

Digital Transformation and the Relationship between Service Users and Public Administration.

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Abstract

This study examines how service users perceptions of digital transformation, access to information and waiting times relate to their perceived relationship with public administration in Morocco. Data were collected through a structured questionnaire distributed via LinkedIn and in person at several public administrations. Of the 146 people who responded, the 122 with complete answers on the model variables were retained for the regression analysis, The 14 measurement items cover four constructs, whose factorability and internal consistency were checked with Kaiser–Meyer–Olkin and Bartlett tests and Cronbachs alpha 0.725 to 0.811. A multiple linear regression explains 55.3% of the variance in the perceived relationship “adjusted $R^2 = 0.542$ ”. Perceived digital transformation $\beta = 0.475$, $p < 0.001$ and perceived reduction in waiting times $\beta = 0.245$, $p = 0.003$ are positively and significantly associated with the outcome, whereas the coefficient for access to information is positive but not significant at the 5% level ($\beta = 0.135$, $p = 0.074$). For these respondents, the quality of the relationship with the administration appears to depend more on visible changes in how services are delivered, including the time they take, than on information alone. Because the design is cross-sectional and relies on self-reported perceptions, the findings describe associations rather than causal effects.

Keywords

digital transformation; public administration; service users; access to information; waiting times; Morocco

1. Introduction

Public administrations now deliver a growing share of their information and services through digital channels, for the people who use these services, what matters is less the technology itself than whether a procedure becomes easier to understand, quicker to complete and more predictable. This article looks at that question from the users side, through their perceptions of digital transformation, access to information and waiting times.

The United Nations E-Government Survey 2024 assesses digital government in all 193 Member States and shows that progress remains uneven, both between countries and between national and local services. Morocco illustrates this movement: it ranked 90th in the E-Government Development Index in 2024, up from 101st in 2022, rankings of this kind, however, measure what governments offer online, not how users experience it.

Digital transformation is not simply a matter of putting forms online, drawing on interviews with experts in public administration, Mergel, Edelmann and Haug (2019) distinguish it from mere digitization: transformation also involves changes in processes, services and relationships with users, Bannister and Connolly (2014) add that technology-enabled reform has to be judged against public values, not only against its technical outputs; both perspectives invite us to ask how users actually experience digital services, rather than treating the existence of an online platform as proof of improvement.

Digital tools can help staff retrieve information and respond to requests, while self-service platforms allow users to obtain information and complete some steps on their own, whether these possibilities translate into better service depends on how the service is organized and on users ability to use it (Algan, Bacache-Beauvallet and Perrot, 2016). Davis (1989) showed that perceived usefulness and ease of use shape the acceptance of a technology; in the field of e-government, Carter and Bélanger (2005) found that compatibility and trustworthiness matter as well. An online channel, in other words, guarantees neither that citizens will use it nor that they will feel better served.

Like any organizational change, digitalization can meet obstacles and produce side effects that keep it from reaching its objectives, the quality of the relationship between citizens and their administration is therefore a useful yardstick for judging administrative modernization, the COVID-19 pandemic made remote access to public services more pressing; in Morocco, Zinaoui and El Khettab (2022) analyze this shift through the case of the National Social Security Fund (CNSS). The OECD (2019), for its part, stresses the role of public communication and citizen participation in building a more open government in Morocco, a user-centred approach thus

requires attention to how people find information and obtain a service, and not only to the tools in place.

This leads to our research question:

How are digital transformation, access to information and reduced waiting times associated with the relationship between public administration and service users?

To answer it, we surveyed service users and analyzed their responses using principal component analysis (PCA), reliability analysis and multiple linear regression. The article is organized in three parts, the first presents the key concepts, the conceptual framework and the literature, the second describes the research model, the hypotheses and the methodology, the third presents and discusses the results.

1. Study Objective

The objective of this study is to examine how users perceived relationship with public administration relates to perceived digital transformation, access to information and reduced waiting times, and to test whether each of these factors is positively associated with that relationship. The aim is to identify patterns in users experiences that can inform service improvement, not to estimate the causal impact of a particular reform or platform.

2. Conceptual Framework and Literature Review

2.1 Definitions of Key Concepts

Information and communication technologies change the way people obtain information and interact with public organizations, four concepts are central to this study: perceived digital transformation, access to information, reduced waiting times and the perceived improvement in the relationship between service users and public administration.

Digital transformation is understood here as the use of digital technologies combined with changes in administrative processes and in the way, services are delivered (Mergel et al., 2019). It differs from digitization, which refers more narrowly to converting information into a digital format. In this study, it is measured as users perceive it, through four questionnaire items.

Access to information refers to users ability to obtain the information they need to complete an administrative procedure. The availability, clarity and practical usefulness of information are related but distinct aspects. The construct is measured through three items.

Reduced waiting times refers to users perception of the time needed to obtain assistance or to complete administrative steps, digital channels can remove trips and queues, although they do not necessarily shorten the processing of a file; the construct is measured through four items.

The relationship between service users and public administration refers to the perceived improvement in users dealings with the administration it is measured through three items.

These concepts are connected but must remain distinct. Digital transformation captures the broader change perceived in service delivery, whereas access to information and waiting times capture specific aspects of the user experience. The outcome variable should also be distinguished from institutional trust. Welch, Hinnant and Moon (2005) link satisfaction with e-government to trust in government, and Tolbert and Mossberger (2006) associate e-government use with more favourable perceptions of government responsiveness and with greater trust at the local level. A satisfactory service encounter and trust in government are related, but they are not the same thing; this study focuses on the former.

2.2 Literature Review

The literature gives good reasons to study these relationships without assuming that digitalization always improves service delivery, writing about France, Algan et al. (2016) argue that the gains from digital administration depend on organizational change, transparency and the actual use of services. Janssen, Charalabidis and Zuiderwijk (2012) show that the benefits of open government data are held back by adoption barriers and by persistent myths, notably the belief that publishing data is enough for it to produce benefits. Bélanger and Carter (2008) add that trust in government, trust in the Internet and perceived risk shape the adoption of e-government services, these factors are not measured separately in our model, but they help interpret users answers.

2.2.1 Digital Transformation at the Heart of Moroccan Policy

Over the past decade, Morocco has built a legal and strategic framework that places the user at the centre of administrative reform, law No. 31-13 on the right of access to information, promulgated in February 2018, gives citizens the right to obtain information held by public bodies and requires these bodies to publish proactively as much information as possible, including their administrative procedures, through all available means, electronic portals among them. The OECD (2019) presents access to information as a lever for public communication and for a more open relationship between the State and citizens.

Law No. 55-19 on the simplification of administrative procedures and formalities, promulgated in March 2020, goes further it sets a maximum processing time of 60 days for administrative acts, prevents administrations from asking users for documents that are already publicly accessible, provides for applications to be submitted through electronic platforms and requires procedures to be published on a national portal. More recently, the national strategy Digital Morocco 2030, launched in September 2024, has made the digitalization of public services one of its priorities, alongside the development of the digital economy.

These texts echo earlier international recommendations and in its review of digital government in Morocco, the OECD (2018) called for a shift towards citizen-driven service delivery and identified

the silo-based culture of public administrations, together with gaps and overlaps between the ministries in charge, as obstacles to digital government. Legal and strategic frameworks, however, describe intentions. Whether they translate into a better experience for users is an empirical question, which this study addresses through users own perceptions of information, waiting times and the overall change in services.

2.2.2 Digital Channels in Moroccan Public Administration

Several channels allow Moroccan citizens to obtain information and to communicate with the administration, SIGMAs review of administrative service delivery in Morocco describes the service-public.ma portal, which brings together information on administrative procedures. Whether users find this information understandable and useful is, however, a separate question from the portals availability.

The Chikaya portal provides a channel for complaints about public administration, according to SIGMA (2019), complaints can be submitted through its website, a mobile application or a call centre. The possibility of lodging a complaint should nevertheless not be confused with the quality of the response it receives.

Digital document management can help administrations handle and retrieve information, and electronic procurement is another field of application, these internal systems fall outside the scope of our questionnaire, which concerns the users experience rather than the internal efficiency of agencies.

Open data, finally, concerns making public information available for reuse, as Janssen et al. (2012) point out, publishing information is not the same as enabling a user to understand an administrative procedure, a distinction that is central to our access-to-information construct. At the international level, the OECD Digital Government Policy Framework (2020) identifies six dimensions of a mature digital government, including being user-driven and proactive. It places access to services within a wider organizational strategy rather than reducing it to the presence of a website.

2.2.3 Benefits of Digital Transformation

Digitization converts paper-based information and procedures into digital formats; digital transformation also changes the way services are organized. The literature points to several potential benefits, which we treat here as mechanisms to be examined rather than as established outcomes, the first is easier access to procedural information, clear information helps users understand what the administration expects of them and reduces uncertainty about the next step, the OECD (2019) sees public communication as a lever for transparency and participation.

The second is a reduction in the time and effort needed to obtain a service electronic submission can eliminate some trips and manual exchanges, but its value depends on what happens once the

file has been submitted. This is precisely why Law No. 55-19 combines electronic submission with maximum processing times.

The third concerns feedback and communication digital channels make it easier to send a comment or a complaint, although the opportunity to do so says nothing in itself about how effectively the administration responds.

2.2.4 Key Success Factors and Outcomes of Digital Transformation

Research on public-sector digital transformation directs attention to organizational change and to the expectations of service users (Mergel et al., 2019). A digital channel can change the form of an interaction while leaving other administrative difficulties untouched. Algan et al. (2016) likewise link the gains from digital administration to organizational changes and to the actual use of services.

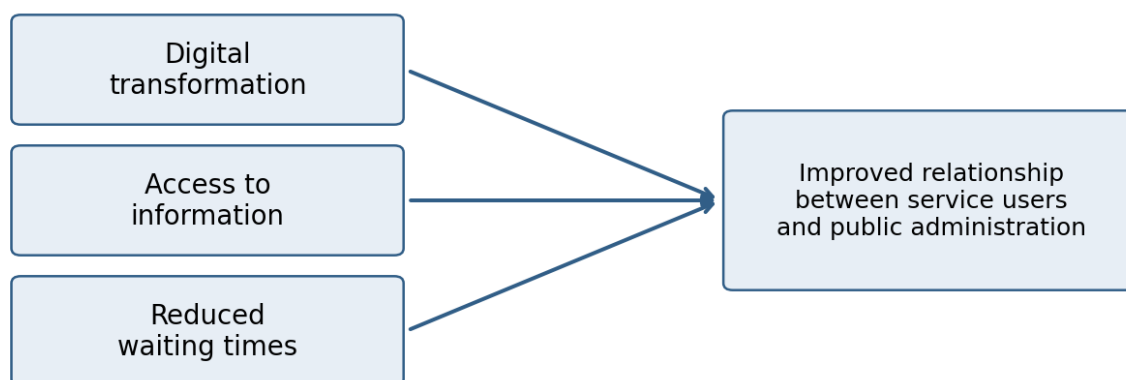
Users expectations also shape their judgement, van Ryzin (2004) shows that citizens satisfaction with public services depends on perceived performance and on how that performance compares with their prior expectations. For electronic services, the E-S-QUAL scale developed by Parasuraman, Zeithaml and Malhotra (2005) distinguishes four dimensions: efficiency, fulfilment, system availability and privacy. Although it was designed for online retail, it offers a useful lens for thinking about the quality of digital public services, provided its items are validated in that setting.

Achieving these benefits requires careful planning, sustained leadership and a willingness to adapt, data management, cybersecurity and equal access for all citizens remain significant challenges. Our empirical study follows from this discussion: it asks whether users who perceive greater digital transformation, better access to information or shorter waiting times also report a better relationship with public administration.

3. Empirical Study

3.1 Research Model

Figure N°1: Research model



Source: Authors' elaboration.

3.1.1 Variables

Building on the literature review, the model includes three explanatory variables and one outcome variable (Table 1). Multiple regression estimates the association of each explanatory variable with the outcome while holding the others constant. The term “independent variable” refers to its role in the model; it does not imply that the explanatory variables are unrelated to one another.

Table N°1: Independent and dependent variables

Independent variables	Dependent variable
Digital transformation	Improved relationship between service users and public administration
Access to information	
Reduced waiting times	

Source: Authors’ elaboration.

3.1.2 Hypotheses

We formulate three working hypotheses, each concerning a positive association.

H1: Higher perceived digital transformation is associated with greater perceived improvement in the relationship between service users and public administration.

This hypothesis follows the view that organizational and technological change alters the way users interact with an administration (Mergel et al., 2019).

H2: Better perceived access to information is associated with greater perceived improvement in the relationship between service users and public administration.

Information helps users understand requirements and identify the steps needed to obtain a service, the OECD (2019) connects public communication with transparency and participation in Morocco, and Law No. 31-13 makes the proactive publication of procedures a legal obligation.

H3: Greater perceived reduction in waiting times is associated with greater perceived improvement in the relationship between service users and public administration.

Less time spent waiting makes an administrative interaction easier to complete, and it is one of the most visible results users can expect from the simplification of procedures.

Digital transformation, access to information and waiting times may be linked within the same administrative process, the model estimates their conditional associations with the outcome, it does not test a sequence in which digital transformation first changes information or waiting times, which in turn affect the relationship; such a sequence would require a mediation model.

3.2 Questionnaire and Study Methodology

3.2.1 Survey Design

We chose a quantitative approach based on a structured questionnaire, before distribution, an initial 32-item version was pre-tested with a small group of relatives and friends, who commented on the wording and on the time needed to complete it. Their feedback led us to shorten the instrument and adapt it to the Moroccan context, the final version contains 19 questions: two screening questions, three socio-demographic questions and 14 measurement items grouped into four sections corresponding to the study variables: the relationship between service users and public administration (3 items), reduced waiting times (4 items), access to information (3 items) and digital transformation of public administrations (4 items).

3.2.2 Data Collection and Sample Size

The questionnaire was distributed online through LinkedIn and in person at several public administrations, this mixed recruitment strategy does not produce a probability sample, and the findings should therefore be read as patterns among the participating respondents. In total, 146 people answered the questionnaire, and all of them are included in the descriptive statistics, the regression analysis is based on the 122 respondents with complete answers on the model variables, as SPSS excludes incomplete cases listwise by default; this number corresponds to the 121 total degrees of freedom of the regression ($n - 1$).

3.2.3 Sample Description

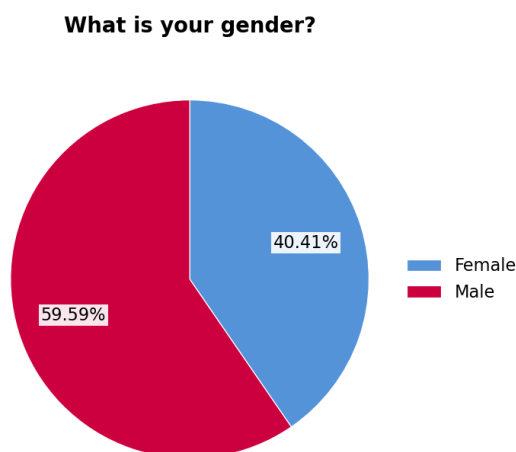
Women account for 40.4% of the sample and men for 59.6% (Table 2 and Figure 2).

Table N°2: Gender of respondents

Gender	Frequency	Percentage
Female	59	40.4
Male	87	59.6
Total	146	100.0

Source: Authors' survey data, processed using SPSS 26.

Figure N°2: Gender distribution of the sample



Source: Authors' survey data, processed using SPSS 26.

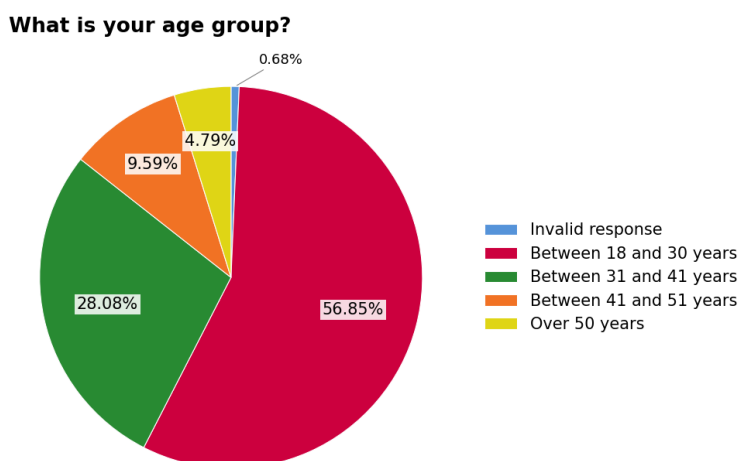
The sample is young: 56.8% of respondents are aged between 18 and 30, 28.1% between 31 and 41, 9.6% between 41 and 51 and 4.8% over 50 (Table 3 and Figure 3). One response (0.7%) was recorded with a code that does not correspond to any age group and is treated as invalid.

Table N°3: Age group of respondents

Age group	Frequency	Percentage
Between 18 and 30 years	83	56.8
Between 31 and 41 years	41	28.1
Between 41 and 51 years	14	9.6
Over 50 years	7	4.8
Invalid response	1	0.7
Total	146	100.0

Source: Authors' survey data, processed using SPSS 26.

Figure N°3: Age groups in the sample



Source: Authors' survey data, processed using SPSS 26.

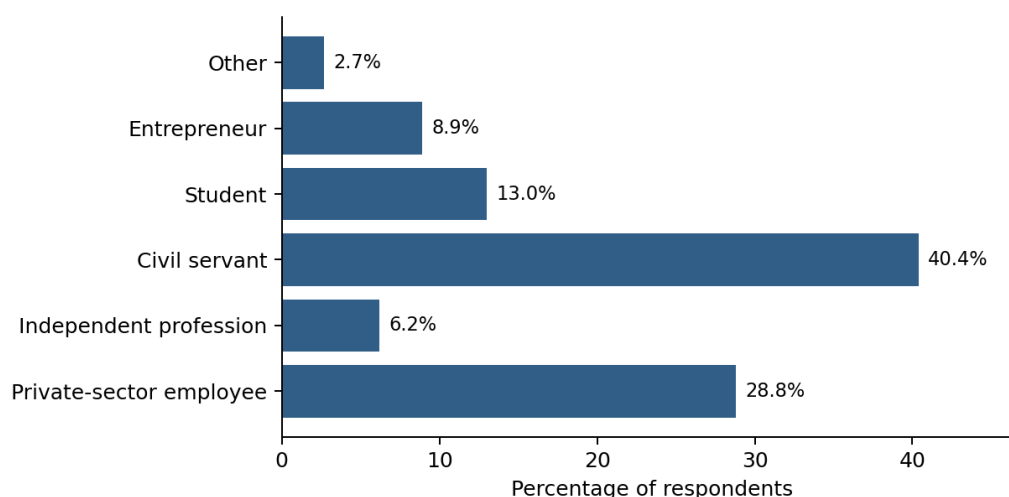
Civil servants form the largest group (40.4%), followed by private-sector employees (28.8%), students (13.0%), entrepreneurs (8.9%), members of independent professions (6.2%) and other categories (2.7%) (Table 4 and Figure 4).

Table N°4: Socio-professional category of respondents

Socio-professional category	Frequency	Percentage
Civil servant	59	40.4
Private-sector employee	42	28.8
Student	19	13.0
Entrepreneur	13	8.9
Independent profession	9	6.2
Other	4	2.7
Total	146	100.0

Source: Authors' survey data, processed using SPSS 26.

Figure N°4: Socio-professional categories



Source: Authors' survey data, processed using SPSS 26.

The predominance of young respondents and civil servants reflects the recruitment channels. LinkedIn tends to reach people who are already comfortable with digital tools, whereas recruitment in administrative offices reaches a different group of users. Civil servants, moreover, experience the administration both as users and as insiders. Without a defined sampling frame, these proportions describe the sample rather than the population of service users.

4. Data Analysis and Hypothesis Testing

4.1 Suitability for Factor Analysis and Internal Consistency

Before testing the hypotheses, we checked the suitability of the items for factor analysis and their internal consistency using SPSS 26.

4.1.1 Overall Suitability of the Measurement Items

For the 14 measurement items taken together, the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy is 0.862, well above the threshold of 0.7 adopted in this study, and Bartlett's test of sphericity is significant ($\chi^2 = 609.598$, $df = 91$, $p < 0.001$) (Table 5). The correlation matrix of the items is therefore suitable for factor analysis.

Table N°5: KMO measure and Bartlett's test for the 14 measurement items

Test	Statistic	Value
Kaiser–Meyer–Olkin measure of sampling adequacy		0.862
Bartlett's test of sphericity	Approx. chi-square	609.598
	df	91
	Significance	< 0.001

Source: Authors' survey data, processed using SPSS 26.

4.1.2 Construct-Level Analysis and Reliability

We then ran a principal component analysis separately for each construct. PCA replaces a set of correlated variables with a smaller number of linear combinations that retain as much of their variance as possible (Jolliffe and Cadima, 2016); here it serves to check that the items of each construct can be summarized by a single score. Table 6 reports, for each construct, the KMO measure, Bartlett's test and Cronbach's alpha.

Table N°6: Factorability and reliability of the four constructs

Construct	Items	KMO	Bartlett χ^2	df	p	Cronbachs α
Relationship between service users and public administration	3	0.831	66.343	3	< 0.001	0.774
Reduced waiting times	4	0.769	56.829	6	< 0.001	0.811
Access to information	3	0.790	45.474	3	< 0.001	0.797
Digital transformation	4	0.759	95.755	6	< 0.001	0.725

Source: Authors' survey data, processed using SPSS 26.

All four constructs meet the requirements for factor analysis: KMO values range from 0.759 to 0.831, and all Bartlett tests are significant at $p < 0.001$. Cronbach's alpha ranges from 0.725 for digital transformation to 0.811 for reduced waiting times, above the conventional threshold of 0.70. Cronbach (1951) introduced alpha as an index of the internal consistency of a test, but McNeish (2018) reminds us that it rests on restrictive assumptions and can misstate reliability when they do not hold. The values obtained here should therefore be read as evidence of acceptable internal consistency, not as proof of construct validity. For each construct, the items were then combined into a composite score, which was used in the correlation and regression analyses.

4.2 Descriptive Analysis of the Screening Questions

The two screening questions show that respondents are, for the most part, familiar with digital public services. A total of 136 respondents (93.2%) had already heard of digitalization in the public sector, while 10 (6.8%) had not (Table 7).

Table N°7: Q4: Have you ever heard of digitalization in the public sector?

Answer	Frequency	Percentage
Yes	136	93.2
No	10	6.8
Total	146	100.0

Source: Authors' survey data, processed using SPSS 26.

Note. Respondents answering “no” were asked to stop at this question.

The same proportion, 136 respondents (93.2%), had already used a digitalized public service on a website or platform, whereas 10 (6.8%) had never done so (Table 8). This high level of familiarity is consistent with the recruitment channels described above.

Table N°8: Q5: Have you ever used a digitalized public service on a website or platform?

Answer	Frequency	Percentage
Yes	136	93.2
No	10	6.8
Total	146	100.0

Source: Authors' survey data, processed using SPSS 26.

4.3 Correlations between the Study Variables

All correlations between the study variables are positive (Table 9). The outcome variable is most strongly correlated with digital transformation ($r = 0.709$), followed by reduced waiting times ($r = 0.606$) and access to information ($r = 0.502$). Correlations among the explanatory variables range from 0.404 to 0.646: the three dimensions overlap but remain distinct, and collinearity is examined below.

Table N°9: Correlation matrix of the study variables

Variable	(1)	(2)	(3)	(4)
(1) Digital transformation	1.000			
(2) Access to information	0.564	1.000		
(3) Reduced waiting times	0.646	0.404	1.000	
(4) Improved relationship between service users and public administration	0.709	0.502	0.606	1.000

Source: Authors' survey data, processed using SPSS 26.

5. Relationships between Variables: Multiple Linear Regression

5.1 Model Summary and Analysis of Variance

The model explains 55.3% of the variance in the perceived relationship with public administration ($R^2 = 0.553$; adjusted $R^2 = 0.542$) and is significant overall ($F(3, 118) = 48.698$, $p < 0.001$) (Tables 10 and 11). This figure is the share of variance explained by the model; it is not a percentage improvement in the relationship.

Table N°10: Model summary

R	R ²	Adjusted R ²	Std. error of the estimate	F (df1, df2)	Sig. F
0.744	0.553	0.542	1.695	48.698 (3, 118)	< 0.001

Source: Authors' survey data, processed using SPSS 26.

Note. Dependent variable: improved relationship between service users and public administration.
Predictors: (constant), digital transformation, access to information, reduced waiting times.

Table N°11: Analysis of variance (ANOVA)

Source	Sum of squares	df	Mean square	F	p
Regression	419.680	3	139.893	48.698	< 0.001
Residual	338.976	118	2.873		
Total	758.656	121			

Source: Authors' survey data, processed using SPSS 26.

5.2 Regression Coefficients

Table 12 reports the estimated coefficients. The 95% confidence intervals were computed from the unstandardised coefficients and their standard errors ($B \pm 1.980 \times SE$, with 118 degrees of freedom).

Table N°12: Regression coefficients

Variable	B	SE	β	t	p	95% CI for B
(Constant)	2.797	1.409	—	1.985	0.049	[0.007, 5.587]
Digital transformation	0.570	0.107	0.475	5.307	< 0.001	[0.358, 0.782]
Access to information	0.149	0.083	0.135	1.804	0.074	[-0.015, 0.313]
Reduced waiting times	0.353	0.116	0.245	3.038	0.003	[0.123, 0.583]

Source: Authors' survey data, processed using SPSS 26.

Note. B = unstandardised coefficient; SE = standard error; β = standardised coefficient; CI = confidence interval. Dependent variable: improved relationship between service users and public administration (n = 122).

5.3 Collinearity Diagnostics

Tolerance values range from 0.473 to 0.679 and VIF values from 1.473 to 2.114 (Table 13), well below the levels usually associated with problematic multicollinearity (VIF above 5 or 10). The part correlations show the unique contribution of each predictor: digital transformation (0.327) contributes far more than reduced waiting times (0.187) or access to information (0.111).

Table N°13: Correlations and collinearity statistics

Variable	Zero-order r	Partial r	Part r	Tolerance	VIF
Digital transformation	0.709	0.439	0.327	0.473	2.114
Access to information	0.502	0.164	0.111	0.679	1.473
Reduced waiting times	0.606	0.269	0.187	0.581	1.722

Source: Authors' survey data, processed using SPSS 26.

6. Discussion of Results

Digital transformation shows the strongest association with the outcome ($\beta = 0.475$, $t = 5.307$, $p < 0.001$), respondents who perceive that their administration has changed the way it delivers services also report a better relationship with it, other things being equal, so H1 is supported. This result is consistent with the organizational view of digital transformation put forward by Mergel et al. (2019): what users seem to value is not the presence of technology as such, but a visible change in the way services are provided.

Reduced waiting times are also positively and significantly associated with the outcome ($\beta = 0.245$, $t = 3.038$, $p = 0.003$), so H3 is supported. Time is one of the most tangible aspects of service quality, and efficiency is one of the core dimensions of E-S-QUAL (Parasuraman et al., 2005). The result also echoes the logic of Law No. 55-19, which makes maximum processing times a central lever of administrative simplification.

Access to information, by contrast, is not significant at the 5% level ($\beta = 0.135$, $t = 1.804$, $p = 0.074$), so H2 is not supported, this does not mean that information is unimportant. Its zero-order correlation with the outcome is 0.502, and the 95% confidence interval of its coefficient (-0.015 to 0.313) is compatible with both a negligible and a moderate effect; as Wasserstein and Lazar (2016) point out, statistical significance is not a measure of practical importance. A more plausible reading is that much of the effect of information overlaps with that of digital transformation ($r =$

0.564): once the overall change in service delivery is taken into account, information adds relatively little on its own. This is in line with the argument that publishing information is not enough to change the users experience (Janssen et al., 2012).

Taken together, these results suggest that users judge their relationship with the administration mainly through what changes in practice, namely the way services are delivered and the time they take, rather than through the availability of information alone. For Moroccan administrations, the implication is that portals and information campaigns are likely to have a limited effect unless they go hand in hand with the redesign of procedures and shorter processing times.

6.1 Summary of Hypothesis Tests

Table 14 summarizes the results of the hypothesis tests.

Table N°14: Summary of hypothesis tests

Hypothesis	β	t	p	Result
H1: Digital transformation → improved relationship (+)	0.475	5.307	< 0.001	Supported
H2: Access to information → improved relationship (+)	0.135	1.804	0.074	Not supported
H3: Reduced waiting times → improved relationship (+)	0.245	3.038	0.003	Supported

Source: Authors' compilation based on the regression results.

Note. Arrows denote hypothesised positive associations, not causal effects. Significance threshold: 5%.

6.2 Limitations and Future Research

Several limitations should be borne in mind. First, the design is cross-sectional and based on self-reported perceptions. It identifies associations but cannot establish their direction: a respondent with a favourable overall view of the administration may answer several items favourably. Podsakoff, MacKenzie, Lee and Podsakoff (2003) show that collecting the predictors and the outcome from the same respondents with the same instrument can inflate observed relationships, and Rohrer (2018) explains why causal conclusions drawn from observational data require explicit assumptions about how the variables are related.

Second, the sample is a non-probability sample, dominated by young respondents and civil servants and recruited partly through LinkedIn. The results cannot be generalized to all users of Moroccan public services. Future surveys would gain in transparency by reporting recruitment and completion details along the lines of the CHERRIES checklist for online surveys (Eysenbach, 2004).

Third, the measurement scales were checked through exploratory analyses and Cronbachs alpha only. A confirmatory factor analysis on a larger sample would provide a stronger test of their validity. Finally, waiting times were measured as users perceive them, not from administrative records.

Future research could combine survey data with administrative records of processing times, follow users over time to see whether changes in service provision precede changes in their relationship with the administration, and test whether access to information and waiting times mediate the association between digital transformation and that relationship.

Conclusion

This study examined how perceived digital transformation, access to information and reduced waiting times relate to the relationship between service users and public administration in Morocco. Based on 122 complete responses, the regression model explains more than half of the variance in the perceived relationship, digital transformation and reduced waiting times are positively and significantly associated with it, whereas access to information is not significant once the other two factors are taken into account.

The findings suggest that users relationship with the administration depends above all on concrete changes in how services are delivered and how long they take. For decision-makers, this means that digital transformation should be judged by its effects on users everyday procedures rather than by the number of platforms launched. Decisions about a particular service would also benefit from evidence on actual processing times, barriers to access and the quality of the information provided. The study adds to a still limited body of empirical work on the user side of digital transformation in Moroccan public administration. Its conclusions are confined to the participating respondents and to associations; larger, probability-based and longitudinal studies would help confirm and extend them.

BIBLIOGRAPHY

1. Algan, Y., Bacache-Beauvallet, M., & Perrot, A. (2016). Administration numérique [Digital administration]. Les notes du Conseil d'analyse économique, 34, 1–12. <https://cae-eco.fr/static/pdf/cae-note034v3.pdf>
2. Bannister, F., & Connolly, R. (2014). ICT, public values and transformative government: A framework and programme for research. *Government Information Quarterly*, 31(1), 119–128. <https://doi.org/10.1016/j.giq.2013.06.002>
3. Bélanger, F., & Carter, L. (2008). Trust and risk in e-government adoption. *The Journal of Strategic Information Systems*, 17(2), 165–176. <https://doi.org/10.1016/j.jsis.2007.12.002>
4. Carter, L., & Bélanger, F. (2005). The utilization of e-government services: Citizen trust, innovation and acceptance factors. *Information Systems Journal*, 15(1), 5–25. <https://doi.org/10.1111/j.1365-2575.2005.00183.x>
5. Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16(3), 297–334. <https://doi.org/10.1007/BF02310555>
6. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340. <https://doi.org/10.2307/249008>
7. Eysenbach, G. (2004). Improving the quality of web surveys: The Checklist for Reporting Results of Internet E-Surveys (CHERRIES). *Journal of Medical Internet Research*, 6(3), Article e34. <https://doi.org/10.2196/jmir.6.3.e34>
8. Janssen, M., Charalabidis, Y., & Zuiderwijk, A. (2012). Benefits, adoption barriers and myths of open data and open government. *Information Systems Management*, 29(4), 258–268. <https://doi.org/10.1080/10580530.2012.716740>
9. Jolliffe, I. T., & Cadima, J. (2016). Principal component analysis: A review and recent developments. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, 374(2065), Article 20150202. <https://doi.org/10.1098/rsta.2015.0202>
10. Kingdom of Morocco. (2018). Dahir n° 1-18-15 du 5 jourmada II 1439 (22 février 2018) portant promulgation de la loi n° 31-13 relative au droit d'accès à l'information [Dahir No. 1-18-15 of 22 February 2018 promulgating Law No. 31-13 on the right of access to information]. *Bulletin officiel (French edition)*, No. 6670, 3 May 2018, 1142–1146. <https://faolex.fao.org/docs/pdf/mor227131.pdf>
11. Kingdom of Morocco. (2020). Dahir n° 1-20-06 du 11 rejeb 1441 (6 mars 2020) portant promulgation de la loi n° 55-19 relative à la simplification des procédures et des formalités administratives [Dahir No. 1-20-06 of 6 March 2020 promulgating Law No. 55-19 on the

- simplification of administrative procedures and formalities]. Bulletin officiel (French edition), No. 6988, 20 May 2021, 793–797. https://www.sgg.gov.ma/Portals/0/BO/2021/BO_6988_Fr.pdf
12. McNeish, D. (2018). Thanks coefficient alpha, well take it from here. *Psychological Methods*, 23(3), 412–433. <https://doi.org/10.1037/met0000144>
13. Mergel, I., Edelmann, N., & Haug, N. (2019). Defining digital transformation: Results from expert interviews. *Government Information Quarterly*, 36(4), Article 101385. <https://doi.org/10.1016/j.giq.2019.06.002>
14. Ministère de la Transition Numérique et de la Réforme de l'Administration. (2024). Lancement officiel de la stratégie nationale « Digital Morocco 2030 » [Official launch of the national strategy “Digital Morocco 2030”] [Press release]. <https://www.mmsp.gov.ma/fr/actualites/lancement-officiel-de-la-strat%C3%A9gie-nationale-digital-morocco-2030>
15. Organisation for Economic Co-operation and Development. (2018). Digital government review of Morocco: Laying the foundations for the digital transformation of the public sector in Morocco. *OECD Digital Government Studies*. OECD Publishing. <https://doi.org/10.1787/9789264298729-en>
16. Organisation for Economic Co-operation and Development. (2019). Voix citoyenne au Maroc : Le rôle de la communication et des médias pour un gouvernement plus ouvert [Citizens voice in Morocco: The role of communication and the media for a more open government]. Examens de l'OCDE sur la gouvernance publique. Éditions OCDE. <https://doi.org/10.1787/9789264306608-fr>
17. Organisation for Economic Co-operation and Development. (2020). The OECD digital government policy framework: Six dimensions of a digital government (OECD Public Governance Policy Papers, No. 02). OECD Publishing. <https://doi.org/10.1787/f64fed2a-en>
18. Parasuraman, A., Zeithaml, V. A., & Malhotra, A. (2005). E-S-QUAL: A multiple-item scale for assessing electronic service quality. *Journal of Service Research*, 7(3), 213–233. <https://doi.org/10.1177/1094670504271156>
19. Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879–903. <https://doi.org/10.1037/0021-9010.88.5.879>

20. Rohrer, J. M. (2018). Thinking clearly about correlations and causation: Graphical causal models for observational data. *Advances in Methods and Practices in Psychological Science*, 1(1), 27–42. <https://doi.org/10.1177/2515245917745629>
21. SIGMA. (2019). *Revue : Principes d'administration publique — Prestation de services administratifs, Maroc* [Review: Principles of public administration — Administrative service delivery, Morocco]. OCDE/Union européenne. https://www.sigmaweb.org/content/dam/sigma/fr/documents/2019/Revue-de-prestation-de-services-administratifs_FR.pdf
22. Tolbert, C. J., & Mossberger, K. (2006). The effects of e-government on trust and confidence in government. *Public Administration Review*, 66(3), 354–369. <https://doi.org/10.1111/j.1540-6210.2006.00594.x>
23. United Nations, Department of Economic and Social Affairs. (2024). *United Nations e-government survey 2024: Accelerating digital transformation for sustainable development — With the addendum on artificial intelligence*. United Nations. <https://desapublications.un.org/publications/un-e-government-survey-2024>
24. United Nations, Department of Economic and Social Affairs. (n.d.). *Morocco: Country information*. UN E-Government Knowledgebase. Retrieved October 1, 2026, from <https://publicadministration.un.org/egovkb/en-us/data/country-information/id/115-morocco>
25. Van Ryzin, G. G. (2004). Expectations, performance, and citizen satisfaction with urban services. *Journal of Policy Analysis and Management*, 23(3), 433–448. <https://doi.org/10.1002/pam.20020>
26. Wasserstein, R. L., & Lazar, N. A. (2016). The ASA statement on p-values: Context, process, and purpose. *The American Statistician*, 70(2), 129–133. <https://doi.org/10.1080/00031305.2016.1154108>
27. Welch, E. W., Hinnant, C. C., & Moon, M. J. (2005). Linking citizen satisfaction with e-government and trust in government. *Journal of Public Administration Research and Theory*, 15(3), 371–391. <https://doi.org/10.1093/jopart/mui021>
28. Zinaoui, T., & El Khettab, M. K. (2022). La digitalisation des administrations publiques à l'ère de la pandémie : Le cas de la Caisse Nationale de la Sécurité Sociale au Maroc [The digitalisation of public administrations in the pandemic era: The case of the National Social Security Fund in Morocco]. *Communication et organisation*, 62, 143–161. <https://doi.org/10.4000/communicationorganisation.11652>