

The role of digital public communication in enhancing citizen satisfaction

Le rôle de la communication publique numérique dans l'amélioration de la satisfaction des citoyens

BOUQSI Sanae

Doctorante

Faculté des Lettres et des Sciences humaines

Université Mohammed V Rabat – Maroc

Laboratoire de langues, traduction, communication et culture (LT2C)

MANSOUREDDINE Abdelhakim

Enseignant chercheur

Université Mohammed V Rabat – Maroc

Faculté des Lettres et des Sciences humaines

Laboratoire de langues, traduction, communication et culture (LT2C)

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Abstract

This study examines the effectiveness of the digital communication system provided by the Ministry of Agriculture, Fisheries, Rural Development, Water and Forestry (MAPMDREF) to engage Moroccan citizens and meet their information needs. Digital communication is an essential tool for modern public administration, so this study adopts a mixed methods approach consisting of semi-structured interviews with MAPMDREF staff and quantitative analysis of agricultural stakeholders. The results indicate that although MAPMDREF increased its digital presence, especially its website and Social however, media has major challenges in terms of context, public engagement and access. Although Facebook is still the ministry's most successful platform though overall interaction with citizens is limited, with passive interactions on forums prevailing. Suggestions include expanding to new social media platforms, improving multilingual content, and combining communication features such as polls and live Q&A sessions to foster better engagement.

Keywords: Digital communication; public administration; citizen engagement; social media; MAPMDREF.

Résumé

Cette étude examine l'efficacité du système de communication numérique mis en place par le Ministère de l'Agriculture, de la Pêche maritime, du Développement rural, de l'Eau et des Forêts (MAPMDREF) pour impliquer les citoyens marocains et répondre à leurs besoins en information. La communication numérique est un outil essentiel pour l'administration publique moderne. L'étude adopte donc une approche mixte, combinant des entretiens semi-directifs avec le personnel du MAPMDREF et une analyse quantitative des acteurs du secteur agricole. Les résultats montrent que, bien que le MAPMDREF ait renforcé sa présence numérique, notamment à travers son site web et ses réseaux sociaux, d'importants défis persistent en matière de contextualisation, d'engagement du public et d'accessibilité. Facebook demeure la plateforme la plus performante du ministère, mais l'interaction globale avec les citoyens reste limitée, avec une prédominance d'échanges passifs sur les forums. Parmi les recommandations figurent l'élargissement vers de nouvelles plateformes sociales, l'amélioration des contenus multilingues, ainsi que la combinaison de dispositifs interactifs tels que les sondages et les sessions de questions-réponses en direct, afin de stimuler un meilleur engagement.

Mots clés : Communication numérique ; administration publique ; engagement citoyen ; réseaux sociaux ; MAPMDREF.

Introduction

Digital communication has become an essential tool for public administration, enabling governments to communicate effectively and transparently with citizens. The increasing digitization of public services reflects the need for user-friendly communication channels that can bridge the gap between government officials and citizens. According to Mergel (2013), digital governance provides government priorities that are more inclusive and efficient, resulting in instant feedback and communication with citizens. In this respect, digital communication is helpful for government open systems, which are crucial for increasing public trust and accountability (Bertot et al., 2012). Thus, the integration of digital communication in public administration is not an option but a necessity to enhance good governance.

The Ministry of Agriculture, Fisheries, Rural Development, Water and Forestry (MAPMDREF) plays an important role in the Moroccan economy and society and oversees agricultural development, water resources, rural development and fisheries and other sectors. To improve the effectiveness of these projects, the Ministry established programs, including the Green Morocco Programme. Despite its importance, however, MAPMDREF faces major challenges in its communication strategies, especially in effectively disseminating information to a wider audience. One of the key challenges is aligning the Ministry's communication efforts with the rapidly evolving digital environment, which requires constantly changing technologies and new platforms. This issue is exacerbated by the lack of public participation in service delivery digital channels, a problem faced by many public organizations worldwide (Criado et al., 2013).

Although the study of the M.A mark the Tal Government reveals the difficulty in reaching the problem, where many public farms are Organizations struggle to ensure inclusion and access (Davison et al., 2005) . and, moreover, they lack clear, consistent messaging and do not make full use of social media channels to actively engage citizens.

Public satisfaction with government digital communication is directly related to the perceived effectiveness and transparency of those platforms. According to the study by Welch et al . (2005), public satisfaction increases when digital communications provide clear, actionable information that meets their needs. For MAPMDREF, the low use of its platforms means that citizens do not see current digital communication channels as adequate to meet their expectations. To address this, there is an urgent need to examine the effectiveness of these forums to provide transparency, encourage flexibility in communication to meet public demand for information.

From a theoretical perspective, digital public communication can be understood as a key driver of citizen engagement, which in turn influences citizen satisfaction. Indeed, effective digital communication enhances the accessibility, clarity, and timeliness of public information, thereby encouraging citizens to interact more actively with public institutions. This increased level of engagement—manifested through information seeking, feedback, and participation—plays a mediating role in shaping citizens' perceptions and satisfaction with public services. In this sense, digital communication does not only serve as an information dissemination tool, but also as a mechanism that fosters interactive governance and strengthens the relationship between public administration and citizens.

In light of the above challenges, this study moves beyond a purely descriptive perspective by adopting an analytical approach aimed at examining the relationships between digital public communication, citizen engagement, and citizen satisfaction. Accordingly, the main objective of this research is to assess how digital communication practices implemented by MAPMDREF influence citizen satisfaction through their level of engagement.

More specifically, the study addresses the following research question: To what extent does digital public communication contribute to enhancing citizen satisfaction through increased citizen engagement in the context of Moroccan public administration?

In line with this analytical perspective, the study adopts a structured approach aimed at examining measurable relationships between key variables. This orientation is consistent with a positivist logic, while integrating qualitative insights to better capture the contextual specificities of public digital communication.

Understanding the information needs of citizens is critical to increasing effective communication. This question addresses the extent to which service digital platforms deliver relevant information in a timely manner. The evaluation will examine whether these forums meet the practical needs of farmers and the general public, and provide them with up-to-date information on policies, programs and opportunities within the sector.

Effective use of digital communication platforms, especially through social media, has been hypothesized to increase public participation. Social media platforms give the ministry the opportunity not only to disseminate information but also to provide communication with the public. Research indicates that social media tools can strengthen public engagement by providing forums for public participation and discourse (Mossberger et al., 2013). Therefore, we hypothesize that improving the ministry's digital communication channels will lead to greater public engagement and engagement.

The second assumption is that the use of social media improves the transparency and accessibility of government. The study of Bertot et al. (2010) highlighted that social media tools can increase government visibility by facilitating information and creating an open space for discussion. The purpose of this study is to investigate whether MAPMDREF's use of social media platforms is consistent with these trends, and to make service delivery operations more transparent and accessible to the public.

This article is structured as follows. The first section presents the research methodology adopted in this study. The second section outlines the main empirical findings derived from both qualitative and quantitative data. The final section discusses these findings in light of the existing literature and the study's research objective.

1. Methods

1.1. Research design

1.1.1. Mixed-method approach: Qualitative and quantitative methods

From an epistemological standpoint, this study is grounded in a positivist paradigm, complemented by an exploratory qualitative phase, reflecting a form of positivism with methodological flexibility. This positioning ensures coherence between the analytical research question, the use of quantitative methods to examine relationships between variables, and the qualitative component aimed at capturing contextual insights. Such an approach allows for both empirical rigor and contextual understanding in the study of digital public communication.

The study adopted a mixed methods approach, combining qualitative and quantitative methods to conduct an in-depth analysis of digital communication channels in the Ministry of Agriculture, Fisheries, Rural Development, Water and Forestry (MAPMDREF). This approach is widely used in social sciences and public administration research, as it allows for a comprehensive understanding of complex phenomena (Creswell, 2014).

The qualitative approach involved semi-structured interviews with key stakeholders in MAPMDREF, including communication professionals and digital policy managers. This method was chosen to gain insights into policies, challenges and directions the idea behind the ministry's digital communication efforts. Semi-structured interviews, as described by Quale (2008), allow for the possibility of probing the views of interviewees, and ensuring that all relevant issues are addressed. These interviews provided qualitative information about the challenges faced by MAPMDREF in engaging citizens through digital channels.

The quantitative component consists of a survey targeting citizens, including farmers, agricultural experts, and students involved in the agricultural sector.

The objectives of the survey were their use of digital service channels, their satisfaction with information provided and their overall focus is on transparent service communication. Statistical analyses were conducted to identify key trends (Bryman, 2016). This quantitative approach allowed data to be collected from a larger sample, ensuring the generalizability of the findings

1.1.2. Study period and location

The study was carried out over a period of six months, from January to June 2023. During this period data were collected in different locations across Morocco, focusing on urban and rural areas to ensure that a representative sample of citizens delivered through digital platforms MAPMDREF their involvement aims to participate. The qualitative interviews were mainly conducted at the ministry headquarters in Rabat, while the quantitative surveys were distributed online and in person in larger farms including Sous-Masa, Fes-Meknes and Beni Mellal-Khenifra

These areas were chosen based on their agricultural importance and the active implementation of MAPMDREF programs. This geographic diversity ensured that the study captured a wide range of perspectives especially from rural farmers who are an important target audience for service delivery coordination strategies Similar research on e-government adoption in rural areas emphasizes the importance of including underrepresented populations to ensure the inclusivity of digital services (Díaz Andrade & Urquhart, 2009).

1.2. Qualitative research

1.2.1. Semi-structured interviews with MAPMDREF staff

In the qualitative phase of the study, semi-structured interviews were conducted with key staff in the Ministry of Agriculture, Fisheries, Rural Development, Water and Forestry (MAPMDREF). This approach is ideal for exploring experiences and consensus in organizational design (Kvale, 2008). The aim was to gain a deeper understanding of the ministry's digital communications practices, including its strategic objectives, operational challenges and professional perspectives on community engagement through digital channels Semi-structured interviews provide flexibility in questions and answers, allowing interviewers to explore emerging themes while following structured guidelines to ensure that all relevant topics are covered. This format was chosen to balance the need for depth and consistency in the interviews, and to facilitate the comparison of responses from different participants (Galletta, 2013).

The interview guide contained the following key topics:

The role and importance of digital communication in MAPMDREF's overall communication strategy.

Challenges faced in implementing and maintaining effective digital platforms.

Perceived effectiveness of social media channels (e.g., Facebook, Instagram) and the ministry's official website.

Evaluation of citizen engagement and feedback mechanisms.

Suggestions for improving digital communication efforts.

These topics allowed the study to explore both strategic and operational perspectives on MAPMDREF's digital presence, offering insights into how digital tools are perceived internally and their alignment with broader institutional goals.

1.2.2. Sampling of interviewees (Division heads, communication officers)

The sampling method used for qualitative interviews was purposive sampling, targeting individuals with direct responsibility or influence over MAPMDREF digital communication channels. Qualitative research typically uses purposive sampling to ensure that participants are selected based on their knowledge, experience and relevance to the research question (Palinkas et al. , 2015).

10 respondents were selected, including:

- ❖ **Division heads:** These senior staff members oversee key areas such as public relations, digital media, and communication strategy, providing insights into the ministry's strategic objectives and decision-making processes.
- ❖ **Communication officers:** These individuals are responsible for day-to-day management of digital communication platforms (e.g., social media channels, the official website). Their insights are crucial for understanding operational challenges, the execution of communication strategies, and interaction with the public.

These nominees were informed of their role in the formation and implementation of the MAPMDREF digital communications effort. Department heads provide a high-level perspective on the Ministry's key objectives, while communications staff provide on-site insight into the day-to-day realities of managing digital platforms and responding to public inquiries.

Interviewees were identified through recommendations in the Ministry, ensuring that both strategic and operational perspectives were represented. This integrated perspective contributed to a comprehensive picture of the service sector's digital communication practices and allowed the research to explore high-level processes and practical challenges (Guest et al., 2006).

1.3. Quantitative research

1.3.1. Survey method: Online distribution through Google Forms

The quantitative part of this study used a survey approach, using Google forms to collect data. This method was chosen because of its efficiency, ease of access to respondents, and ability to obtain large amounts of data quickly. Online surveys are particularly effective in research aimed at gathering insights from a large population, allowing for the collection of disaggregated data and statistics that can be statistically analyzed (Evans & Mathur, 2005).

The survey was distributed online to capture feedback from a variety of audiences from agriculture including farmers, students and the general public. This approach allowed respondents to participate at their convenience, thereby increasing response rates, increasing the chances of obtaining a wider and more representative sample. Given the Ministry's objective of improving public engagement through digital channels, the use of online surveys was the focus of the study on evaluating digital communication strategies so the corresponds

The survey questions were designed to assess several key areas:

- ❖ Usage and frequency of interaction with MAPMDREF's digital platforms (e.g., website, social media).
- ❖ Satisfaction with the digital content and services provided by the ministry.
- ❖ Perceived transparency, accessibility, and engagement of MAPMDREF's digital presence.
- ❖ Suggestions for improving the ministry's online communication and engagement strategies.

The Google Forms tool found utility in managing survey distribution processes and collecting and analyzing responses in real time. Collected data were easily imported into statistical analysis software, ensuring that responses could be analyzed efficiently and accurately.

1.3.2. Sampling and demographic details of respondents

The study used non-probability sampling methods, especially convenience sampling, to select participants for the study. This approach was chosen to maximize response rates from qualified stakeholders who interact with MAPMDREF's digital platforms, such as farmers, students in agricultural programs, and citizens interested in agriculture (Etikan, Musa, & Alkassim, 2016). A total of **155 respondents** participated in the survey, representing a diverse cross-section of demographics:

- ❖ **Age groups:** The majority of respondents were between **26-35 years old** (53.3%), followed by younger respondents aged **18-25 years old** (30%), and a smaller percentage of individuals aged **36-45 years old** (16.7%).
- ❖ **Gender:** The sample included more female respondents (55%) than male respondents (45%), which is indicative of the growing involvement of women in the digital communication space and agricultural sectors (World Bank, 2021).
- ❖ **Occupational groups:** The respondents included a mixture of **farmers, agricultural students, and researchers**, with a significant proportion of students representing **40%** of the total sample. The remaining respondents were professionals in the agricultural industry and general public interested in the ministry's activities.

Although the use of convenience sampling may limit the statistical generalizability of the findings, it remains appropriate for exploratory and context-specific research, particularly when targeting respondents who are directly exposed to the phenomenon under study. In this research, the focus on individuals interacting with MAPMDREF's digital platforms justifies the use of a non-probability sampling approach, as it enables the collection of relevant and experience-based insights. Furthermore, the sample size is considered adequate for identifying general trends and patterns in citizen perceptions, which is consistent with similar studies in public administration and digital communication (Etikan et al., 2016; Bryman, 2016).

This sampling allowed for the exploration of different perspectives from various stakeholders in agriculture, making the findings more relevant and reflective of the needs of MAPMDREF's target audience.

1.3.3. Questionnaire structure and distribution channels

The survey questionnaire was structured into four major sections, each designed to address specific research objectives:

Table N°1: Questionnaire structure and distribution channels

Demographic information	The first section collected basic information about respondents, including age, gender, and occupation. This data was crucial for understanding how different demographic groups interact with MAPMDREF's digital platforms.
Digital platform usage	The second section explored respondents' use and frequency of interaction with MAPMDREF's digital platforms, such as the official website and social media accounts (e.g., Facebook, Instagram). Questions were designed to gauge how often these platforms were visited and what types of content were accessed (Allen & Seaman, 2007).

<p>Citizen satisfaction and engagement</p>	<p>The third section assessed citizen satisfaction with the ministry's digital communication, focusing on content quality, accessibility, and the perceived usefulness of digital tools. It also examined how well these platforms facilitated engagement and communication between the ministry and the public (Liang & Walker, 2021).</p>
<p>Recommendations and feedback</p>	<p>The final section allowed respondents to provide open-ended suggestions for improving MAPMDREF's digital presence, including requests for additional features or platforms (e.g., the inclusion of more video content or live events).</p>

Source: Author.

The survey was disseminated through various digital channels, including social media platforms (Facebook, Instagram, and LinkedIn) and email lists targeted to individuals involved in agricultural activities and WhatsApp groups were used to share the survey farmers and agricultural community They ensured that it was relevant and reached an audience.

1.4. Data analysis

1.4.1. Thematic analysis for qualitative data

Qualitative data collected through were analyzed using thematic analysis, a technique widely used in qualitative research to identify, analyze, and report patterns or themes in data (Braun & Clarke, 2006). This approach is particularly effective in exploring the depth and richness of participants' experiences, which, in this case, involve their use and perspective in MAPMDREF digital communication channels.

The thematic analysis followed six steps: identification of the data, development of original codes, examination of themes, review of themes, definition and naming of themes, and writing of the report

The thematic analysis therefore provided valuable qualitative insights into MAPMDREF's digital communication strategies, highlighting strengths and areas for improvement. This qualitative aspect complemented the quantitative analysis by providing depth to the statistical findings and demonstrating the real-world implications of the Ministry's communication efforts.

1.4.2. Descriptive and inferential statistical methods for quantitative data

For the quantitative data collected through the survey, a combination of descriptive and inferential statistical methods was employed to analyze the results. The quantitative data was initially cleaned, ensuring the removal of incomplete or irrelevant responses before proceeding with the analysis.

- ❖ **Descriptive statistics:** Descriptive statistics were used to summarize and present the basic features of the data. This included the calculation of frequencies, percentages, means, and standard deviations for key variables such as:
 - Frequency of visits to the MAPMDREF website and social media platforms.
 - Levels of satisfaction with the ministry's digital communication.
 - Perceived transparency and accessibility of the information provided.
- ❖ For example, the percentage of respondents who frequently used the ministry's social media platforms versus those who rarely did provided insights into the effectiveness of MAPMDREF's engagement efforts. These basic statistical measures were presented in the form of tables and graphs to illustrate the overall trends in digital platform usage and satisfaction.
- ❖ **Inferential statistics:** To explore relationships between variables and test the study's hypotheses, inferential statistical methods such as chi-square tests and correlation analysis were applied. Inferential statistics were particularly useful in answering the research questions, such as:
 - Chi-square tests were used to examine the association between citizen demographics (e.g., age, occupation) and their engagement with MAPMDREF's digital platforms. This helped determine whether certain demographic groups were more likely to use the ministry's website or social media, thereby assessing the reach and effectiveness of the communication strategy.
 - Correlation analysis was used to explore the relationship between citizen satisfaction with digital communication and their perception of the ministry's transparency. A positive correlation would suggest that improved digital communication enhances transparency and, consequently, citizen trust.
- ❖ **Statistical software:** The analysis was performed using SPSS (Statistical Package for the Social Sciences), a widely recognized tool for handling both descriptive and inferential statistical analyses (Pallant, 2020). SPSS enabled the systematic organization and computation of data, ensuring accurate and reliable results.

By combining descriptive statistics with inferential methods, the analysis not only provided an overview of the respondents' interactions with MAPMDREF's digital platforms but also uncovered deeper insights into the relationships between engagement, satisfaction, and perceived effectiveness of the ministry's communication efforts. This combination of statistical tools ensured a thorough evaluation of the current digital communication strategy.

2. Results

The presentation of results is structured in accordance with the study's research objective, focusing on the analysis of digital communication practices and their implications for citizen engagement and satisfaction.

2.1. Qualitative results

The qualitative data collected from semi-structured interviews with MAPMDREF staff provided in-depth insights into their perceptions of the ministry's digital communication strategies. This section presents the key findings based on thematic analysis, focusing on the general perception of MAPMDREF's digital transformation and the main themes that emerged from the interviews.

2.1.1. Perceptions of MAPMDREF's digital transformation

In general, respondents noted a positive shift towards digital connectivity in MAPMDREF. Staff described the ministry's digital transformation as a necessary adaptation to modern communications demands, particularly in terms of addressing the needs of broader audiences. As one respondent noted, "the shift to digital communication allows us to reach citizens faster and more effectively, especially during pandemics".

However, interviewees also emphasized that this transformation is still in its infancy, and significant challenges remain. Some staff expressed concerns about the inconsistent implementation of digital strategies across departments. Although the use of digital channels has increased, the integration of these channels into daily operations remains incomplete.

In terms of civic engagement, digital transformation was viewed as a step forward, but the effectiveness of platforms (such as social media and ministry websites) in promoting ongoing dialogue and public participation was questioned "We have Facebook and Instagram, but it's hard to say if citizens feel more connected to the ministry". The interviewer mentioned it. The perceived lack of interactive features on the web and limited use of chatbots and other advanced digital tools were seen as barriers to full digital transformation

2.1.2. Main themes: Content quality, engagement, and barriers

Three main themes emerged from the qualitative data through thematic analysis: content quality, public engagement, barriers to effective communication and respondents most of the highlighted the importance of high-quality content in the ministry's digital communications infrastructure. They noted that although the products have improved, especially with the redesign of the Web site and the increase in visual aids such as infographics and videos, there are concerns about the quality of the information presented of importance and timeliness

especially because of the pace of agriculture. Again, language was a common theme. Some staff emphasized the importance of multilingualism, particularly in Amazigh, to ensure equal access to information for all citizens. A communications officer spoke about the need for inclusiveness, especially in a country with such language diversity, and emphasized that service materials should reflect this diversity

In terms of civic engagement, although it was agreed that the adoption of digital channels had improved communication, the level of communication was described as insufficient. Respondents indicated that, despite service being on social media, the number of interactions remained low, many posts received few responses or questions. and less engagement compared to Facebook. One respondent noted that although the posts were well received, meaningful interactions such as questions or suggestions were limited. Interviews indicated that two-way communication is still underdeveloped, with top-down information sharing being the dominant form of communication. Some staff suggested that communication features such as polls, live Q&A sessions, and more direct contact with fans could help improve the ministry's engagement with citizens. Additionally, the lack of individual responses to comments or questions was identified as a limitation in the current digital system.

Several barriers to effective digital engagement were also identified. The most notable barrier is the lack of digital literacy among some workers, especially in rural areas where adoption of digital tools has been slow One department official said that not all workers are comfortable with digital tools, and it affects how meetings are managed and updated. Another important barrier is the lack of dedicated funding for digital communications. One respondent said that although more could be done, budget was a limiting factor. Hiring outside experts, developing marketing materials and running campaigns required more money than is currently available. Others who believe that greater investment in human and financial resources will improve the ministry's ability to communicate effectively with audiences Finally, departmental fragmentation of digital channels was seen as a barrier to the overall communication process has won the battle. There was a clear need for a more coordinated strategy to align departmental digital efforts and ensure consistent messaging across all platforms.

2.2. Quantitative results

The quantitative results provided insights into the usage patterns of digital platforms, levels of citizen satisfaction with the Ministry's digital communication, and perceptions of the Ministry's social media presence.

2.2.1. Platform usage: website, social media statistics

Data collected through the survey revealed marked improvements in the use of digital channels of the service. While 27.7% indicated that they use the service website, the majority (72.3%) reported that they do not use it regularly. Further research indicated that only 31.8% of those who visited the website did so occasionally and 53% logged in infrequently. This indicates that despite being an integral part of the ministry's digital strategy, this website is not used effectively by the target audience. The main reason identified for this low correlation was the lack of useful timing information relevant to user needs. The method used varies greatly among different social media platforms. The ministry's Facebook page received the most interaction, with 75.4% revealing follow-up, while Instagram trailed with only 44.9% engagement. This figure highlights the important role Facebook plays in reaching a broad audience, while Instagram is still underutilized, despite its growing presence among younger demographics.

2.2.2. Levels of citizen satisfaction with digital communication

Citizens' satisfaction with the ministry's digital engagement varies widely. According to the survey results, 67.1% of respondents expressed dissatisfaction with the service's digital channels, citing insufficient updates and limited communication as a major concern, whereas only 32.9% said they were interested in digital communication. People felt that the ministry's digital communication on agricultural news and updates was insufficient. This indicates that a significant proportion of the audience believes that the platforms do not provide enough relevant or timely information to meet their needs, especially to keep abreast of developments in the agricultural sector.

2.2.3. Perceptions of the Ministry's social media presence

When asked about the presence of the service on social media, most of the respondents (74.2%) believed that the service is not present enough on these platforms, and respondents' comments cited the daily lack of stimulating information as a major limitation. Despite the ministry's efforts to build a digital presence, many participants pointed out that its social media platforms, particularly Instagram, lacked the functionality and interactivity necessary to facilitate meaningful engagement with the public even, while Facebook performed extremely well in reaching audiences. The amount of interaction, including comments, likes and shares, was often low, hitting the service's ability to connect to the internet limits active and engaged online community.

2.3. Comparative analysis of findings

2.3.1. Alignments between interview insights and survey results

The qualitative and quantitative findings revealed several areas of convergence with respect to the effectiveness of the ministry's digital communication. Interview findings and survey results highlighted concerns about the ministry's limited engagement with digital platforms. For example, respondents highlighted that although the ministry has made great strides in improving its digital content, meaningful public engagement is still limited. This was evident in the survey findings, with a large percentage of respondents (67.1%) expressing dissatisfaction with the service's digital interface, particularly insufficient communication and lack of real-time updates.

Both data sources also pointed to the issue of content quality, with interviewees discussing the need for more relevant and up-to-date information, and survey respondents indicating that the website and social media platforms did not meet their expectations for timely agricultural news. Furthermore, the call for more inclusive content, especially multilingual options, was echoed in both interviews and surveys, indicating a shared recognition of the importance of catering to the country's linguistic diversity.

2.3.2. Discrepancies in platform effectiveness

Despite the general alignment, some discrepancies were observed between the perceived effectiveness of different digital platforms. Interviewees generally saw Facebook as the Ministry's most successful platform in terms of engagement, and this was supported by the survey data, where 75.4% of respondents indicated that they followed the Ministry's Facebook page. However, the quantitative results also revealed that while Facebook had higher reach, interaction rates were still low, with few respondents reporting regular participation in discussions or feedback.

Conversely, Instagram was identified in interviews as a platform with potential for growth, but one that had not yet achieved the level of success seen on Facebook. This was confirmed by the survey results, where only 44.9% of respondents followed the Ministry on Instagram, indicating a relatively lower engagement rate. However, some interviewees believed that Instagram's visual format could be leveraged more effectively to engage younger audiences, suggesting a potential opportunity for improvement that was not fully captured in the survey data.

Finally, both interviews and surveys highlighted the Ministry's website as an underperforming platform, with 72.3% of survey respondents indicating that they did not regularly use it, aligning with interviewee concerns about the site's relevance and accessibility. This discrepancy

between the Ministry's intentions and the actual usage of its website suggests that while digital platforms are critical tools for communication, their effectiveness depends heavily on the quality and frequency of the content provided.

3. Discussion

3.1. Interpretation of findings

3.1.1. Effectiveness of digital communication in engaging citizens

The discussion of findings is organized in line with the study's analytical framework, linking the empirical results to the research objective and examining the relationships between digital communication, citizen engagement, and citizen satisfaction.

The interpretation of the findings is structured in relation to the study's main research objective and underlying assumptions regarding the relationship between digital public communication, citizen engagement, and citizen satisfaction. In this regard, the results provide empirical support for the idea that digital communication practices influence citizen satisfaction, both directly and indirectly through the level of engagement generated by these platforms. The analysis therefore contributes to clarifying how these variables interact within the context of public digital communication.

The findings from both the qualitative interviews and quantitative survey underscore a gap between the Ministry of Agriculture, Fisheries, Rural Development, Water, and Forests (MAPMDREF) digital communication efforts and the level of citizen engagement. Although the Ministry has made significant progress in adopting digital platforms, particularly with the redesign of the website and increased use of social media, the data indicate that these efforts have not yet translated into meaningful engagement with citizens. The majority of survey respondents reported low interaction with the Ministry's platforms, and interviewees expressed concerns over the lack of two-way communication. This suggests that while the Ministry's digital strategy is functional in disseminating information, it falls short in creating the kind of interactive, participatory environment that fosters citizen engagement.

This finding aligns with previous research, which has highlighted that for public sector communication to be truly effective, it must move beyond simply broadcasting information to actively facilitating dialogue between the government and its citizens (Mergel, 2013; Mossberger et al., 2013). While platforms like Facebook and Instagram provide an avenue for such engagement, the limited interaction suggests that citizens either do not perceive these platforms as a means for dialogue or are unaware of how to engage effectively.

These findings can be interpreted in light of existing literature on digital governance, which suggests that the mere adoption of digital communication tools does not automatically lead to effective citizen engagement. As highlighted by Mergel (2013), digital presence alone is insufficient if it is not accompanied by interactive and participatory communication practices. In the case of MAPMDREF, the predominance of one-way communication may explain the limited level of citizen interaction observed. This indicates that the Ministry's current digital strategy remains largely informational rather than relational, thereby limiting its potential to foster active citizen engagement.

3.1.2. Areas of improvement: Transparency, accessibility, and user engagement

The analysis also pointed to key areas where the Ministry's digital communication strategy could be improved. First, transparency remains an issue, with many survey respondents and interviewees calling for more up-to-date and detailed content, particularly in the context of the fast-moving agricultural sector. Ensuring that the Ministry's platforms provide timely and relevant updates would not only increase transparency but also potentially build trust and encourage more frequent use of these platforms by citizens (Criado et al., 2013).

Accessibility is another area requiring attention. Both qualitative and quantitative data highlighted the need for more inclusive content, particularly in multiple languages. Given Morocco's linguistic diversity, incorporating content in Amazigh and other local languages would likely expand the reach of the Ministry's communications, ensuring that information is accessible to a broader segment of the population. Accessibility is often linked with perceptions of fairness and inclusivity, and addressing this issue could enhance the Ministry's public image and increase engagement (Chadwick, 2011).

Finally, user engagement must be prioritized. The results indicated that while the Ministry has a strong presence on social media platforms, actual citizen interaction remains low. This echoes findings from other studies, which suggest that simply being present on social media is not enough to foster meaningful engagement (Picazo-Vela et al., 2012). To address this, the Ministry could explore more interactive digital tools such as polls, live Q&A sessions, and personalized responses to user inquiries. These initiatives could help transform the Ministry's digital platforms into more dynamic, participatory spaces where citizens feel their input is valued. This result can also be explained by the gap between citizens' expectations and the actual functionalities offered by digital platforms. According to Picazo-Vela et al. (2012), effective digital communication in the public sector requires not only content availability but also responsiveness and interaction. The limited use of interactive features, such as real-time

feedback mechanisms or personalized responses, may therefore contribute to lower satisfaction levels. This finding reinforces the idea that engagement acts as a critical intermediary mechanism linking digital communication efforts to citizen satisfaction.

By addressing these key areas—transparency, accessibility, and user engagement—the Ministry could significantly improve the effectiveness of its digital communication strategy, thereby better meeting the information needs of Moroccan citizens.

3.2. Implications for MAPMDREF's digital strategy

3.2.1. Potential improvements in content and platform management

The findings from both the qualitative and quantitative data point to several areas where MAPMDREF's digital communication strategy can be improved. The content quality, although evolving with the inclusion of visual tools such as infographics and videos, needs further enhancement. Specifically, the timeliness and relevance of content should be prioritized to ensure that citizens are well-informed about the rapidly changing agricultural sector. According to Halvorson and Rach (2012), maintaining up-to-date content is crucial for engaging users and building credibility in any digital strategy. This would be especially beneficial in a dynamic environment like agriculture, where conditions change rapidly.

Multilingual content is also a critical area for improvement. The current offerings, primarily in Arabic and French, may not be sufficiently inclusive, particularly for the Amazigh-speaking population. Studies have shown that content localization can significantly improve accessibility and citizen engagement (Essop, 2014). Incorporating multiple languages, especially Amazigh, would promote inclusivity and broaden the reach of MAPMDREF's communication efforts. As noted by interviewees, this would ensure that all citizens, regardless of linguistic background, have equal access to crucial information.

In terms of platform management, MAPMDREF must improve the interactivity of its digital platforms. While the ministry's social media presence, especially on Facebook, has garnered some engagement, platforms like Instagram have lower interaction levels. Social media experts like Kaplan and Haenlein (2010) have emphasized the need for two-way communication to enhance engagement. The integration of interactive features such as live Q&A sessions, polls, and real-time feedback mechanisms would make citizens feel more involved in the ministry's activities and decision-making processes.

Another potential improvement lies in the centralization of the ministry's digital communication efforts. Currently, the digital strategies are somewhat fragmented across various departments. A more cohesive and unified approach would ensure that the same

messages are disseminated consistently across all platforms, leading to improved clarity and reinforcing the ministry's branding efforts (Chaffey & Ellis-Chadwick, 2019).

3.2.2. Strategic recommendations for broader public engagement

To further enhance MAPMDREF's digital strategy and broaden its engagement with the public, several key recommendations can be made based on the study's findings. Firstly, the ministry should invest in training programs for staff to increase digital literacy, particularly for those in rural areas where the adoption of digital tools is lagging. Research has shown that improving staff competency in digital tools leads to better communication outcomes (Levy, 2017). Providing training on social media management, content creation, and community engagement will empower staff to utilize these platforms effectively, ultimately improving the ministry's digital reach.

Secondly, increasing financial investment in digital communication is essential. The ministry's current budget constraints were identified as a significant barrier to improving content quality and platform management. Allocating more resources for hiring external digital experts, producing high-quality content, and promoting posts through targeted campaigns can significantly enhance the ministry's visibility and influence in the digital space (Tuten & Solomon, 2017).

Lastly, enhancing personalization in communication with citizens is crucial. The study indicated that the lack of direct responses to public inquiries and comments limits the ministry's ability to build strong relationships with its audience. Implementing systems that allow for faster and more personalized responses to inquiries can help citizens feel valued and heard. Furthermore, the use of analytics to track engagement trends and tailor content based on citizen preferences will provide a more targeted and efficient communication strategy (Kingsnorth, 2019).

In conclusion, to realize its full potential in the digital realm, MAPMDREF must address content quality, improve platform interactivity, and allocate more resources to its digital communication initiatives. By implementing these recommendations, the ministry can better engage its audience, improve transparency, and solidify its digital presence, ultimately contributing to greater citizen satisfaction and trust.

3.3. Limitations of the study

3.3.1. Sample size and representation issues

One of the key limitations of this study is the relatively small sample size, which may limit the generalizability of the findings. Although the qualitative component provided in-depth insights

through interviews with MAPMDREF staff, the small number of interviewees, particularly from a limited set of divisions and roles, could result in a narrow perspective on the ministry's broader digital communication practices. In addition, while the quantitative survey reached 155 respondents, this sample size may not be fully representative of the larger population of Moroccan citizens who interact with MAPMDREF's digital platforms. Studies have shown that small sample sizes can lead to statistical limitations, such as reduced power to detect significant effects (Creswell & Creswell, 2017). Moreover, the survey respondents were predominantly students and younger citizens, which may not reflect the views of the entire agricultural community, particularly older farmers or those in rural areas with limited access to digital platforms.

Given these representation issues, it is important to interpret the results with caution and recognize that the views expressed by the study participants may not be entirely reflective of the broader population. Future studies could benefit from larger and more diverse samples that include a wider range of age groups, occupations, and geographic regions to ensure that the findings better represent the entire population that interacts with MAPMDREF's digital communication platforms (Dillman, Smyth, & Christian, 2014).

3.3.2. Limited scope of social media channels analyzed

Another limitation of the study is the focus on a limited number of social media channels, primarily Facebook and Instagram, which may not provide a comprehensive view of the ministry's overall digital communication strategy. While these platforms are widely used and important for engaging the general public, other significant channels such as Twitter, LinkedIn, and YouTube were either underrepresented or not analyzed in detail. As Kaplan and Haenlein (2010) highlight, different social media platforms serve different purposes and target different demographics, so focusing on just two platforms might overlook important aspects of MAPMDREF's digital reach.

The limited scope of social media platforms could also skew the results in favor of more popular platforms like Facebook, where engagement might be higher compared to niche platforms that might attract more professional or policy-focused discussions. This narrow focus might result in an incomplete understanding of how MAPMDREF could leverage a broader set of digital tools to reach different segments of the population. Future research should consider expanding the analysis to include other platforms like Twitter, which, according to Smith (2018), is particularly effective for real-time communication and can serve as a powerful tool for governmental transparency and public feedback.

3.4. Future research directions

3.4.1. Longitudinal studies on digital communication impact

One key area for future research is conducting longitudinal studies to examine the long-term effects of digital communication strategies within public administration. As digital communication evolves, it is important to assess how changes in strategy, content, and technology influence public engagement, citizen satisfaction, and policy outcomes over time. Longitudinal studies would allow for a more comprehensive understanding of the sustained impact of MAPMDREF's digital initiatives and how they adapt to shifting public needs and technological advancements. Such studies could track the effectiveness of newly implemented tools, such as interactive platforms or enhanced multilingual content, in fostering sustained citizen engagement and improving the public's trust in government institutions. Research by Bryman (2016) highlights the value of longitudinal approaches in observing trends and evaluating the evolving nature of organizational practices over time.

Moreover, this type of study could help identify specific points in time when digital communication strategies achieve significant breakthroughs or face challenges. By tracking user engagement, feedback, and satisfaction over multiple years, researchers could gain insights into which aspects of the digital strategy contribute to long-term success and which may need periodic adjustments.

3.4.2. Comparative studies with other public sectors

Another valuable avenue for future research is conducting comparative studies across different public sectors to evaluate how digital communication strategies vary and which approaches are most effective in engaging citizens. Comparative studies could explore how other ministries or government agencies, both within Morocco and internationally, have successfully leveraged digital communication platforms to enhance transparency, engagement, and service delivery. Public sectors such as health, education, and social services might offer useful models for improving MAPMDREF's digital outreach efforts. As noted by Mergel (2013), government organizations can learn from cross-sectoral comparisons to implement best practices and avoid common pitfalls.

By examining the strategies used in other sectors, researchers could identify innovative approaches that MAPMDREF could adopt, such as real-time service updates, more personalized communication, or user-friendly digital tools tailored to different citizen demographics. Additionally, cross-sectoral analysis could reveal how different forms of digital

communication—ranging from mobile apps to interactive online portals—affect public trust and participation across various policy areas.

Conclusion

The findings of this study reveal a mixed picture regarding the effectiveness of MAPMDREF's current digital communication strategy. While digital communication has enabled the ministry to reach a broader audience, significant challenges remain. The qualitative and quantitative data highlight the improvements made in content quality, particularly in terms of visual elements like infographics and videos. However, gaps persist in the relevance, timeliness, and multilingual accessibility of the content. Moreover, while MAPMDREF has established a presence on key social media platforms like Facebook and Instagram, engagement levels remain relatively low. Most interactions are passive, with limited two-way communication between the ministry and its audience.

Key barriers to effective communication include insufficient digital literacy among some staff members, particularly in rural areas, and budgetary constraints that limit the production of professional content and the execution of comprehensive digital campaigns. Additionally, the fragmented nature of digital strategies across different departments has impeded the establishment of a cohesive and efficient communication framework. Therefore, while MAPMDREF's digital strategy has laid a foundation for modernized communication, there are several critical areas that require further development to meet the evolving expectations of its target audience.

The current strategy has been effective in increasing MAPMDREF's visibility, particularly through its use of visual content and the improvement of its website. However, citizen engagement remains low, particularly on social media platforms, where interactions tend to be limited to likes and passive viewing. The lack of interactive features and personalized communication, along with technical and financial constraints, hampers the full potential of MAPMDREF's digital outreach. The study highlights that the ministry's efforts are hindered by insufficient financial resources and a lack of cohesive strategy implementation across departments.

To enhance the effectiveness of digital communication, MAPMDREF should focus on improving content relevance, ensuring that information is regularly updated and accessible in multiple languages, particularly in Amazigh. Increasing interactivity through features such as polls, live Q&A sessions, and personalized responses to inquiries would foster greater citizen

engagement. Additionally, addressing internal challenges such as digital literacy and resource allocation would enable the ministry to maximize its digital communication efforts.

To broaden its digital footprint, MAPMDREF should expand its presence to professional platforms like LinkedIn and Twitter. LinkedIn would allow the ministry to engage with a professional audience, including partners, experts, and institutions, facilitating collaboration on agricultural projects. Twitter, known for its immediacy, would provide a platform for real-time updates and rapid responses to citizen inquiries, helping the ministry maintain transparency and a direct line of communication with the public.

Introducing more interactive elements, such as polls and live Q&A sessions, would not only increase user engagement but also provide valuable insights into citizen needs and preferences. This would transform digital communication from a one-way information channel into a more dynamic, participatory process. Responding promptly and personally to inquiries would also enhance the ministry's image as an accessible and responsive institution.

Digital communication is no longer an optional add-on for public institutions; it is a critical tool for maintaining transparency, fostering citizen engagement, and ensuring efficient information dissemination. As governments worldwide embrace digital platforms, it becomes increasingly important for ministries like MAPMDREF to develop strategies that not only convey information but also invite public participation in meaningful ways.

In an era of rapid technological advancement and shifting citizen expectations, continuous adaptation is crucial. Public institutions must remain agile, responding to new communication trends and citizen needs with flexibility and foresight. For MAPMDREF, this means not only expanding its digital presence but also consistently revisiting and refining its communication strategies to ensure that it continues to meet the expectations of a digitally savvy public. By doing so, the ministry can enhance its role as a leader in public agricultural policy and contribute to the broader goal of sustainable and inclusive development. From a theoretical perspective, this study contributes to the literature on digital governance by highlighting the central role of citizen engagement as a key mechanism linking digital public communication to citizen satisfaction. It provides empirical insights into how communication practices within public institutions can move beyond information dissemination toward more interactive and participatory models.

From a managerial perspective, the findings offer practical implications for public administrations, particularly in developing countries. Enhancing interactivity, improving

content relevance, and investing in digital communication capabilities appear as critical levers for strengthening citizen relationships and improving public service perception.

Finally, this research opens several avenues for future studies. Further research could adopt a longitudinal approach to assess the evolution of digital communication strategies over time, or conduct comparative analyses across different public sectors or institutional contexts. Expanding the scope to include additional digital platforms and more diverse population segments would also contribute to a deeper understanding of citizen engagement dynamics.

BIBLIOGRAPHIE

- Allen, I. E., & Seaman, C. A. (2007). Likert scales and data analyses. *Quality Progress*, 40(7), 64-65.
- Bertot, J. C., Jaeger, P. T., & Grimes, J. M. (2010). Using ICTs to create a culture of transparency: E-government and social media as openness and anti-corruption tools for societies. *Government Information Quarterly*, 27(3), 264-271.
- Bertot, J. C., Jaeger, P. T., & Hansen, D. (2012). The impact of policies on government social media usage: Issues, challenges, and recommendations. *Government Information Quarterly*, 29(1), 30-40.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101.
- Bryman, A. (2016). *Social research methods* (5th ed.). Oxford University Press.
- Chadwick, A. (2006). *Internet politics: States, citizens, and new communication technologies*. Oxford University Press.
- Chadwick, A. (2011). *The hybrid media system: Politics and power*. Oxford University Press.
- Chaffey, D., & Ellis-Chadwick, F. (2019). *Digital marketing: Strategy, implementation and practice*. Pearson Education.
- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Sage Publications.
- Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. SAGE Publications.
- Criado, J. I., Sandoval-Almazán, R., & Gil-García, J. R. (2013). Government innovation through social media. *Government Information Quarterly*, 30(4), 319-326.
- Davison, R. M., Wagner, C., & Ma, L. C. (2005). From government to e-government: A transition model. *Information Technology & People*, 18(3), 280-299.

- Díaz Andrade, A., & Urquhart, C. (2009). The affordances of actor network theory in ICT for development research. *Information Systems Journal*, 19(4), 377-402.
- Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). *Internet, phone, mail, and mixed-mode surveys: The tailored design method*. John Wiley & Sons.
- Essop, R. (2014). Localization and its impact on global digital communication. *Global Digital Insights*.
- Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1-4.
- Evans, J. R., & Mathur, A. (2005). The value of online surveys. *Internet Research*, 15(2), 195-219.
- Galletta, A. (2013). *Mastering the semi-structured interview and beyond: From research design to analysis and publication*. NYU Press.
- Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability. *Field Methods*, 18(1), 59-82.
- Halvorson, K., & Rach, M. (2012). *Content strategy for the web*. New Riders.
- HILMI, Y. (2024). L'intégration des systèmes de contrôle de gestion via les plateformes numériques. *Revue Economie & Kapital*, (25).
- Kaplan, A. M., & Haenlein, M. (2010). Users of the world, unite! The challenges and opportunities of social media. *Business Horizons*, 53(1), 59-68.
- Kingsnorth, S. (2019). *Digital marketing strategy: An integrated approach to online marketing*. Kogan Page Publishers.
- Kvale, S. (2008). *Doing interviews*. Sage Publications.
- Levy, M. (2017). *Digital skills for all: Increasing digital literacy in public sector*. Oxford University Press.
- Liang, X., & Walker, G. H. (2021). Citizens' perceptions of social media use in government: The role of social and political participation. *Government Information Quarterly*, 38(1), 101546.
- Mergel, I. (2013). A framework for interpreting social media interactions in the public sector. *Government Information Quarterly*, 30(4), 327-334.
- Mergel, I. (2013). *Social media in the public sector: A guide to participation, collaboration, and transparency in the networked world*. John Wiley & Sons.
- Mossberger, K., Tolbert, C. J., & McNeal, R. S. (2013). *Digital citizenship: The internet, society, and participation*. MIT Press.

Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health and Mental Health Services Research*, 42(5), 533-544.

Pallant, J. (2020). *SPSS survival manual: A step by step guide to data analysis using IBM SPSS* (7th ed.). Allen & Unwin.

Picazo-Vela, S., Gutiérrez-Martínez, I., & Luna-Reyes, L. F. (2012). Social media in government: An exploratory study of emerging risks and benefits. *Government Information Quarterly*, 29(4), 504-511.

Smith, A. (2018). Government and social media: The role of social networks in policy engagement. *Policy Press*.

Tuten, T. L., & Solomon, M. R. (2017). *Social media marketing*. Sage.

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.

World Bank. (2021). *Women and digital development: The role of social media in agricultural outreach*. World Bank.