Do digitalization and institutional capacity improve EU fund access for bridging territorial gaps? Evidence from the Cohesion Policy 2014-2020

In recent years, smart regional development has emerged as a central focus in public policies, aiming to foster economic growth, social inclusion, and sustainability in response to global challenges. Among its key drivers, digitalization in government plays a crucial role, facilitating innovation in public administration and enhancing governance efficiency (Ingram et al., 2009). Specifically, e-government is an innovative paradigm that combines ICTs employment and organizational change to improve public sector structures and operations (Twizeyimana and Andersson, 2019). Its implementation aims to enhance public service delivery and redefine relationships with stakeholders (Shaxnoza, 2024). By leveraging digital technologies, it fosters greater efficiency, effectiveness, accessibility, and transparency, while also promoting accountability, participation, and democracy (MacLean and Titah, 2022).

Despite its potential, the implementation of e-Government initiatives often faces substantial challenges, leading to uneven adoption and variable success rates across regions. Several studies have highlighted the risks of failure due to limited technical expertise, insufficient infrastructure, bureaucratic resistance, and the persistence of the digital divide (Nkohkwo and Islam, 2013; Sterrenberg and Decosta, 2024). These barriers can exacerbate social and economic inequalities, limit the transformative impact of digitalization, and hinder the effective allocation of resources (Bertot et al., 2016). However, while much of the literature has focused on the internal determinants of e-Government success or failure, less attention has been given to its implications for regional economic convergence, particularly in the context of European Union (EU) financial support mechanisms.

The EU plays a strategic role in fostering regional convergence, primarily by addressing structural vulnerabilities and allocating financial resources to promote development (Diemer et al., 2022). European funds serve as a fundamental tool to strengthen socioeconomic cohesion and reduce development disparities across territories (Musyck and Reid, 2007). Over successive programming periods, EU cohesion policy has sought to improve economic competitiveness, employment, quality of life, and sustainable growth, aligning with broader frameworks such as the Lisbon Strategy and Europe 2020 Strategy (López-Bazo, 2022). In the 2014-2020 multiannual financial framework, over EUR 351 billion was allocated to mitigate regional imbalances, reflecting the EU's commitment to narrowing development gaps (Crucitti et al., 2024).

Despite the EU's financial efforts, regional disparities persist and the effectiveness of fund allocation remains an open question. While previous research has examined the economic impact of EU cohesion policy, there is still limited empirical evidence on the role of digitalization in shaping regional access to European funding. Given the increasing emphasis on digital transformation as a policy priority, understanding the extent to which e-government, in combination with institutional factors, influences the capacity to attract European funds is crucial for maximizing their redistributive impact and ensuring fair regional development**.**

Therefore, this study seeks to address this gap by answering the following research question:

- *to what extent do aspects of digitalization in government, combined with various institutional factors, influence the ability to attract European funding to bridge regional disparities?*

To address the research question, this study employs a quantitative econometric approach to analyze the dynamics of European funds allocated during the most recent closed programming period (2014-2020). The focus is on assessing the extent to which government digitalization and institutional factors influence the capacity of regions to attract financial resources from the European Union. The analysis considers the 20 Italian administrative regions as the primary unit of observation and examines the three main EU funding instruments under cohesion policy: (i) the Cohesion Fund (CF), (ii) the European Regional Development Fund (ERDF) and (iii) the European Social Fund (ESF). For each of these funds, a Weighted Least Squares (WLS) analysis is implemented to evaluate the impact of government digitalization and institutional factors on the volume of financial resources received. The econometric models are structured around two categories of explanatory variables:

- Category A “Government Digitalization”, which includes (i) digital infrastructure, (ii) digital literacy, and (iii) digital use;
- Category B “Institutional context”, which includes (i) quality of government index, (ii) corruption, (iii) GDP per capita, and (iv) Gini index.

The study relies on official and publicly available datasets to ensure data reliability and comparability across Italian regions. Key sources include OpenCoesione, Istat, and Eurostat.

It should be noted that the total amount of EU funds received is considered over the entire programming period (2014 - 2020). This approach is justified because funding allocation follows a multi-year framework, and analyzing the total received over the full period provides a comprehensive measure of financial support per region. Using cumulative funding as the dependent variable is statistically sound, as it reflects the overall success of a region in attracting EU financial resources throughout the cycle. On the other hand, the explanatory variables are represented by their seven-year average values. Averages help smooth short-term fluctuations, capturing the general structural conditions of each region over the period rather than specific yearly variations. Moreover, since fund allocation is influenced by long-term regional characteristics, using average values for institutional and digitalization indicators ensures temporal alignment between independent and dependent variables.

Finally, to validate the reliability of the results, several robustness checks are conducted.

The preliminary results indicate that both government digitalization and institutional factors play a crucial role in determining the ability of Italian regions to attract EU funding during the 2014-2020 programming period. Regions with higher levels of digital infrastructure, digital competence, and digital use tend to secure larger allocations of EU funds. Therefore, strong e-government systems appear to enhance administrative efficiency, facilitating better project planning, fund absorption, and compliance with EU requirements. However, disparities persist, with digitally lagging regions struggling to maximize funding opportunities, highlighting the risk of a widening digital divide. Institutional quality also emerges as a key determinant, with well-governed regions receiving significantly more funds. Effective administration, better economies, lower levels of corruption, and less inequality correlate with greater absorption of funds. Instead, weaker institutions face challenges in managing funds and implementing projects. This is particularly evident in regions where governance inefficiencies undermine the intended redistributive impact of EU funding.

This study contributes to the existing literature by bridging the gap between government digitalization, institutional quality, and regional access to EU funds. While previous research has primarily examined these factors in isolation, this analysis provides an integrated framework that highlights their combined influence on financial resource allocation within EU Cohesion Policy. Furthermore, it contributes to discussions on public sector digital transformation by providing empirical evidence on its role as an enabler of regional development funding.

From a practical perspective, the findings offer valuable insights for regional administrations seeking to enhance their capacity to attract and manage EU funds. Strengthening digital infrastructure, digital literacy, and the integration of digital tools in governance can improve the efficiency of fund applications and project implementation. Similarly, enhancing institutional quality by improving administrative transparency, reducing corruption, and strengthening governance frameworks can significantly increase fund absorption.

From a policy perspective, the study underscores the importance of aligning EU funding mechanisms with regional digital and governance capabilities. Policymakers at the EU and national levels should consider implementing targeted interventions to support regions with lower digital readiness and weaker institutional structures. This could include capacity-building programs, technical assistance for digital governance adoption, and stronger regulatory frameworks to ensure transparency and accountability in fund management. Additionally, the risk of a digital divide in fund allocation suggests the need for corrective mechanisms to prevent the reinforcement of existing regional disparities.

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