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Decoding Stakeholder Sentiments in E-governance: Insights into an EU Cohesion Policy Digital Platform

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ABSTRACT:
The European Union's cohesion policy has increasingly adopted digital tools to streamline funding applications and implementation. Centralised platforms now facilitate communication between regulatory institutions and stakeholders, enabling information exchange and issue resolution throughout the project lifecycle. A key sample is Portugal's POSEUR programme (2014–2020), which pioneered E-governance in EU funding through its *Balcão de Fundos* platform. This study applies sentiment analysis to 35 semi-structured interviews, using a DistilBERT-based dependency parser to explore institutional and regional differences in digital tool acceptance. Findings show that stakeholders in digitally advanced regions like Lisbon and the North express predominantly positive sentiment, while those in central and rural areas exhibit mixed or negative attitudes. These results underscore the significance of digital literacy and infrastructure in ensuring equitable and effective adoption of E-governance mechanisms across regions. The study highlights the need for targeted support to bridge digital divides and foster inclusive participation in EU cohesion policy processes.

Keywords: E-governance, EU cohesion policy, sentiment analysis, networks, sustainability, Portugal

1. Introduction

The Operational Programme for Sustainable and Efficient Use of Resources (POSEUR) was a European Union (EU) cohesion policy initiative to reduce the disparities between regions within Portugal. These disparities are particularly evident in bottlenecks in some of these areas (mainly in the centre and south of Portugal), despite ideal weather conditions in those regions, hindering the use of renewable energies (Fiaschi et al., 2018; Gagliardi & Percoco, 2017). Therefore, POSEUR was a helpful mechanism for providing a more homogeneous landscape for sustainable resource use in Portugal (Beck et al., 2024).

To facilitate communication between projects and stakeholders, and with the regulatory entities responsible for establishing this funding tool, the EU opted to centralise the application processes for European, national, and regional projects and funding programmes on one digital platform – *Balcão dos Fundos Portugal 2020*. The e-platform provides a bidirectional communication channel. It allows for constant back-and-forth on

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information, aiming to be a more efficient and immediate way to address pressing issues throughout the application, acceptance, and execution of projects. POSEUR marked Portugal's first use of a centralised digital platform for cohesion policy applications. It requires a natural cost of adaptation from all actors, as a new platform implies new methods that stakeholders need to adjust their conventional procedures to.

The digitalisation of administrative procedures, in line with the EU Digital Service Acts (European Parliament and Council of the European Union, 2022), aims to standardise funding applications across all member states. While this may prove beneficial in the long run, it's crucial to understand how stakeholders in southern European countries, with a tradition of heavy Napoleonic bureaucracy, are adapting to the new European strategies of simplification through E-governance. This article seeks to explore stakeholders' sentiments of stakeholders towards the e-governance platform that managed the operational programme for Sustainability and Use of Resources (POSEUR 2014-2020).

An in-depth analysis of stakeholders' sentiments was conducted using data collected from interviews with 35 individuals who have directly engaged with the POSEUR application platform. The interviews specifically focused on this e-governance innovation, and their content was analyzed using sentiment analysis to determine whether the overall perception of the innovation is positive or negative. A key strength of this article lies in its comparative analysis across regions, which will aid in identifying areas that could benefit from targeted training sessions, reinforcement of human resources, or targeted measures to improve digital literacy. The EU Cohesion Policy has implemented these centralized channels as a long-term solution to enhance the efficiency of EU funding in the cohesion process.

This article is organized as follows: The next section will provide a comprehensive overview of the current literature, focusing on the EU Cohesion Policy and its impact on reducing regional disparities. This literature review will emphasize the Portuguese case, particularly within the context of the extensive bureaucratic frameworks present in Southern European countries. This case is particularly intriguing due to the notable differences in education levels and access to technology among the diverse population. Understanding whether E-governance enhances policymaking efficiency or perpetuates existing inequalities is crucial. Therefore, gauging public sentiment towards these innovative initiatives emerges as a vital consideration for future EU cohesion programs.
The methodology section will articulate the effectiveness of sentiment analysis in understanding how policy-related actors engage with technology and the potential impact on policy outcomes and funding programs. The results offer insight into both the quantitative and qualitative data derived from the sentiment analysis, painting a comprehensive picture of stakeholders' perspectives on the POSEUR digital platform. In the discussion chapter, we revisit the theories outlined in the literature review to assess their validity and examine whether discernible patterns of sentiment regarding digital E-governance emerge. Additionally, the discussion offers policy recommendations to enhance stakeholders' positive perceptions of online platforms for funding applications. The conclusion will display the findings, highlight the limitations of the applied methodology, and suggest avenues for future research within the realm of E-governance.

2. Theoretical Background

Managing regional diversity is increasingly challenging as the EU faces new applications from countries seeking to join the union (Mitze & Breidenbach, 2024). A fair and open market requires the full integration of different regions into the European Union's economy, enabling the full exploration of local resources. To support underdeveloped regions in peripheral countries in keeping up with the EU economy and market, the EU has invested in cohesion mechanisms to reduce disparities and launch new, diversified products to stimulate regional economies (Grosse, 2010). This effort must occur in an environment that prioritises ecological protection and preserves the cultural diversity within the EU, all while enhancing the potential for regional integration in a highly competitive European economy (Di Caro & Fratesi, 2022).

The funding programs aim to enhance local ecosystems by allocating resources to key areas of geopolitical development within the EU. One of the most significant investments is in digitalisation. This includes implementing E-governance strategies and tools that promote uniform policy procedures across all EU member states (Umbach & Tkalec, 2022). Such initiatives can benefit the EU by establishing clear deadlines for adapting new policies from the European level down to the national and regional levels. However, this requires effort from countries with lower levels of digitalisation, as they must quickly adapt to innovative policy management methods (Yalçın, 2021).

In Portugal, the POSEUR program was the first operational initiative funded by the EU cohesion policy to establish a centralised platform for applications and information related to selected projects. This development is particularly significant in Portugal, which has roots in an administrative tradition known for its stringent bureaucratic requirements (Ongaro, 2010). As a result, the costs associated with adapting to new E-governance management platforms can be high for stakeholders who are not accustomed to operating within highly digitalized processes. Moreover, notable disparities across Portugal in this regard pose various challenges to national cohesion (Medeiros et al., 2022).

Some authors Aivazidou et al. (2020) and Spilioti & Anastasiou (2024) view the standardisation of procedures through technology as a positive development for creating a more egalitarian European Union (EU). The use of updated communication channels enhances efficiency, providing stakeholders and policymakers with timely information on the procedures they need to follow. Additionally, it provides these individuals with easy access to platforms for interacting with EU bodies, enabling them to address any issues that may arise during the process. While this can lead to a more equitable and democratic EU, it may also perpetuate existing structural problems, particularly those related to varying levels of digital literacy across groups (Kessel et al., 2022).

Consider the case of Portugal. Historically, the regions of Lisbon and Porto have higher levels of education and digital literacy because most tertiary-sector jobs and high-tech industries are located in these two areas (Teixeira et al., 2022). This trend puts the rest of the country at a disadvantage, as the industrial landscape and policymakers in less developed regions struggle to compete with the stakeholders in Lisbon and Porto (Medeiros & Valente, 2024). As a result, a rapid digitalisation of EU cohesion policy programs and other funding mechanisms could lead to fewer projects being submitted by underdeveloped regions focused on improving digital literacy (Gagliardi & Percoco, 2017;

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Lewandowska, 2016; Pinto et al., 2025). This could counteract the original purpose of the EU cohesion policy and potentially widen the gap between regions (Sme¸ Tkowski & Wójcik, 2012). Based on regional disparities in digital literacy and infrastructure, we hypothesize that:

H1: stakeholders located outside the Lisbon and Porto regions are more likely to express negative sentiments toward the POSEUR digital platform than those within these metropolitan areas.

While this hypothesis is grounded in well-established arguments on the digital divide, regional sentiment patterns may also be shaped by additional contextual factors beyond broadband infrastructure or individual digital literacy. Differences in local institutional capacity, sectoral composition of applicants, and prior exposure to EU-funded administrative procedures may influence how stakeholders interpret the usability and legitimacy of centralized digital platforms. Regions with stronger intermediary structures—such as experienced municipal networks, intermunicipal communities, or consultancy services—may exhibit more positive perceptions even when structural indicators of digital development remain comparatively weaker. Accordingly, this study treats regional location as a proxy for digital readiness while acknowledging that institutional ecosystems and governance capacity may moderate stakeholder sentiment. While existing literature has extensively examined the role of E-governance in improving administrative efficiency, transparency, and service delivery, comparatively less attention has been paid to how stakeholders subjectively perceive centralized digital platforms within the specific context of EU cohesion policy implementation. Moreover, studies addressing the digital divide tend to focus primarily on infrastructural access and individual digital skills, often overlooking the role of institutional capacity, intermediary support structures, and sectoral administrative cultures in shaping user experiences. By combining sentiment analysis with a regionally comparative qualitative dataset, this study contributes to the literature by capturing how institutional and territorial contexts jointly influence stakeholder perceptions of E-governance tools in cohesion policy settings.

Frameworks, Challenges, and Stakeholder Perceptions in E-governance Implementation

E-governance has emerged as a pivotal mechanism for enhancing administrative efficiency, transparency, and citizen engagement in public governance. Over the past two decades, advancements in digital technologies have facilitated the integration of information and communication technologies (ICT) into governmental processes, leading to the widespread adoption of E-governance frameworks (Nam et al., 2022). The European Union (EU), as part of its broader digital transformation agenda, has actively promoted the standardization and implementation of E-governance initiatives across its member states, aiming to streamline administrative operations and foster greater institutional interoperability (European Commission, 2021).

The conceptual underpinnings of E-governance can be traced to multiple theoretical models that explain its adoption and effectiveness. The Technology Acceptance Model (TAM) (Davis, 1989) postulates that the perceived usefulness and ease of use of digital tools significantly influence stakeholders' acceptance of new technological systems. This model is particularly relevant to EU funding mechanisms such as the POSEUR

platform, where stakeholders' ability to navigate digital interfaces determines their willingness to engage with online administrative processes. Additionally, the New Public Management (NPM) paradigm advocates adopting private-sector efficiency principles in public administration, emphasizing the role of ICT in minimizing bureaucratic inefficiencies (Lapsley & Segato, 2019). This paradigm has informed many E-governance strategies within the EU, including the Digital Single Market initiative, which seeks to enhance cross-border digital interactions among public institutions, businesses, and citizens (European Commission, 2018).

Beyond efficiency-oriented frameworks, Digital Era Governance (DEG) (Margetts & Dunleavy, 2013) extends the NPM model by emphasizing the transformational role of digital technologies in fostering open government and data-driven policy formulation. The DEG approach underscores the necessity of adaptive governance structures that leverage big data analytics, artificial intelligence (AI), and blockchain technology to enhance transparency and accountability in administrative procedures (Meijer, 2015).

Empirical studies underscore both the advantages and challenges of implementing E-governance. On one hand, digital platforms have been shown to enhance procedural transparency by providing real-time access to regulatory frameworks, funding application statuses, and compliance requirements (Bannister & Connolly, 2012, 2014). Moreover, E-governance facilitates improved communication between policymakers and stakeholders, fostering a more inclusive and responsive governance ecosystem (Mergel, 2019).

Conversely, the digital divide remains a significant impediment to the equitable adoption of E-governance systems, particularly in regions with lower levels of digital literacy and limited technological infrastructure (Chatfield & Reddick, 2019). Studies have shown that stakeholders in urban centers are more accepting of E-governance tools than those in rural or economically disadvantaged areas (Cordella & Paletti, 2018). This disparity is particularly relevant in the context of the EU Cohesion Policy, where regional variations in digital competence may influence stakeholders' ability to successfully navigate funding application platforms such as POSEUR.

The EU has introduced several initiatives to standardize digital governance across member states. The European Interoperability Framework (EIF) provides guidelines for ensuring compatibility among digital public services, aiming to create a seamless administrative experience across national and regional levels (European Commission, 2021). Furthermore, the Digital Europe Programme seeks to enhance digital skills, improve data-sharing mechanisms, and support the deployment of AI-driven public services (European Union, 2024). Despite these efforts, countries with strong bureaucratic traditions, such as Portugal, encounter unique challenges in adapting to these digital frameworks. The transition to digital platforms necessitates not only technological infrastructure but also a cultural shift in administrative procedures. Resistance to change among public officials, coupled with concerns over data privacy and cybersecurity, has been identified as a recurring barrier to E-governance adoption in Southern European countries (Gil-Garcia, 2012).

The success of E-governance initiatives depends on effective stakeholder engagement. Participatory digital governance models—where businesses, municipalities, and civil society organizations actively contribute to policy discussions—have been shown

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to yield higher levels of policy acceptance and implementation success (Bicking et al., 2011; Koussouris et al., 2011). In the case of POSEUR, stakeholder sentiment analysis provides critical insights into whether digital interventions enhance accessibility to funding opportunities or create additional bureaucratic obstacles (Bannister & Connolly, 2014; Borry, 2012; Grimmelikhuijsen & Meijer, 2014; Madariaga et al., 2019; Morgeson III et al., 2011; Wirtz & Daiser, 2018).

E-governance has emerged as a critical mechanism for enhancing efficiency, transparency, and citizen engagement in public administration. However, its success depends significantly on the perceptions and acceptance of various stakeholders, including citizens, businesses, policymakers, and administrative institutions (Bannister & Connolly, 2014). Stakeholders' sentiments toward E-governance are shaped by several factors, including perceived usefulness, ease of use, trust in government institutions, accessibility, and transparency. Understanding these sentiments is crucial, as they directly influence the adoption and long-term sustainability of digital governance platforms.

One of the primary determinants of stakeholders' acceptance of E-governance is perceived usefulness and ease of use. The TAM suggests that users are more likely to adopt digital platforms when they perceive them as useful and easy to navigate (Davis, 1989). Borry (2012) highlight that stakeholders engage with E-governance platforms when they believe these tools simplify bureaucratic procedures and enhance efficiency. However, accessibility concerns, particularly among users with low digital literacy, pose significant barriers to adoption (Morgeson III et al., 2011). Therefore, usability remains a crucial aspect of E-governance design, requiring governments to implement user-friendly interfaces and provide digital literacy programs to bridge knowledge gaps.

Trust in government institutions is another crucial factor influencing stakeholders' perceptions of E-governance. Belanger and Carter (2008) emphasize that concerns regarding data privacy, cybersecurity, and misuse of personal information affect public confidence in digital governance initiatives. Similarly, Wirtz and Daiser (2018) found that countries with higher levels of institutional trust experience greater adoption rates, whereas skepticism toward government digital services leads to resistance. This highlights the necessity for robust cybersecurity frameworks and clear data protection policies to enhance stakeholder confidence and promote greater engagement with E-governance platforms.

The digital divide further exacerbates disparities in stakeholders' sentiments toward E-governance. Recent studies highlight that institutional capacity—including administrative expertise, coordination mechanisms, and learning processes—plays a decisive role in mediating the outcomes of digital governance reforms, particularly in multilevel policy environments such as the EU cohesion framework (Criado & Gil-Garcia, 2019).

In developed regions with widespread internet penetration and strong digital literacy, E-governance adoption tends to be high. In contrast, rural and underdeveloped areas often perceive digital governance as an additional burden rather than a means of efficiency. This disparity suggests that efforts to enhance digital accessibility, such as expanding internet infrastructure and providing digital training programs, are essential for fostering equitable engagement with E-governance systems (Liu & Wang, 2023).

Transparency and accountability also significantly impact stakeholder sentiments toward E-governance. Research by Grimmelikhuijsen and Meijer (2014) indicates that

when digital platforms provide real-time service updates and open data access, stakeholders develop greater trust in governance mechanisms. However, the complexity of bureaucratic processes embedded in digital platforms can lead to frustration, ultimately reducing user engagement. To address these concerns, policymakers must ensure that E-governance systems prioritize clear and open communication while minimizing procedural inefficiencies.

Table 1: Levels and key categories for change factors towards sustainability at the example of hospitals' secondary processes

Level	Key categories
Macro-level (context factors)	• Regulatory factors (Auschra, 2018; Bhat, 2022) • Technological factors (Thakur & Mangla, 2019) • Stakeholder involvement (external stakeholders) (Sippl et. al. 2022)
Meso-level (Inter)-organizational factors)	Organizational factors: • Stakeholder involvement (internal stakeholders) (Roeder & Bunzemeier, 2017; Bate, 2007; Grün & Franke, 2014) • Leadership, communication (Kotter 1995, Thakur & Mangla, 2019; Kleine, 2022; Suc, 2009; Barba 2021) • Organisational culture (Bhat et al. 2022; Khalil & Kynoch, 2021) • Organisational development, organisational learning (Nuño-Solinís, 2017) • Governance structures (Werner et. al. 2022, Debatin 2011) Inter-organizational factors: • Leadership (Auschra, 2018, Grossmann et. al 2013) • Roles within cooperation (Auschra, 2018, Grossmann et al. 2013) • Goals and approaches of the cooperation (Auschra, 2018, Bhat et al. 2022) • Compatibility of organizational structures (Auschra, 2018, Grossmann et al. 2013) • (Im-)balances of power (Auschra, 2018, Grossmann et al. 2013) • Arrangements that enable trust (Auschra, 2018, Grossmann et al. 2013) • Character of collaboration (Jensen 2019, 2022, Lok/Baldry 2016, Atkin/Brooks 2009) • Conflict management (Auschra 2018, Bhat et al. 2022, Grossmann et al. 2013)
Micro-level	• Individual awareness, capabilities and motivations (Dievernich et al. 2015; Post & Altman 1994)

*Acknowledgements: There are co-dynamics between the levels. Stakeholder engagement could be located in all three levels.

3. The role of Sentiment Analysis

In recent years, advances in computational methods have significantly improved the precision and interpretability of sentiment analysis in public policy evaluation.

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Techniques leveraging transformer-based architectures, such as BERT and its derivatives (Devlin et al., 2018), have been increasingly adopted to capture nuanced stakeholder perceptions from unstructured textual data. Notably, recent studies (Gómez-Rodríguez et al., 2024; Kellert et al., 2025; Shukla & Dwivedi, 2025; Imran et al., 2025; Imran et al., 2026) demonstrate the value of syntactic parsing and explainable AI in analyzing sentiment within governance contexts. In a recent study, Kellert et al. (2025) demonstrate LLM-based parsing for code-switched text, while Tyagi et al. (2026) address spoken-language parsing challenges relevant to transcribed interviews. Extending this line of inquiry, Imran et al. (2025) show that that explicit syntactic knowledge improves performance in downstream tasks such as named entity recognition, underscoring the broader applicability of syntactic features in domain-specific text processing. These approaches offer superior performance over traditional lexicon-based models by incorporating contextual embeddings and dependency-aware rule systems, which are particularly relevant in multilingual and policy-driven environments. Integrating such state-of-the-art models can enhance the reliability of digital governance evaluations and contribute to more informed public administration reforms.

Advancements in sentiment analysis have provided new methodologies for assessing stakeholders' perceptions of E-governance. Natural language processing (NLP) and machine learning algorithms allow researchers to analyze social media discourse, user feedback, and online interactions to track sentiment trends in real time (Shukla & Dwivedi, 2025). Studies show that positive sentiments toward E-governance are often associated with perceived efficiency and transparency, while negative sentiments stem from usability issues and inadequate technical support (Madariaga et al., 2019). The ability to monitor and respond to these sentiments enables policymakers to refine digital strategies and improve stakeholder engagement.

4. Methods

This study adopts the sentiment analysis approach from Imran et al. (2026) and Gómez-Rodríguez et al. (2024), consisting of two modules: a sequence-labeling-based dependency parser that produces dependency trees, followed by a sentiment analysis engine that uses syntactic rules to calculate sentiment polarity from those trees. This method was chosen for its balance between computational efficiency and linguistic explainability, making it especially suitable for evaluating complex administrative discourse in public policy contexts.

Participants were selected based on their direct involvement in the POSEUR application process. The sample of 35 interviewees includes representatives from public administration (both local and national), non-governmental organizations, and the private sector. This purposive sampling ensured a diverse representation of stakeholders familiar with the *Balcão Portugal* 2020 platform, and the approach appears proficient in providing both explainability and accuracy in sentiment polarity predictions.

Conventional dependency parsers such as Stanza (Peng et al. 2020) and spaCy (ExplosionAI GmbH, 2025) can be utilized to generate dependency trees; however, they are computationally expensive. The study (Imran et al. 2026) used an efficient sequence labeling parser (scales linearly with sentence length), which encodes the dependency parse

tree into a sequence of labels where each label represents the word's head and its syntactic relation. The parser was trained using the Relative Encoding linearization technique (Strzyz et al., 2019), where each label depicts the signed distance of the head relative to its dependent in the Universal Dependencies treebank formalism.

To train a sequence labeling parser, a pre-trained DistilBERT (ArXiv, 2019) checkpoint available on HuggingFace was fine-tuned on the standard data splits of the EWT English Universal Dependencies treebank to adapt it to sequence labeling. The process of fine-tuning involves converting the training split into a sequence of labels using the CoDeLin (Constituent and Dependency Linearization system) framework (Roca et al. 2022). During training, the model learns to predict, for each token, a label that contains both the position of its syntactic head (relative to the token) and the nature of the syntactic relation (e.g., subject, object, verb). The parsing model was trained for 30 epochs with carefully tuned hyperparameters: a learning rate of 1e-4, weight decay of 0.001, Adam epsilon of 1e-7, and a batch size of 128.

Once the parser is trained, its output (the dependency parse tree) serves as the foundation for the sentiment analysis engine, which leverages well-established syntactic rules proposed by Kellert et al. (2023) to compute the overall sentiment polarity of a sentence. The procedure begins with the identification of sentiment-bearing words, which are drawn from the sentiment dictionary SO-CAL (Taboada et al., 2011). This dictionary provides polarity scores for words, indicating whether they convey positive, negative, or neutral sentiment. However, the intrinsic polarity of a word can be altered by linguistic phenomena such as negation, intensification, or modification.

To address these polarity shifts, the sentiment analysis engine applies a recursive, bottom-up approach to traverse the dependency tree. It relies on syntactic rules to identify elements like negation ("not"), intensifiers ("very"), or weakeners ("slightly") that modify sentiment words. The rules by Kellert et al. (2023) are an adaptation of those used in the system by Vilares et al. (2017) for Universal Dependencies. The system starts by identifying local polarity shifts at leaf nodes of the tree, for instance, detecting that an adverb like "very" intensifies the positive sentiment of an adjective like "kind". It then aggregates these effects as it ascends the tree, combining the contributions of various branches until reaching the root of the sentence. This process ensures that the final sentiment prediction reflects both the intrinsic polarity of the sentiment words and the modifying effects of syntactic constructions.

5. Results

This research applied sentiment analysis to 35 semi-structured interviews, focusing on stakeholders' reactions to the *Balcão Portugal 2020* platform. The findings reveal an overall positive sentiment toward the platform, with nuanced variations across interviewees. It analyzes over 30 interviews with stakeholders involved in POSEUR and the new E-governance platform, which, for the first time in Portugal, integrates all steps of the application process for EU Cohesion Funding into a single software solution. A sentiment analysis methodology was applied to all interview questions that referenced the digital platform.

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The aggregate results (Figure 1) indicate a positive overall response to the interaction between stakeholders and the platform. Specifically, 58.6% of the sentiments expressed in the interviews were optimistic about *Balcão Portugal 2020*, with 20.7% reflecting a very positive view of the platform. However, 27.6% of the interviewees maintained a neutral stance, indicating that some stakeholders did not perceive a significant improvement in operations due to the transition to a single software for the entire application process, which eliminated the paperwork associated with previous EU cohesion policy-funded programs. Additionally, 13.8% of stakeholders expressed a negative impression of this policy innovation.

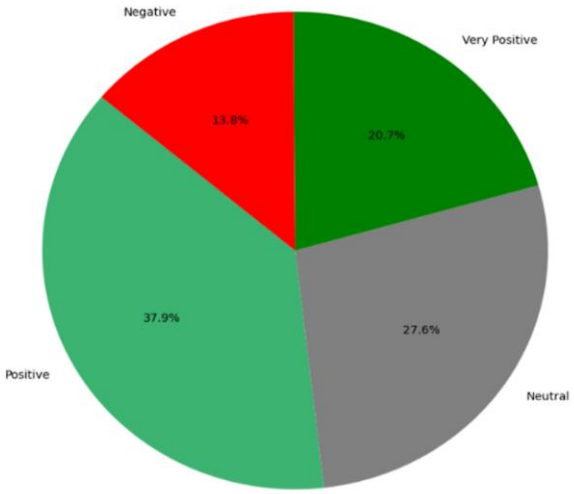

Figure 1. Overall distribution of the sentiment expressed in the interviews, as extracted by the sentiment analysis platform, on an ordinal scale: Very Negative (absent), Negative, Neutral, Positive, Very Positive.

5.1 The Regional Reality

Figures 2 and 3 provide a more comprehensive understanding of stakeholder sentiment by geographical distribution. In Figure 2, we can identify three regions where stakeholders expressed no negative sentiments toward the new E-governance mechanism: the Lisbon and Porto areas, as well as stakeholders representing the entire country (usually large state-owned enterprises with projects throughout Portugal). The Lisbon and Northern regions are also home to a higher concentration of companies involved in digital incubators, alongside a greater percentage of the population holding university degrees, as the country's most prestigious universities are located in Lisbon and Porto, the largest city in Northern Portugal. While this article does not explore the causal relationships between these factors, it may serve as a suggestion for future research on stakeholder behavior toward E-governance strategies.

The contrast between Central Portugal's polarized sentiment distribution and Alentejo's comparatively positive evaluations suggests that regional patterns cannot be interpreted exclusively through a metropolitan-versus-rural dichotomy. Instead, sentiment divergence may reflect how institutional preparedness and sector-specific administrative

cultures interact with the platform's design. For instance, regions characterized by smaller municipal administrations may experience higher perceived transaction costs when adapting to centralized digital reporting requirements, whereas regions with stronger project management traditions or greater reliance on specialized technical support may perceive the platform as an efficiency-enhancing innovation. These findings reinforce the need to interpret regional sentiment not only as a function of geography, but also as an outcome of heterogeneous institutional capacity.

In contrast, the central region has a mixed opinion on *Balcão Portugal 2020*, with 40% of sentiments being negative, 40% positive, and 20% neutral. This indicates that the digital governance platform is still adapting to the needs of stakeholders in this region, particularly concerning the POSEUR initiative. Both the Algarve and Alentejo regions show substantial positive sentiment, including 40% of very positive opinions about using the E-governance mechanism in Alentejo. However, there are still areas for improvement, as evidenced by the 20% of negative sentiments reported in both regions.

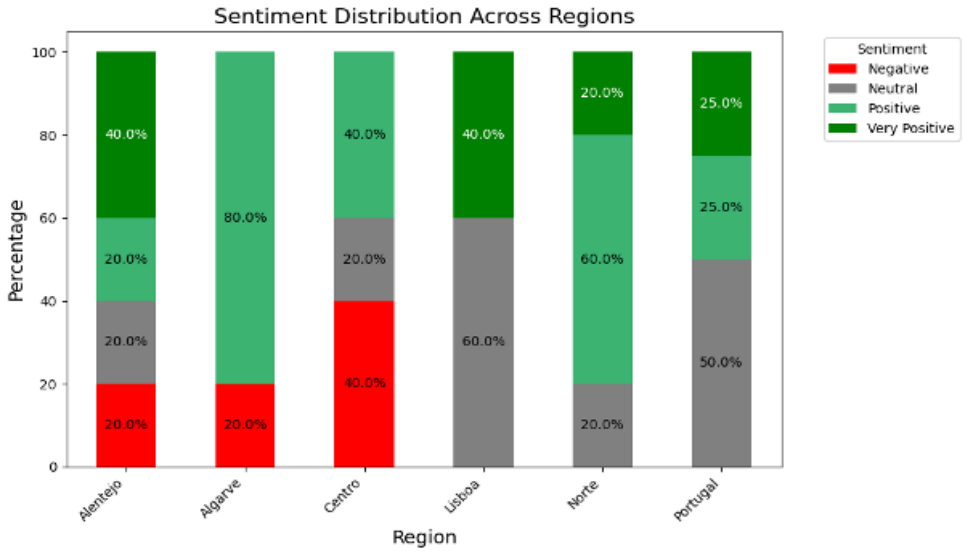

Figure 2. Distribution of the sentiment expressed in the interviews, in the same 5-point scale in Figure 1, across each of the 5 regions. The last column corresponds to stakeholders representing the entire country.

When examining the sentiment analysis averages for each stakeholder interviewed by region (see Figure 3), it is evident that nearly all regions provided very positive feedback on the E-governance platform, except the Center and Algarve regions, where no stakeholders expressed very positive sentiments. Conversely, the Center region, as previously noted, displayed a particular skepticism towards the digital platform, with two stakeholders expressing negative opinions. In contrast, stakeholders in Lisbon, the North, and at the national level showed no negative sentiments.

The distribution of sentiments among different stakeholder types provides a clearer picture of how well some institutions in Portugal are equipped to handle E-governance platforms. Regional and municipal administrative entities tend to express more

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negative sentiments compared to central administration, non-governmental associations, and water treatment institutions. In fact, the latter shows a significant proportion of positive feelings, with 83.3% in favor of the digital tools used for applications under the EU cohesion policy program. Central administration institutions and non-governmental associations tend to hold more neutral positions rather than clearly positive sentiments. Interestingly, none of the entities in this category expresses negative feelings toward this E-governance instrument.

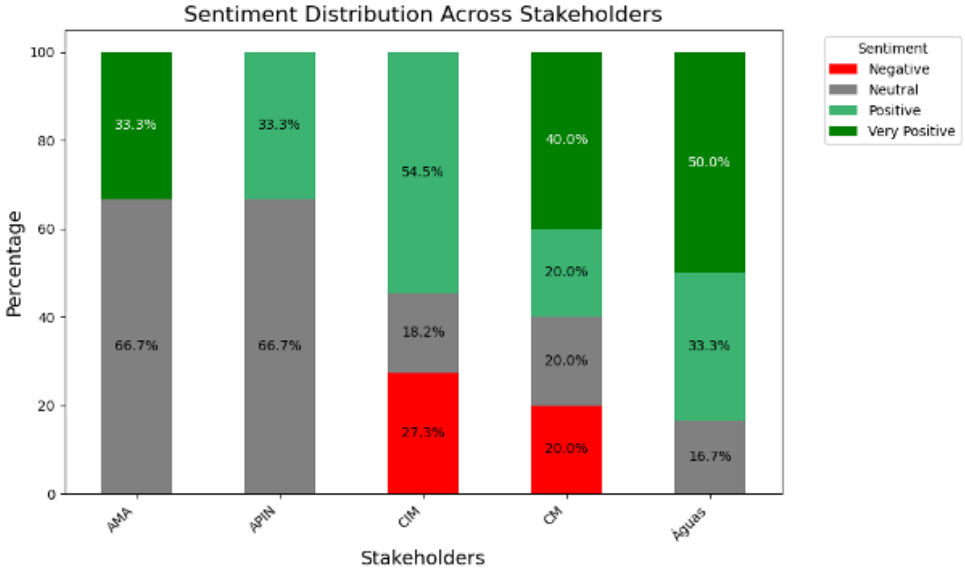

Figure 3. Distribution of the sentiment expressed in the interviews by stakeholder type.

At first glance, the word cloud (which can be seen in Figure 4) does not provide an enlightening analysis of the stakeholders' opinions or main topics addressed, as the most common keywords are related to either POSEUR, project, or application, which is normal when discussing the advantages and disadvantages of *Balcão Portugal 2020* in the context of European funds. Nonetheless, when looking underneath the main topics to a second line of words, it is possible to find terms related to the platform's performance that the stakeholders value. This includes the words communication, information, and efficiency. All these are emerging features in the literature on smart governance in digital services and are confirmed to be highly valuable for stakeholders operating with E-governance software.

Figure 4. Word cloud generated from the interviews by extracting content words and displaying them in a size proportional to their frequency.

6. Discussion

6.1 Training Needs

The gradual digitalization of public administration in Portugal influences stakeholders' willingness to engage with innovative communication methodologies associated with funding programs and their applications. The acceptance of the new digital platform, *Balcão Portugal 2020*, by applicants has been relatively high, indicating that human resources in the public and private sectors possess the skills to effectively utilise emerging digital tools. Furthermore, stakeholder satisfaction with the POSEUR program in Portugal has also been relatively high, as discussed by Medeiros et al. (2022). This observation suggests a correlation between stakeholders' perceptions of policy project outcomes and their interactions with digital tools across both the application and implementation stages.

6.2 Digital Divide

The lack of negative sentiment towards *Balcão Portugal 2020* among interviewees from the Lisbon and North regions underscores the tendency for urban landscapes to show greater consensus on the benefits of technology in the management of EU funding programs. These findings may reinforce the notion that prior experiences with digital tools, particularly in regions such as the North and Lisbon, which have a more extensive history of digitalisation, facilitate a smoother adaptation to newly implemented innovations (Cirera & Maloney, 2017).

While the findings support the general expectation that digitally advanced metropolitan regions exhibit more positive sentiment toward the Balcão Portugal 2020 platform, the regional pattern is not reducible to a simple urban–rural digital divide. In particular, Central Portugal presents a polarized sentiment distribution, whereas Alentejo displays comparatively high levels of positive and very positive evaluations. This suggests that additional explanatory mechanisms may shape stakeholder perceptions beyond infrastructure and general digital literacy. These include differences in local institutional capacity, the presence of experienced intermediary actors supporting applications, sector-specific administrative cultures, and the type of projects submitted under POSEUR. In some regions, stakeholders may rely on organizational "digital brokers" (e.g., consultancy

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offices, intermunicipal communities, or experienced project teams) that reduce the perceived burden of platform use, thereby mitigating structural disadvantages. As a result, regional sentiment divergence likely reflects an interaction between digital readiness and institutional ecosystems, rather than purely geographic location.

The overall positive sentiments expressed by stakeholders stand in contrast to a body of literature suggesting that implementing innovative technology in work environments can disrupt workflows and deteriorate working conditions (Pötzsch & Schamberger, 2022). Nonetheless, issues such as the cost of adapting to new digital tools and workers' motivation of workers (Dziubek et al., 2022) have hindered the adoption of technological innovations across various fields. Despite the advantages of technological adoption in the management of the POSEUR programme, local and regional public administration shows some negative perceptions among public servants toward new digital tools. These unfavourable attitudes underscore the need to enhance training programs to facilitate public servants' adaptation to the implementation of technology (Gunawan et al., 2024), including efforts to better integrate digital work and address skepticism towards new, innovative work models. The results show that this integration is particularly relevant for local and regional entities within the public administration system, such as municipalities and regional intermunicipal communities.

6.3 Communication Effectiveness

Based on the interviews conducted, some stakeholders expressed scepticism regarding the effectiveness of *Balcão Portugal 2020*, highlighting a fundamental mistrust in the viability of a centralised tool intended to manage all stages of the POSEUR application process, from submission to implementation. Those with negative sentiments toward *Balcão Portugal 2020* cited technical shortcomings in the system. A prevalent concern among stakeholders was the potential for the system to become congested. This raised a question about the platform's interface and posed a research question: *What sentiments do stakeholders express toward the Balcão Portugal 2020 E-governance platform implemented in the POSEUR 2014–2020 program?*

Stakeholders emphasised the time-consuming nature of issues arising during system outages, which often require a complete reset to resolve. This problem was compounded by complaints about the platform's slow processing times, leading to a frustrating scenario in which stakeholders had to re-enter information lost due to technical errors, effectively creating a double bottleneck in the application process.

Some interviewees criticized the insufficient communication channels with platform managers during these technical incidents, whereas others praised the availability of support teams and their responsiveness. This apparent contradiction stems from differing stakeholder experiences—likely influenced by the region, institutional type, or individual interaction—rather than from an actual inconsistency in support service provision. For example, while some regional users reported difficulty reaching help desks, others viewed the designated project manager or Point-of-Contact (PoC) as an efficient and essential component in resolving procedural issues. These findings indicate that communication effectiveness should be interpreted as an implementation issue shaped by organizational heterogeneity rather than as a purely technological weakness of the platform itself. Variations in the perceived responsiveness of support services may stem from

differences in local staff training, workload distribution, and the presence (or absence) of standardized response protocols across regions. Stakeholders who interacted with an effective Point-of-Contact (PoC) reported greater procedural clarity and trust in the system, whereas those lacking timely support perceived the platform as inaccessible and bureaucratically burdensome. This suggests that user satisfaction depends not only on platform functionality, but also on the institutional architecture surrounding the platform and the consistency of service delivery mechanisms.

Some other negative sentiments expressed by stakeholders included concerns about insufficient communication channels with the platform management when similar technical issues arose. The lack of effective communication with the support teams responsible for addressing these technical problems was identified as a primary challenge. Additionally, some interviewees noted that while the support services of the *Balcão Portugal 2020* platform were generally responsive and available to assist with technical issues, the complexity of the POSEUR process was more daunting than that of national and regional funding programs. This situation forced public servants tasked with completing the application process to adapt to a more intricate program, as they were primarily accustomed to simpler domestic procedures. For stakeholders who expressed neutral or negative sentiments, POSEUR presented difficulties, as it required the submission of a larger volume of documents and adhering to a series of tightly scheduled deadlines.

Nonetheless, the large majority of the attitudes expressed indicate a predominantly positive sentiment towards the *Balcão Portugal 2020* mission, particularly regarding the de-bureaucratization of the application and implementation process for this operational programme, as evidenced by the findings.

Some stakeholders contested the narrative that the support team was unavailable for addressing inquiries. The interviewees highlighted the significance of designating a 'project manager' from the POSEUR team as the main contact for platform-related issues and the ensuing process, which they deemed vital to POSEUR's effectiveness. The challenges that arose during the application period could be resolved through this point of contact, who would address matters promptly. The contrasting views regarding the platform's communication effectiveness may indicate a broader issue related to the standardisation of information among stakeholders, as perceptions of this aspect range from those who find it lacking to those who highly praise it.

The interviewees also highlighted several positive aspects, notably the recognition of the *Balcão Portugal 2020* as an exemplary model of good governance. Good governance can be viewed through three distinct dimensions, as seen by the stakeholders interviewed, in addition to the communication facilitated by the PoC as previously mentioned: transparency, strict regulations, and coherence during the transition from one phase to the next.

What do stakeholders mean by good governance? Based on the responses gathered, transparency is highlighted as essential to ensuring the platform guarantees a fair process, free of the influence of informal networks in funding project selection. This is complemented by strict guidelines; the intricate nature of the required documents under *Balcão Portugal 2020* promotes meritocracy among applicants, as stakeholders must present well-developed projects to advance through the application stages and achieve selection (Scholar, 2019). Furthermore, the coherence of all processes is evident; prior to the call

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for applications, a detailed schedule outlining all necessary steps and deadlines was provided. Given the extensive documentation required, this step-by-step guide facilitated a more user-friendly experience when navigating the platform (Darvas et al., 2019).

6.4 Policy Implications

Taking a broader perspective, it is evident that the good governance practices applied to the new digital transformation of the EU cohesion policy operational programmes have been successfully implemented, and stakeholder satisfaction indicates a positive response to the *Balcão Portugal 2020* initiative. However, there are technical issues with the platform that must be addressed and resolved in future programmes. It is important to recognise that stakeholders are not starting from the same technological baseline. Additional efforts may be necessary from the managing entities to organise proactive sessions in regions where digitalisation is lagging compared to major urban ecosystems. This is crucial to prevent challenges related to the digital divide, which could hinder the development of certain areas. Furthermore, negative perceptions of digital application platforms could pose a barrier for stakeholders who feel uncomfortable navigating them while drafting their applications.

In practical terms, proactive sessions should be framed as capacity-building interventions rather than as additional procedural obligations. Such measures may include hands-on regional workshops aligned with application timelines, temporary on-site digital stewards embedded within municipalities during critical submission periods, and modular training programs tailored to low-capacity stakeholders. Complementary platform-level adjustments—such as guided submission modes, standardized document templates, and clearer workflow visualization—could further reduce cognitive and administrative burdens. Ensuring that these interventions are perceived as supportive rather than supervisory is essential to avoid reinforcing bureaucratic complexity and to foster equitable participation across regions.

The findings underscore the central role of regional disparities in shaping stakeholder perceptions of digital governance tools. Differences in institutional capacity, digital literacy, and infrastructural readiness contributed to varying levels of satisfaction with the *Balcão Portugal 2020* platform. This regional divergence aligns with the article's original hypothesis, which proposed that stakeholders operating outside the Lisbon and Porto regions would express more negative sentiments toward the POSEUR e-governance system. Empirical data from sentiment analysis supports this assumption, revealing that metropolitan stakeholders, who benefit from more advanced digital ecosystems, exhibit higher levels of acceptance and optimism than those in less digitally developed regions. Our hypothesis proposed that stakeholders outside the Lisbon and Porto regions would express more negative sentiments towards the POSEUR platform. In conclusion, we present the impact of regional disparities in digital capacity on perceptions of e-governance tools and confirm our hypothesis.

6.5 Limitation of the study

First, the analysis is based on a relatively small purposive sample of 35 interviewees. Although diverse in institutional affiliation and regional representation, this

sampling strategy may introduce selection bias by disproportionately capturing the perceptions of stakeholders who were already able to engage with the *Balcão Portugal* 2020 platform. Stakeholders who found the platform inaccessible, lacked sufficient digital capacity, or disengaged entirely from the application process are less likely to be represented. Consequently, the sentiment distribution may be skewed toward neutral or positive evaluations, potentially underestimating the prevalence or intensity of negative perceptions among excluded low-access groups. This limitation constrains the generalizability of the findings and underscores the need for broader sampling strategies in future research.

Second, the sentiment analysis relies on manually transcribed and pre-filtered interview segments, which, while ensuring topic relevance, may omit implicit sentiments or broader contextual factors influencing users' attitudes. The accuracy of sentiment classification is also constrained by the limitations of rule-based systems and sentiment lexicons, particularly in handling domain-specific terminology, irony, and culturally nuanced expressions.

Third, the study focuses on a single case—Portugal's POSEUR program—limiting the generalizability of the findings to other EU national contexts, where governance structures, administrative traditions, and digital maturity may differ substantially.

Lastly, the study's cross-sectional design does not allow for tracking changes in sentiment over time, particularly in response to evolving technical updates, training initiatives, or changes in institutional support. Future research could adopt longitudinal or mixed-methods approaches to assess how perceptions evolve over time with continued platform use.

7. Implications and further research

The present article delves into the perspectives articulated during interviews with stakeholders engaged with the *Balcão Portugal 2020* platform throughout the POSEUR application and implementation phases, a tool under the EU Cohesion Policy designed to address regional underdevelopment. The objective is to track the perceptions of those who navigated the initial wave of digitalization within such operational programs regarding the platform's efficacy.

The sentiment analysis revealed generally positive stakeholder responses, particularly in regions with higher digital infrastructure and literacy. Conversely, neutral or negative sentiments were more prevalent in areas with less technological readiness, reinforcing the impact of the digital divide on E-governance adoption. These findings underline the importance of aligning digital transformation strategies with regional capabilities and investing in targeted training programs. Proactive engagement through designated Points of Contact and support services is essential to ensure inclusivity and equitable access to EU cohesion funding.

The broader implication for EU policy is that successful implementation of E-governance platforms requires not only technological innovation but also institutional trust, user-centered design, and adaptive governance mechanisms. On the other hand, stakeholders expressed concerns about the platform's slow processing times and the team's

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insufficient support for applicants navigating it. These negative sentiments were predominantly observed in regions with lower levels of digital development, as previously noted. This situation can widen the digital divide, posing a challenge that responsible entities must address by establishing consistent communication channels that provide reliable information in areas where negative perceptions of these platforms are more pronounced.

From a cohesion policy perspective, these findings imply that digital governance platforms should not be treated as self-sufficient solutions capable of reducing administrative disparities in isolation. Investments in digital infrastructure must be accompanied by parallel investments in human capital, institutional capacity-building, and trust-enhancing mechanisms. Without these complementary measures, centralized platforms risk benefiting regions that already possess stronger administrative resources and digital readiness, thereby reinforcing inequalities that cohesion policy is intended to mitigate. Ensuring equitable implementation, therefore, requires targeted funding for training, standardized support protocols, and institutional reinforcement in regions with weaker technological baselines.

This article sheds light on stakeholders' perspectives on an E-governance tool that required quick adaptation by workers in the public and private sectors. Despite some challenges, which require managing structural differences between the population and human resources within the Portuguese territory, this article suggests that the transition to smart models of governance and the benefits of technology to deal with large sets of documents and bureaucracy have the potential to be successful implemented in Portugal, currently through the EU cohesion operational programmes and gradually moving towards the domestic funding opportunities. The article's findings contribute to ongoing debates on standardizing digital platforms across the EU while ensuring inclusivity in digital public services and answer our central research question by demonstrating that stakeholder sentiments toward the *Balcão Portugal 2020* platform were predominantly positive, though not without reservations related to technical and procedural complexity.

Beyond the Portuguese case, this study contributes to broader debates on digital public administration by demonstrating how stakeholder sentiment analysis can serve as an analytical bridge between technological design and institutional capacity in the implementation of cohesion policy. By foregrounding perceptions rather than adoption metrics alone, the findings offer policymakers an evidence-based lens to assess not only whether digital platforms function, but also for whom they function effectively.

Future research should expand the database to encompass a broader range of stakeholders, including actors who disengaged from the platform due to accessibility constraints. Moreover, cross-national comparative research applying large-scale sentiment analysis across multiple EU member states would allow systematic evaluation of how governance traditions, institutional capacity, and digital maturity shape stakeholder perceptions. Combining quantitative sentiment analysis with qualitative categorization and longitudinal designs would enable researchers to track how perceptions evolve over time as platforms are updated, training measures are implemented, and cohesion policy requirements are adjusted.

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