quality, achieving socially desired results, and user trust.

Morocco has launched several initiatives to accelerate its digital transition, including "Digital Morocco 2013," "Digital Morocco 2020," and "Morocco Digital Strategy 2030." These programs revolve around the development of an information society, a digital economy, and local administration through an ambitious e-government program.

This research explores the public value of online administrations in Morocco, adopting a multiparadigm approach with abductive reasoning. This exploratory method confronts empirical data from interviews with theoretical knowledge from the literature on the deployment of Information Systems (IS) and their impact on public value.

The conclusion of this study could offer concrete recommendations for managers responsible for deploying e-government, thereby speeding up the introduction of electronic services that are truly geared towards users' needs. However, it is crucial to emphasize the near-total absence of research dedicated to exploring how e-service systems affect the public value of

administrations in Morocco. This study therefore aims to fill this gap, making a significant contribution to local and national thinking. It sets out to explore the public value generated by e-services systems within government departments, focusing on concrete personal accounts from private sector professionals and their own experiences.

The rest of this manuscript is divided into four distinct sections. The first part addresses the literature review and research question, while the second section outlines and justifies the chosen methodology. The third section presents the results and their concise interpretations, while the fourth and final section discusses conclusions and future perspectives.

## **2. Literature Review and Research Question**

### **2.1. E-government: Theoretical Overview of the Concept**

The theoretical framework of this research area lies between the fields of public administration, information technology, and the digital society. The concept of e-government (e-gov) does not have a universally accepted definition (Halchin, 2004). Nonetheless, it can be defined as an ongoing process of improving public participation, governance, and service delivery through the transformation of internal and external relationships using technology, the Internet, and new media (Baum & Di Maio, 2000).

Since its emergence, there has been much debate among academics and policymakers about the definition of e-government, describing its dimensions, levels of application and socio-economic and political effects. A number of researchers have developed models and theoretical approaches in order to provide better answers to the various questions linked to the field of e-government.

The OECD (2004) highlights several advantages of e-government. These include improving administrative efficiency, achieving specific policy objectives, and reducing public expenditure. It also promotes reform by increasing transparency, facilitating information sharing, and revealing internal inconsistencies.

In addition, according to Delone and Golden (2016), the successful implementation of e-government systems depends on how citizens perceive the value they derive from them. Rose *et al.* (2015) asserts that understanding the values rooted in the perception of e-government projects is crucial in grasping their broader objectives. Furthermore, coordinating stakeholders based on these core values has the potential to drive success.

The stages involved in developing e-government, based on their level of technological and organizational sophistication, have been subdivided into four by Layne and Lee (2001). These stages include the “Information Catalogue” stage, the “Transaction” stage where users are progressively involved, the “Vertical Integration” stage where local and central government

systems are connected, and the “Horizontal Integration” stage which tends to break down the barriers between structured functions within government (Btoush *et al.*, 2008).

In Morocco and other emerging countries, the third stage predominates in the maturation of their e-government systems.

In this context, e-government and e-services are two closely related and interdependent concepts that refer to the use of information and communication technologies (ICTs) to optimize government processes and the delivery of public services. However, it is important to emphasize that e-service is not simply a technical operation, but rather an initiative aimed at improving the political and social context. This initiates a radical transformation in the way administrative functions are carried out (Asgarkhani, 2005).

"In the broadest sense, e-service can be defined as the provision of service over electronic networks such as the internet" (Rust & Lemon, 2001).

## **2.2. Public Value: An Innovative E-government Evaluation Paradigm**

There is still debate about the definition and assessment of e-government, particularly on the relevance of the elements evaluated and their impact on objectives and user satisfaction. This evolution is in line with the public sector's focus on improving services for all stakeholders, increasingly associating this concept with "public value".

Public value refers to the ability to assess the benefits of public services for citizens. The main components of public value fall into three broad categories: services, results, and trust (Kelly *et al.*, 2002). Based on this formulation, Kearns (2004) pioneered a list of criteria to evaluate the public value of e-government, providing a basis on which e-government initiatives should be assessed. These set of standards include focusing on services that are important to the public, increasing information, diversifying user choice, reducing service delivery costs, improving outcomes, etc.

While a good deal of work focuses theoretically on public value to explain the performance of e-government, there exists a noticeable dearth of empirical research validating the possible link between public value and the adoption of e-government. Ha (2016) highlighted the need for a holistic model that brings together two facets of research on the public value of e-government: the performance of e-government services and trust in the accountability of public administration.

Traditionally, it should be noted that performance is defined as the achievement of expected results, as well as value creation commonly associated with increased profits in the corporate sector. However, in the public sector, value creation is interpreted as the optimization of services offered to citizens (Galdemar *et al.*, 2012).

According to the studies of Moore (Moore, 1995), performance evaluation is centered on "added value". In this context, public services play a crucial role. Although the concept of 'value added' remains unchanged, it is important to note that within the public sector, the focus is on 'public value' rather than 'private value'. This is especially notable in the absence of monetary profits, leading to increased complexity in evaluating outcomes for public companies (Van Doren & Lonti, 2010). Public value creation differs from private value creation since it focuses on general interest rather than maximizing profits. Public organisations seek to meet collective needs and solve society's problems (Moore, 1997).

It should also be noted that public value is not limited to short-term gains, but aims to ensure long-term sustainability by meeting current needs without compromising future generations (Hood & Dixon, 2015).

A multidimensional model for assessing the public value of e-government projects has been introduced by Liu et al. (2008). This framework places particular emphasis on the importance of assessing the value of e-government and satisfying stakeholders, focusing on the financial, social, strategic, and operational aspects of e-government projects. However, a true assessment of public value should focus on the citizens' perspective of e-government (Karunasena & Deng, 2010).

Meanwhile, Twizeyimana and Andersson (2019) have identified six dimensions for assessing the public value of e-government. These dimensions include improved public services, administrative efficiency, open government (OG) capabilities, adherence to ethical and professional conduct, trust in government, and the promotion of social value and well-being. In summary, the existing literature on e-government and public value reveals a persistent debate around the definition, evaluation, and impact of these concepts. While e-government seeks to improve public services through technology, 'public value' focuses on the creation of benefits for society as a whole. Multi-dimensional approaches exist to assess this public value, but the focus must be on a holistic view that takes account of citizens' needs.

### **2.3 Research Problem**

Notably, there has been a limited amount of research conducted in Morocco regarding the impact of electronic service systems on public value. Consequently, this study has the potential to significantly enhance reflective practices at both the local and national levels

This empirical study seeks to introduce conceptual model adapted to the Moroccan administrative context, emphasizing factors that directly influence the public value of electronic services. This study also underscores the importance of examining the viewpoints of professionals in the private

sector, aiming to address the research question: «*How do private companies assess the public value of Moroccan e-government?* ». \

### 3.3 Research Models Adopted

#### 3.3.1 Dimensions and Indicators for Measuring E-government (Delone and McLean Model, 2016)

The literature is rich in models studying various aspects of Information Systems (IS). This research, in addition to public value indices, is primarily concerned with two models related to the evaluation of the success of Information Technology (IT): the Delone and Mclean (1992, 2003, 2016) model and the Technology Acceptance Model (TAM). Although research on the construction of IS models is abundant, there is limited research on the evaluation of the success of these systems (Wang & Liao, 2008).

Furthermore, this study is part of a sequence of previous research conducted by the team which explored the evaluation and use of IS in other public and private contexts (Chafik & Boubker, 2016; Ouajdouni *et al.*, 2020; Houda *et al.*, 2023; Idaomar & Chafik, 2023). The dimensions of Delone & McLean (2016), namely: System Quality, Service Quality, Information Quality, Intention to Use, Use, User Satisfaction, and Net Impact were initially adopted as the basic measurement variables in this research. This method enables the qualitative evaluation of the "public value" factor as a crucial component within the framework of "Net impacts." It involves investigating how each aspect of the model becomes evident in the context of Moroccan administrations by utilizing qualitative data, which encompasses themes, patterns, and participants' exact expressions.

#### 3.3.2 Dimensions and Items Appropriate for Public Value Measures

In line with the approach of Karunasena *et al.* (2011), which is mainly based on the dimensions of public value of e-government defined by the pioneering authors Kearns (2004), Golubeva (2007), and Heeks (2008), the theoretical indices mainly adopted for public value measures are summarized in Table 1 below.

**Table 1.** Descriptions of Some Dimensions of the Public Value from Karunasena *et al.* (2011)

Dimensions	Indicators	Description and Desired Conditions
<b>Electronic Service Delivery</b>	Information	Accessibility for all citizens
	Importance	Importance of information for citizens
	Choice	Availability of multiple online channels
	Fairness	Fair provision of services
	Cost Reduction	Cost reduction for citizen users
	Citizen Satisfaction	Citizen satisfaction with e-government services

<b>Efficiency</b>	Efficiency	Increasing the efficiency of public organization
	Responsibility	Improving the government's response capacity
	Public perception	Citizens' views on public organizations
<b>Developing Trust</b>	Security and privacy	Protection of citizens' privacy
	Transparency	Online decision-making communication
	Trust	Trust in e-government services
	Participation	Citizen participation in public debates

**Source:** Extracted from Karunasena *et al.* (2011, p.95-96)

Based on the conceptual framework of Karunasena *et al.* (2011), the dimension of public value was favored. This is the main objective public organizations seek to achieve when evaluating e-government.

## 4 Research Methodology

### 4.1. Qualitative Exploratory Approach

Qualitative research is a search strategy often used in management sciences. Yin *et al.* (2014) define qualitative study as « *empirical research that studies a contemporary phenomenon in a real context, where the boundaries between the phenomenon and the context are not clear and in which multiple empirical sources are mobilised* ».

Qualitative studies provide the advantage of understanding organizations in terms of its unique context. They require researchers to adapt their approach to reflect the reality on ground, allowing for an in-depth analysis of the interactions between phenomena and their context within the organisations.

However, in this present study, it is clear that the evaluation of e-services systems is a complex process that requires a dynamic approach aimed at gathering the perspectives of companies through interviews.

The process is guided by a multi-paradigm exploratory approach based on abductive reasoning that aims to explore the interviewees' perceptions, the empirical data in the literature, and the underlying dynamics of their complex relationships. This approach offers the flexibility needed to understand the Moroccan experience in this field.

### 4.2 Selection of the Sample and Study Area

This research targets the Morocco's public administration, considering the various reforms and innovation projects that have been undertaken over the last two decades.

Regarding the selection of respondents, the choice is determined by employing a sampling method that features a typical character, with companies being represented by their managers. This means that each sample

has been carefully selected, focusing on executive professionals who are responsible for their business and who have daily managerial interactions with public administrations.

Thirteen participants were chosen based on two criteria commonly advised for qualitative research: the diversification criterion, exemplified in Table 2 of the demographic data below, and the saturation criteria. Saturation was achieved following the 11th interview, signifying that the subsequent two interviewees (the 12th and 13th) did not yield additional substantial responses. Consequently, the sample was constrained to 13 respondents, despite the initial goal of conducting interviews with 20 individuals.

**Table 2.** Demographic Breakdown of Interviewees

Maintenance Code (E)	Business Activity	Years of Experience	Degree	Gender M/F	Age	Duration of Interview
1	Real estate promotion	+15 ans	Engineering	M	> 40	50 min
2	Architecture	+15 ans	Engineering	M	> 40	45 min
3	Architecture	-15 ans	Engineering	M	< 30	55 min
4	Architecture	-15 ans	Engineering	F	< 30	55 min
5	Lawyer	-15 ans	Lawyer	M	30-40	60 min
6	Architecture	+15 ans	Engineering	F	> 40	55 min
7	Real estate promotion	+15 ans	Engineering	M	> 40	50 min
8	Lawyer	-15 ans	Lawyer	M	30-40	50 min
9	Architecture	-15 ans	Engineering	F	30-40	50 min
10	Lawyer	-15 ans	Lawyer	M	< 30	55 min
11	Lawyer	+15 ans	Lawyer	F	> 40	60 min
12	Real estate promotion	+15 ans	Engineering	M	> 40	90 min
13	Real estate promotion	-15 ans	Engineering	F	< 30	45 min

Source: Authors

### 4.3. Data Collection

There are different qualitative data collection methods. However, in this study, semi-structured interviews were selected. This method can be compared to a structured conversation aimed at achieving specific objectives. Therefore, this exploratory study opted to reveal the objectives to the interviewees. This direct method allows data to be collected more quickly and in a more specific way, particularly since the interviewees are in managerial positions and have only a limited amount of time available for long and extended interviews. These interviews were conducted face-to-face and focused mainly on oral exchanges.

The average duration of the interviews was 55 minutes per interviewee. In consultation with the interviewees, voice recording was generally opted for. The data were on the basis of an interview guide consisting of seven themes corresponding to the dimensions of Delone and McLean's 2016 model (as



mentioned above). These interviews began in mid-2023 in the respondents' head offices.

The data collected from the semi-structured interviews was based on an interview guide (Table 3) derived from six different themes intricately detailed in the theoretical model of this research (D & M).

**Table 3.** Principal Themes and Illustrative Questions Addressed to Interviewees

<b>Initial question:</b> Could you share with us your experience with using public e-services systems by your own company?	
<b>Themes</b>	<b>Selected Questions for Participants</b>
<b>e-service system Quality</b>	What advantages have you seen in using e-services systems compared with traditional methods? In what way does the reliability and flexibility of e-services systems affect their quality?
<b>Information Quality</b>	In your opinion, how well does e-services systems make it easier for citizens to access relevant and necessary information, and how does the processes for verification of the completeness and precision information on e-services systems influence the perception of their quality?
<b>Quality of the e-services systems management team</b>	Is there a department or unit within your local authority responsible for managing e-services? What are the basic skills you expect from an e-services team to ensure optimum service delivery from your company?
<b>Intention to use/Use of e-services systems</b>	What factors do you think are encouraging users to make more frequent use of e-services systems? What are the main difficulties or barriers you face in using e-services systems?
<b>User satisfaction</b>	Which elements do you consider to be essential for measuring the overall satisfaction of users of e-services systems?
<b>Public value: Delivery of e-services systems</b>	In what way do you think that e-services systems help to improve the delivery of administrative services?
<b>Public value: Efficiency of the public organization</b>	Do you think that the use of e-services systems helps to make the public organization more efficient and improve its ability to respond to citizens' needs?
<b>Public value: Development of trust</b>	What are the key factors that you consider necessary to develop a climate of confidence towards these systems?

In order to give consistency to the content of the interview guide, pre-testing and validation sessions was organized with a manager who had led the implementation of digitization within various divisions of a public organization, as well as a director of a private sector consultancy. The goal is to refine the questionnaire's content, aligning it with the realities of the Moroccan administration to enhance the effectiveness and practicality of the findings.

#### 4.4 Data Processing

During the interviews, a body of information was collected, restructured, and subjected to a thematic analysis, which was previously chosen as the content analysis method. This is a method commonly used in social science and management research (Blanchet & Gotman, 1992). This approach focuses on the importance of themes emerging during the interviews. The methodology is based on the use of Nvivo Qsr12 software to code, analyze, and process data from the 13 conducted interviews.

### 5. Results and Interpretation

#### 5.1. Descriptive Analysis of the Sample

Characteristics	Gender		Age (Years)			Professional activity			Years of Experience	
	M	F	<30	30-45	>45	Architects	Lawyers	Real estate developers	+15	-15
Absolute Frequencies	8	5	4	3	6	5	4	4	6	7
Percentage %	61	39	31	23	46	38	31	31	46	54

**Table 4.** Main Characteristics of the Survey Population

**Source:** Authors

This descriptive analysis of the structure of the sample reveals certain characteristics of the interviewees in terms of their profession, accumulated experience, level of education, etc. (Table 4).

More than 100% of the interviewees had higher education qualifications, with 69% of them being engineers (architects + Real estate developers). Consequently, this constitutes a cohort of highly qualified elites capable of evaluating the influence of administrative attitudes on perceived public value.

#### 5.2. Interviewees' Overall Perception of the Different Approaches to E-government

The cloud of words spontaneously reflects the interviewees' overall perception of connected government and its public value. The size of the keywords in this semantic cloud is proportional to their relevance in the content of the semi-structured interviews (Figure 1).



Figure 1. Keyword Clouds Generated by the Encoding of Interviews

### 5.3 Predetermined Variables Extracted from the Delone and McLean Model (2016)

Among all the predetermined quality variables, only system quality was expressed by all interviewees. Although the remaining quality variables exhibit varying percentages, they are not insignificant. This is also reflected in the percentages of overlap of this variable in the interviews of several respondents, who implicitly express the link between these dimensions and the public value of the services in question. For example, C2 mentions that "[...] This Rokhas e-service ... also saves us time, avoids travel, there is also transparency ... The great advantage of these e-services is that any decision must be justified...". In addition, C10 clearly states: "[...] I know that in the system, in the e-justice platform, we have taken into account the security factor ...confidence in using - electronic services as alternative tools to traditional administration...".

The quality of the system is identified by the perception of users, who appreciate the technical performance of online systems. In the same vein, other research has noted the influence of system quality on user satisfaction and the perceived usefulness of online services. For example, Chen *et al.* (2015) explores citizens' use of e-government services, specifically within the Philippine online tax filing system. The findings reveal that trust in technology, trust in government, and prior experience have a direct impact on trust in e-government websites. This trust, in turn, significantly influences three dimensions of IS quality: information quality, system quality, and satisfaction with the system.

In the same line, Zolotov *et al.* (2018) utilized D&M's model to assess citizen satisfaction with the perceived quality of e-participation systems. It considers both system quality perceptions and user experience factors, providing valuable insights for enhancing e-participation effectiveness.

The use, the intention to use, and the satisfaction of users are expressed by participants (12/13), which is represented in the verbatim statements of those interviewed. C10 clearly states: "[...] *Yes, of course, we want to use these systems more and more...*", and C4 also affirms "[...] *Yes, I want to use these e-services more and more... Yes, in terms of investment in the use of these e-services...*".

User satisfaction is the main purpose of e-government in general, and this is expressed by respondents (5/13), with verbatims that do not require comment. According to C1 "[...]...*Satisfaction with these e-services is Acceptable; I can say with a percentage of 40%*". On the other hand, C5 has a different expression "[...] *I would say that in terms of satisfaction with these e-services, it is Acceptable at 50%...*"(Table 5).

**Table 5.** Some Verbatim Discussions of the Themes Identified with the most Significant Overlaps

Variables	Verbatim
Quality of the system (13/13)	"[...] <i>I know that the system of the e-justice platform, has taken account of the factor of security ...confidence of use - of electronic services as alternative tools to traditional administration... C10</i> ". "[...] <i>The great advantage of these e-services is that any decision must be justified... C2</i> ".
Intention to use and use (12/13)	"[...] <i>Yes, of course, we are more and more interested on using these e-services...we need a complete e-service and generalize to other tribunal services... C10</i> ". "[...] <i>Yes, in terms of investment in the use of these e-services ... develop the existing Rokhas e-service with new options that are not all functional in this V3 version... C4</i> ".
User satisfaction (5/13)	"[...] <i>As an architectural firm ...Satisfaction with these online systems is Acceptable with a percentage of 40% ...C1</i> ". "..., <i>our expectations are to have more e-services and to get complete and general digitization and services 100% online...I would say that in terms of satisfaction with these e-services, it is Acceptable at 50%...C5</i> ".

### ***The "Public Value" Explanatory Variable***

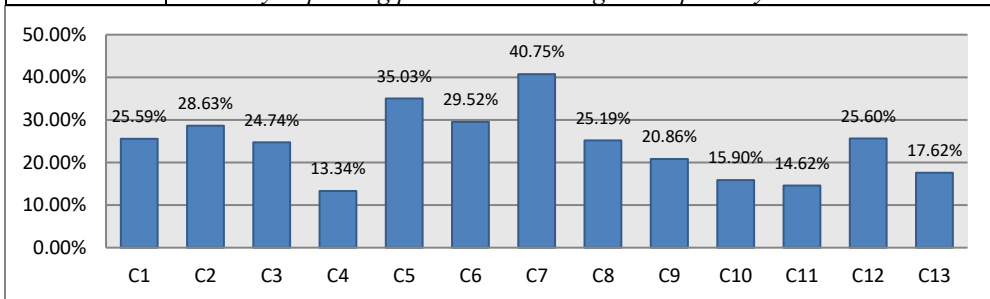
This variable, chosen from the six previously determined variables, serves as the focal point for explanation and requires greater attention. 100% (13/13) of the interviewees made a positive link between public value and the success of the e-services systems, with strong expressions in the verbatim of which an extract has been noted in Table 6.

Company 13: "[...] *Of course, the transparency provided by these online services is positively correlated with citizens' confidence in the administration ... as it contributes positively to the comfort of society and improves the public value of the administration...*". Certainly, "transparency" and "trust" serve as key indicators of public value. The administration's public value is inherently enhanced by the trustworthiness it earns from users.

Company 9: "[...] *Cost-effectiveness, transparency, fairness, time-saving, savings on administrative and travelling costs, and all this converge directly towards improving the public value of the administration, or rather of the administrations responsible for urban planning ...*". As expressed by the interviewee representing Company 9, the items "transparency, fairness, and time saving" are indices that are positively linked to the public value of e-government. Rapidity synonymous with "time savings" and appreciated for its financial implications in terms of profitability, along with transparency, which stands in contrast to corruption, constitute managerial values inseparable from the "public value" variable (Table 6).

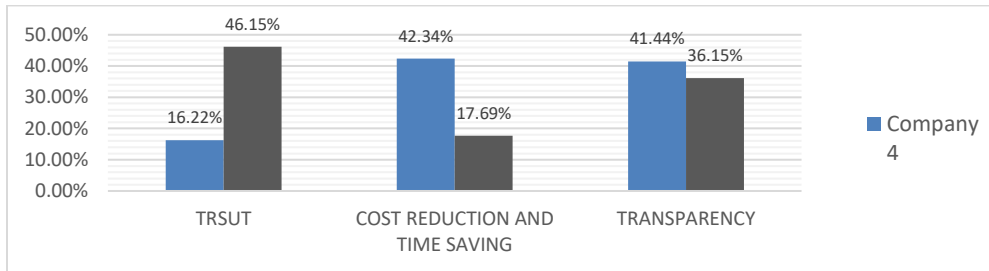
**Table 6.** Some Verbatim Statements with Strong Extracts from the Public Value Variable

Variables	Verbatim
<b>Public value (PV)(13/13)</b>	<p>Company 13: "[...] <i>Of course, the transparency guaranteed by these e-services is positively correlated with citizens' confidence in the administration ... as it contributes positively to the comfort of society and improves the public value of the administration</i>".</p> <p>Company 12: "[...] <i>Fairness is therefore assured by the services, which consequently contribute to improving the public value of the administration concerned...</i>".</p> <p>Company 11: "[...] <i>Fairness is ensured by the e-service ... Of course, this e-service provides transparency... this influences the improvement of public value in the administration and trust between citizens and stakeholders lawyers and others...</i>".</p> <p>Company 9: "[...] <i>Efficiency, transparency, fairness, time savings, savings on travel costs, administrative costs, and all this converges directly towards improving the public value of the administration, or rather of the administrations responsible for urban planning ...</i>".</p> <p>Company 6: "[...] <i>The e-services systems help us save time and money in terms of the provision of administrative services... in short; we have an improvement in the public value of administrative services</i>".</p> <p>Company 8: "[...] <i>with these e-services, the lawyer has nothing to hide from the client, its total transparency...this increases confidence in the administrative services and improves their public value...</i>".</p> <p>Company 2: "[...] <i>strengthening the trust of the various parties and also crucially improving public value through transparency....</i>".</p>



**Figure 2.** Variable Coverage Public Value with Coding of Respondents

The detailed breakdown of public value, represented by the highest (C7) and lowest (C4) coverage percentages in Figure 2, concretely highlights specific public value aspects for the interviewed individuals. For instance, Figure 3 illustrates key elements such as "Trust, cost reduction, time saving, and transparency. Based on the decomposition made by NVIVO, it was noted that the overlaps between the items are almost the same for C7, who expressed public value as a maximum, while C4 expressed it as a minimum. Public value is therefore an absolute rather than a relative assessment.



**Figure 3.** Examples of Public Value Items Expressed as Maximum and Minimum by Company 7 and 4

#### 5.4. Emerging Variables (EV)

**Table 7.** Extracts from Verbatim Statements Notifying Emerging Variables

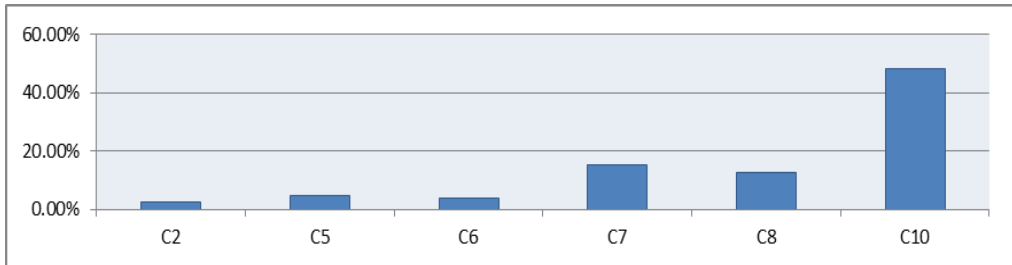
Variables	Verbatim
Human Capital	Company 10: "[...] There is a human capital problem and apprenticeships can only partially solve the problem, there is also a question of generations, young lawyers are more familiar with digital technology...". Company 8: "[...]Yes, there is a human resources problem, ... The human resources are an actual obstacle to the use of e-services ... So we have to take into account, in terms of human capital, qualified skills, i.e., people who have knowledge of the e-service system".
Culture	Company 10: "[...] It's a new process with a whole new culture ..., I'm coming back to human capital ... in relation to the tribunals and I can assure you that it's a large community which is divided into two waves, the wave of old lawyers who don't have a culture of digitalization, and then there's the new wave of young lawyers who have a culture of using all kinds of on-line tools ...". Company 3: "[...]In the future and with the arrival of young ... architects who have this culture of digitization ... I think that things will improve a lot in the coming years...". Company 7: "[...] We have a lot to do in terms of the human skills of our administrations, which must have a culture appropriate to the objectives and culture of digitization and e-service...".
Continuing Education	Company 2: "[...] As a real estate developer ... we have not received any specific training in digitization or in information technology...". Company 7: "[...] so without any continuous education on the use of e-service CIR (Regional Investment Center), we have done self-training in digitization, IT skills, and a personal extra effort...".

Willingness to use	<p>Company 10: <i>"[...] What is lacking are human skills at the technical and information technology level ... but also at the level of willingness and serenity, which is what needs to be focused on".</i></p> <p>Company 1: <i>"[...] However, with all these advantages capitalized on, rectifications and adjustments are necessary to improve the public value acquired, and this can only be done in the presence of human skills armed with will.</i></p>
Infrastructure	<p>Company 5: <i>"[...] The e-service "Mahakim" and the e-justice platform. All in all, the power of the internet connection directly influences the public value of e-services. In other words, the telecommunications infrastructure directly influences the public value of the connected administration".</i></p> <p>Company 10: <i>"[...] Here, we have a telecommunications infrastructure problem that positively and negatively influences the public value of these e-services platforms, e-justice, so we need to review the technological logistics in terms of quality and review the Internet connection in terms of speed and throughput, which should be via optical fiber".</i></p>
State strategy	<p>Company 10: <i>"[...] I mean by visibility that coordinates e-government and other services in Morocco, a strategic platform that determines the criteria for the infrastructure to be acquired, the nature of the human skills ... whatever the ministry or administration seeking to integrate digitization ... the different ministries and administrations".</i></p> <p>Company 1: <i>"[...] In my opinion, evaluation and sanctions in case of use for illegal purposes will help to strengthen the public value of public administrations".</i></p> <p>Company 5: <i>"[...] Initially, the digitization of the justice system was launched by the State. For us, it's a major project that will change the structure and the way we work ... and we're discovering that there are a lot of strategic limitations that need to be resolved quickly".</i></p>

### ***Human Capital (HC)***

This variable proved significant in the responses of 6 out of the 13 interviewees, highlighting its utmost importance (Figure 4). The respondents' verbatim comments provide arguments that clearly support the emergence of this variable. Company 10: *"[...] there is a human capital problem and self-learning can only partially solve the problem, there is also a generational issue, young lawyers are more familiar with digital technology..."*.

Company 8: *"[...] Yes, there is a human resources problem, these human resources are an obstacle to the use of e-services ... We therefore need to take into account the human capital of qualified skills with knowledge of e-services systems".* These respondents consider technical qualifications and generation parameters as crucial factors in HC.



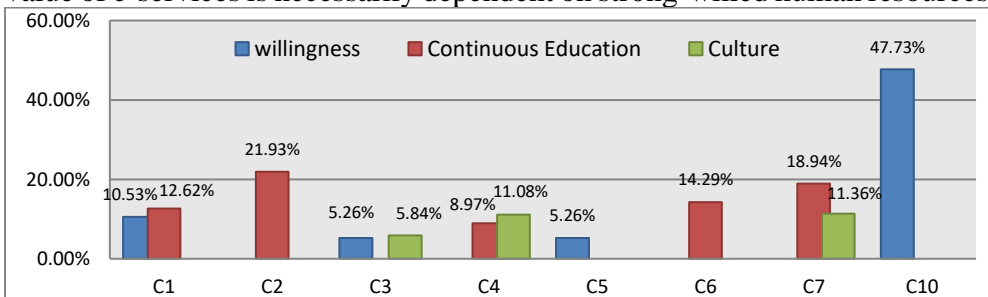
**Figure 4.** Emergence of Human Capital Variable among the Companies Surveyed

It is important to highlight that Human Capital is connected to various emerging factors such as "culture, continuous education, and willingness," as reported by the interviewees who recognized these variables (Figure 5).

Company 7: "[...] we have a lot to do in terms of the human skills of our administrations, which must have a culture that is suitable for the objectives and culture of digitalization and e-service...". Among the interviewees (3/13, Figure 5), this individual stands as a representative example, highlighting "culture" as a crucial criterion for the human skills required to elevate the public value of e-government.

Company 2: "[...] As a company of real estate promoters ... we have not had any training in digitization or IT skills...". Continuous education (Figure 5) is also linked to the technical indicators required by e-services to achieve its objectives, as outlined in a section of the verbatim provided in Table 6.

Company 1: "[...] However, with all these advantages capitalized, rectifications and adjustments are necessary to improve the public value acquired, and this can only be done with the presence of human skills armed with determination" (Table 6). For this interviewee, improving the public value of e-services is necessarily dependent on strong-willed human resources.



**Figure 5.** Exploration of the Three Emerging Variables Related to Human Capital as Expressed by Interviewees

### ***Telecommunications Infrastructure***

Among the 13 interviews, 6 interviewees mentioned the "Telecommunications infrastructure" variable (Figure 6). These companies



expressed their deep conviction that there is a positive relationship between the qualities and strengths of telecommunications infrastructures and the public value of online services, as articulated in the following extracts:

Company 5: "[...] All in all, the power of the network connection has a direct influence on the public value of e-services, and consequently the telecommunications infrastructure has a direct influence on the public value of the connected administration".

Company 8: "[...] The “Mahakim” e-service and the e-justice platform. Ultimately, the power of the Telecommunications connection directly influences the public value of e-services. In other words, the Telecommunications infrastructure directly influences the public value of the administration". Company 10: "[...] This is a telecommunications infrastructure problem that positively and negatively influences the public value of these e-services platforms, e-justice, etc.".



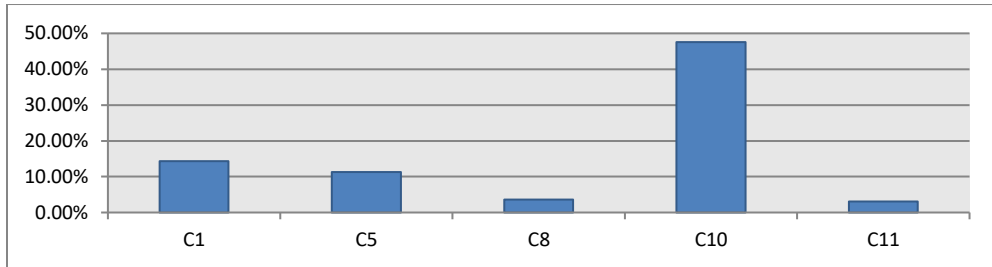
**Figure 6.** Emergence of Telecommunications Infrastructure Variable among the Companies Surveyed

### **State Strategy**

This variable was identified by respondents (5/13), as illustrated in Figure 7. Presently, the State is almost the only actor overseeing this digitization sector, with all that it requires in terms of investment, infrastructure, regulation, coordination, etc. Company 1: "[...] In my opinion, evaluation and sanctions in case of illegal use will help to strengthen the public value of public administrations".

Company 10: "[...] I mean by visibility that coordinates e-government and other services in Morocco, a strategic platform that determines the criteria for the infrastructure to be acquired, the nature of the human skills ... whatever the ministry or administration that is seeking to integrate digitization ... the different ministries and administrations".

Company 5: "[...] initially, the digitization of the justice system was launched by the State. For us, it is a major project that will change the structure and the way we work ... by discovering that there are many strategic limitations that need to be resolved quickly...".



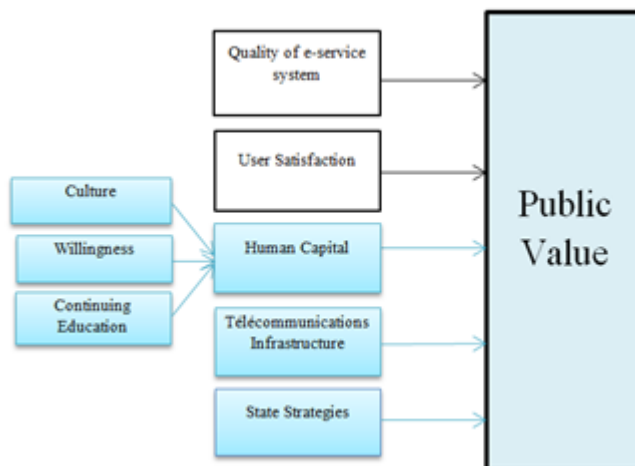
**Figure 7.** Emergence of State Strategy Variable among the Companies Surveyed

### 5.5. Proposal for a Simplified Conceptual Model

This study utilized the Delone and Mclean (2016) model, which offers the researcher a selection of dependent variables. This is because no single measure inherently surpasses others as a baseline (Delone & Mclean, 2016). Furthermore, this model has already been adapted to the context of research aimed at measuring public value (Kayode, 2022).

In addition to the 7 dimensions of this model, interviews with private companies revealed six variables known as emergent variables: Human Capital, Telecommunications Infrastructure, State Strategy, Continuing Education, Willingness to Use, and Culture. These variables were identified in relation to public value, guiding the selection of factors that significantly impact the perceived value of e-government in Morocco (Figure 8).

**Figure 8.** Conceptual Model of the Proposed Dimensions with Direct Positive Effect on Public Value



Source: Authors

The results of this study leads to the conclusion that within the Moroccan administration context, the two predetermined variables of Delone and Mclean, namely user satisfaction and system quality, along with emerging variables like Human Capital, Telecommunications Infrastructure and State

Strategy, have a direct and positive influence on the public value of e-government, as perceived by private sector professionals.

## 6. Discussion and Conclusion

This study focused on private companies' evaluation of the public value of e-government in Morocco, using a hybrid exploratory qualitative approach. This approach was applied to 13 companies with professional links to administrations in the process of digitization.

An attempt has been made to conceive a simple conceptual model composed of five variables (Figure 9), incorporating the notion of "public value" from the latest version of the DeLone and McLean (2016) model. This was also validated by other research as an explanatory variable for evaluating e-government (Omar *et al.*, 2011; Twizeyimana & Andersson, 2019). The five aspects of this proposed model clearly demonstrate their direct positive effects on the public value of e-government in Morocco.

In a distinct context, Alhanatleh *et al.* (2022) explored the public value of e-government in Jordan using the information system success model. The findings highlight that among the system, information, and service quality factors, service quality stands out as the main determinant for enhancing citizens' satisfaction and promoting their intention to utilize online services.

Adding to this perspective, Mensah *et al.* (2022) asserts that the integration of ICT into e-government requires the creation of public value to encourage the adoption of e-services. Their findings reveal significant links between factors such as information quality, service parameters, user orientation, efficiency, openness and responsiveness, and the public value associated with e-government. Furthermore, the study confirms that this public value directly influences the intention to adopt e-government services. Additionally, the study of Ramadhane *et al.* (2023) provides a perspective on public value based on the e-government maturity model. It identifies a number of criteria, including accessibility, user interaction, efficiency, reliability, transparency and openness, quality of information, respect for privacy, and control of corruption.

Consequently, system quality is based on technical aspects such as ease of access, system reliability and reply time, as perceived by users (DeLone & McLean, 1992). In parallel, Sedera *et al.* (2004) identified complementary measures to the DeLone and McLean (1992) criteria in terms of the different categories of personnel (strategic, user and technical). Therefore, it was recommended that future studies focuses on the "user" category (management + operational), which has the most significant perception of e-services success. These findings overlap with the conclusions of Kayode's (2022) study concerning the public value of e-government, which further shows a

significant influence of quality dimensions on use, satisfaction, and public value.

The "user satisfaction" dimension evaluates the user's overall opinion of the information system (Delone & McLean, 2016). Interviewees clearly expressed their satisfaction with the use of e-services, using language that aligns with the criteria defined by Khodakarami and Chan (2011) to study the factors contributing to successful CRM. The research found that when systems effectively meet user expectations and employees have the skills required to use these systems, they are more likely to leverage the systems' capabilities to support customer relationship management processes. This in turn leads to greater satisfaction with the outcomes, which include elements such as user trust, fairness, transparency, administrative efficiency, cost reduction, and time savings. Consequently, the terminology associated with satisfaction in this context is dynamic and evolving, reflecting the specific frame of reference in which it develops.

The interviews revealed six emerging variables in addition to those identified in the literature: "Human Capital, Telecommunications Infrastructure, State Strategy, Continuing Education, Willingness to Use, and Culture".

In other words, the composition of an information system comprises Structural Capital (SC) and Human Capital (HC) which reflects knowledge, as well as Intangible Capital (IC), which signifies performance or public value within public organisations. A close correlation between SC and HC materializes in the use of knowledge and information by the HC (Edvinsson & Malone, 1997).

The "Continuing Education, willingness to use, and Culture" variables underline the importance of investing in education and skills of HCs to ensure that they master the technologies. Simultaneously, this investment promotes the acquisition of a culture of transparency, trust, and other attitudes in line with the characteristics of public value. This culture will help to promote effectiveness, efficiency, and ultimately commitment to the administration's projects on the part of the personnel concerned.

The "State strategy" variable seems to be an element that can directly impact the performance and perception of the public value of e-government in Morocco, and probably in similar emerging countries where the State plays a central role in investment within this area. For example, ensuring the fairness of an electronic services system, one of the indicators of the public value of e-government, could prove difficult without a telecommunications network covering the entire country.

This research examined the viewpoints of professional managers by aligning the approach with the recommendation of Twizeyimana (2023), who outlined

the importance of analysing the phenomenon of e-government public value creation and gaining insights from diverse perspectives of stakeholders.

In conclusion, this study shares the conviction of Delone and McLean (2016). According to them, an information system can impact levels beyond the individual and organizational spheres. In this sense, the success of e-services systems, which generate perceived usefulness and public values based on tangible principles of transparency, inclusion, fairness, empathy, and trust, can make real contribution to the well-being of the society.

## 7. Research Implications and Perspectives

The findings of this study have crucial practical implications for the sustainable success of e-government public value in Morocco. These implications include innovative investment in cultivating emerging skills, creating national technology incubators to promote local innovation, and supporting start-ups specializing in government solutions. At the same time, effective communication of the benefits of e-government requires innovative strategies, such as the use of social media and interactive campaigns to sensitize and actively involve citizens. Public-private collaboration can be strengthened through innovative partnerships, and organizational culture can be improved by training and awareness programmes focused on cultural change. At the political level, tax incentives for digital transformation and innovative international collaborations can propel Morocco as a regional technology leader. By adopting innovative approaches, Morocco can overcome today's e-government challenges and position itself as a pioneer, bringing tangible benefits to citizens and reinforcing national competitiveness on a global stage.

Regarding future prospects, researchers should increasingly leverage unexplored emerging variables unique to the Moroccan context. They should also explore the application of quantitative methods and seek replications in diverse urban and regional settings within Morocco.

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