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### **The Contribution of Cohesion Policy to Digitalisation: an Adequate Approach?**

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# THE CONTRIBUTION OF COHESION POLICY TO DIGITALISATION: AN ADEQUATE APPROACH?

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## Abstract

Academics and policy-makers see digital technologies as a significant driver of growth and innovation, capable of triggering radical transformations in both businesses' operations and citizens' life and welfare. Their potential is therefore deemed considerable, yet challenging to assess with certainty.

The EU has been a pioneer institution in promoting the digitalisation of its economy. Its main ambition is to harness the potential of Information and Communication Technologies (ICT) for growth and well-being. Its long-lasting support has been delivered through different types of interventions, including regulation and funding. It is critical as the successful development of ICT requires a mixture of top-down (e.g., regulatory framework, broadband networks...) and bottom-up (e.g., demand for digital services by citizens...) initiatives. Despite these efforts, the EU economy is generally considered as remaining below its digitalisation potential. Additionally, large disparities in digitalisation performance are observed both within and between the Member States. This situation prevents the EU from reaping the full benefits linked to ICT. In that context, the regional level is fundamental to address the challenges arising from digitalisation. Indeed, it can help to articulate both bottom-up and top-down initiatives in a way that is consistent with the specific strengths and issues of territories, i.e., in a place-based manner. In particular, EU Cohesion Policy has supported digitalisation for several programming periods, combining a prominent funding mechanism with a relevant territorial approach.

Based on a series of case studies and a review of secondary sources, this paper aims at assessing how the 2014-2020 Cohesion Policy framework contributes to the adequate formulation and delivery of regional digital strategies. The analysis suggests that the Cohesion Policy's ability to steer the development of regional digital strategies is done through specific incentives (e.g., funding concentration, holistic approach). Its contribution also stems from its attention to the development of partnerships and stakeholders' involvement around specific territorial issues both during the formulation of regional digital strategies and during their delivery on the ground. However, there are some limits to its contribution, e.g. regarding the synergies between EU funding instruments for digital interventions. Further research is needed to ensure the generalisation of findings and estimate the causal role of Cohesion Policy's framework.

## Acknowledgements

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The views expressed in this paper are those of the authors and, in particular, do not necessarily reflect those of the European Parliament or other institutions. The usual disclaimer applies.

**Keywords:** Cohesion Policy, ICT, digitalisation, regional digital strategies

**JEL codes:** H7, O18, O38, R58, Z18

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## Introduction

There is a growing consensus among policy-makers, academics and business leaders on the importance of Information and Communication Technologies (ICT) to foster economic growth and productivity (OECD, 2017) in a world characterised by globalized flows. As General-Purpose Technologies, the diffusion of ICT also contributes to far-reaching socio-cultural and organisational changes. It has led to the generalisation of public policies addressing this digital transformation at different scales.

This generalisation of digital-oriented strategies and policies has been noted at the EU level. In particular, Cohesion Policy has been mobilised in that direction with early initiatives dating back to the 1990s. The relevance of this support stems from two main reasons: i) Cohesion Policy benefits from a significant share of the EU budget (through Structural Funds), and ii) Cohesion Policy encourages the development of regional digital strategies, which are likely to favour the success of digital transformation (See for instance European Parliament, 2013; Reggi and Scicchitano, 2014). Regional digital strategies can be defined as the formal approach (often explicitly laid out in a policy document) to achieve specific goals related to digitalisation in a region, potentially leveraging on its territorial strengths and weaknesses.

The success for both the design and delivery of these strategies has been linked to multiple factors, including the quality of local partnerships or the access to adequate administrative and technical capacities (European Commission et al., 2005; Taylor and Downes, 2001; Technopolis, 2002; Tsipouri, 2000). In particular, the rules (e.g., regulations) and practices (e.g., EU guidelines) set by the EU framework organising Cohesion Policy might play an important role.

This paper will explore how the current Cohesion Policy framework (2014-2020) (including regulatory provisions and practices) influences the formulation and implementation of regional digital strategies. The analysis will be restricted to regional digital strategies that are directly promoted by Cohesion Policy (i.e., usually in the context of Operational Programmes). It will not aim at reaching general conclusions, but rather at identifying potential issues and success factors linked to the current Cohesion Policy framework. It will, therefore, pave the way for further, more comprehensive research.

In the following, the methodological approach and the case studies supporting the analysis are first briefly presented. An overview of the Cohesion Policy context for digitalisation is subsequently provided, which gives background information regarding intervention's rationales and funding priorities. Then, the contribution of the Cohesion Policy framework to the formulation and delivery of regional digital strategies is analysed, before drawing some concluding remarks.

## **Methods**

A mixed approach is adopted to tackle this research question, using a combination of methodological tools, namely documentary analysis (scientific articles, grey literature) and a series of six case studies. These case studies focus on the delivery of specific digital projects, encapsulated in their respective strategic contexts. As such, this methodology allows for the collection of contextualised information on the formulation, but also on the actual delivery of regional digital strategies through specific interventions. Because of the small sample size, the selected case studies might not reflect general patterns. However, they do represent different national and regional approaches and cover a wide range of potential typologies of intervention.

## Overview of case studies

The case studies have been selected based on the following criteria: geographical coverage, type of regions (i.e., eligibility categories under Cohesion Policy), type of intervention, source of funding/instrument, specific good practice or innovative approach/particular sectoral application.

**Table 1. Presentation of the case studies**

Country	Region	Project name	Type of intervention	Funding	Main characteristics
<b>Cross-border (Denmark and Sweden)</b>	Greater Copenhagen area (more developed regions)	Smart City Accelerator	R&D in the field of smart cities (ICT for climate change/energy transition)	ERDF (European Territorial Cooperation)	Partnerships between academia, local authorities and businesses to test demonstration projects under real conditions (e.g. integration of renewables using blockchain).
<b>France</b>	Ile-de-France (more developed region)	Fabrique du Numérique	e-Inclusion (ICT as a pedagogical tool to favour the return to training of early school leavers)	ESF (Integrated Territorial Investment)	Consolidation of a partnership and strategy between local stakeholders on a new territory (merging cities). Application of ICT to the social inclusion sector.
<b>Italy</b>	Emilia-Romagna (more developed region)	Irrinet-Irriframe	e-Agriculture (subsidy for the uptake of an application providing irrigation data and related advice for farmers)	EAFRD	(Marginal) support to the uptake of a successful ICT initiative in agriculture.
<b>Lithuania</b>	National (less developed region)	SPIS (Social Protection Information System)	E-public service (online platform for the management of information related to social services, including eased access for citizens)	ERDF	Concretisation of an existing partnership and long-term support to the development of the information system (including through complementary measures).
<b>Poland</b>	Podkarpackie (less developed region)	Broadband development	ICT infrastructures (rolling-out broadband networks)	ERDF	Emergence of a new organisational model, with increased responsibility of telecom companies, for the development of broadband networks in a deprived rural region.
<b>Spain</b>	Murcia (transition region)	Cheque TIC	Digitalization of SMEs (ICT innovation vouchers)	ERDF	Design and improvement of an innovative delivery mechanism for the digitalisation of SMEs. Potential prospects for further development at the EU level.

**Source:** Authors based on case studies. For details, see the vol. II of the European Parliament study 'Digital Agenda and Cohesion Policy' (2018) Cohesion Policy and digitalisation: a brief overview of the policy context

## 1.1 Broader EU policy context for digitalisation

The EU has gradually developed its policies and strategic approach to tackle digitalisation. First sectoral initiatives can be traced back as early as the 1980s. They were increasingly conceptualised in the 1990s, before leading to overarching strategies in the 2000s. Then, the 2010s are characterised by the formal consecration of digitalisation as a major EU priority (European Parliament, 2018).

Since 2010, the Digital Agenda for Europe (DAE) frames how the EU tackles ICT-related issues, as one of the flagship initiatives linked to the Europe 2020 strategy. The DAE aims at achieving key objectives covering multiple different dimensions of digital transformation, regrouped under seven pillars (European Commission, 2010): digital single market, interoperability and standards, trust and security, fast and ultrafast internet access, research and innovation, digital literacy – skills and inclusion, ICT-enabled benefits for EU society. This strategy thus follows a holistic, as opposed to a sectoral or partial, approach. This strategy has then been complemented with a focus on the completion of economic benefits, with the Digital Single Market launched in 2015 (European Parliament, 2018).

The holistic approach of EU policy for digitalisation and its high degree of prioritisation have been confirmed for the post-2020 era. Indeed, the Von der Leyen Commission has introduced the EU digital strategy in 2020. This new strategy aims at fostering digitalisation for citizens, businesses and the planet (European Commission, 2020).

## 1.2 Rationales for Cohesion Policy's intervention in digitalisation

Cohesion Policy has been explicitly recognised as a means to promote digitalisation in all EU regions since the 1990s, especially with the 1997 Communication from the European Commission 'Cohesion and Information Society' (European Commission, 1997). This early support has taken not only the form of funding but also the promotion of regional digital strategies, for instance, through ad-hoc Community Initiatives. Since the 1990s, regional autonomy has substantially increased in the EU (CCRE, 2013) and the political consensus underpinning the relevance of ICT for regional development has also grown up (OECD, 2017), strengthening the *raison d'être* of Cohesion Policy's intervention in digitalisation on different grounds.

Firstly, wide disparities exist both within and between EU regions in terms of digitalisation (ICT infrastructures, usage of ICT by citizens and businesses, distribution of ICT skills, etc.). For instance, rural areas, regions in Southern and Eastern Europe typically lag behind other EU areas for most digital indicators (European Parliament et al., 2013). Removing these 'digital divides', which have an essential territorial dimension, is critical to reduce social-economic inequalities and to foster competitiveness (Vicente and López, 2011), and justifies public policy intervention at the regional level. The regional scale is moreover considered to be appropriate to deal with enabling conditions and to adapt interventions to the local context. Indeed, EU regions

can act as an intermediary between EU and national top-down initiatives (e.g. standard-setting, framework conditions) and local bottom-up initiatives (e.g. projects favouring uptake of ICT by local stakeholders) for digitalisation, supporting general coherence (European Parliament et al., 2013; Reggi and Scicchitano, 2014). Finally, public digital investments can be used to address market failures, for instance, regarding the development of ICT infrastructures in deprived regions (see Nicola, 2015).

### **1.3 Cohesion Policy's funding for digitalisation**

Backed by these rationales and by the growing consensus among policy-makers and experts regarding the importance of ICT for economic performance and cohesion, the overall Cohesion Policy budget dedicated to digital investments has substantially increased across the different programming periods. Total funding for these investments has risen to EUR 21.4 billion for 2014-2020, up from EUR 15.6 billion for 2007-2013 (Authors based on DG REGIO, DG EMPL and JRC databases). Per capita funding has also slightly risen, though less substantially, from EUR 41 per capita to EUR 43 per capita in the same timeframe (see map 1 in the annexes for a regional breakdown). The breakdown of this budget between different types of digital investments is in line with the holistic approach promoted by the European Digital Agenda. Indeed, the EU has supported investments in all areas affected by digitalisation (infrastructures, research, skills and human capital, culture...), without restricting it to sole technological aspects. This approach is linked to the concept of Information Society, that has guided EU intervention in digital policy since the 1990s (European Commission, 1994b, 1994a). Despite nuances and changes in terminology<sup>1</sup>, this broad focus has been maintained across time. Indeed, for the 2014-2020 programming period, 38% of the Structural Funds are allocated to e-services and human capital, 32% to ICT infrastructures, 19% for other forms of ICT intervention (e.g. smart cities, smart grids) and 10% for the digitalisation of SMEs (Authors based on JRC database).

Regional digital strategies should thus benefit from increasing allocations of the European Structural and Investment Funds. In the following parts, we explore the contribution of the Cohesion Policy framework in formulating and delivering these strategies.

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<sup>1</sup> 'Information Society' is less common since the late 2000s in EU policy-making, with other terms such as 'digital economy' gaining momentum



## **2 Cohesion Policy framework and the formulation and delivery of regional digital strategies: an ongoing consolidation**

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The framework of Cohesion Policy is composed of rules (legal requirements, especially regulations) and a series of practices (e.g., guidelines, networks...). Regional digital strategies can be influenced by this framework at two main phases: formulation (i.e., the design of the strategies) and delivery (i.e., implementation of the strategy on the ground, through specific projects or interventions).

This section will explore the potential influence of Cohesion Policy framework on these two policy phases, alongside a series of evidence collected through the case studies.

### **2.1 New provisions integrated into the Cohesion Policy framework are expected to improve the formulation and delivery of regional digital strategies**

To more systematically support the quality (e.g., relevance, effectiveness, efficiency) of regional strategies, new provisions have been integrated into the Cohesion Policy framework for 2014-2020. They comprise Thematic Objectives, Ex-Ante Conditionalities but also instruments at the local level. These innovations are not specific to the case of regional digital strategies. However, they do have a direct impact on the formulation of these strategies, and could, in principle, bring valuable benefits, including for their successful implementation.

In particular, they include provisions focusing on the overall design of Operational Programmes:

- Thematic Objectives (TO) aim at favouring the concentration of resources. The relevant TO concerning ICT is TO2 'Enhancing access to, and use and quality of information and communication technologies (ICT)'. About EUR 14 billion from the ERDF and EAFRD are planned under TO2 for 2014-2020 (European Commission, 2017a).
- Ex Ante Conditionalities (EXAC) aim at 'ensuring that the necessary conditions for the effective and efficient use of ESI Funds are in place'(European Commission, 2013). Two EXACs are required to invest in TO 2 (European Commission, 2016), and they are typically fulfilled by the existence of two policy documents (regional or national; which can correspond to existing documents or be drafted to address the requirements of Cohesion Policy specifically):
  - Digital Growth Strategy (often integrated into the Regional Innovation Strategy), to ensure consistency between regional actions and EU objectives for digitalisation
  - Next Generation Network Plan (required for broadband development), to reach the quantitative goals in terms of ICT infrastructures.

Moreover, the introduction of specific instruments for 2014-2020, such as the Integrated Territorial Investments (ITI) or Community-Led Local Initiatives (CLLD), allows local and regional authorities to develop strategies tailored to the specific needs of infra-regional territories and to combine different ESIF (European Commission, 2014a). Given the specificities

of digital investments (territorial dimension, cross-sectoral aspects, etc.), it could especially improve the formulation and delivery of digital strategies.

The analysis of case studies provides insight into how effective these new provisions are in actually helping regional policymakers formulate and implement regional digital strategies on the ground.

## **2.2 A significant concentration of resources for digital investments despite some ambiguities in the Cohesion Policy framework**

Concentrating enough financial resources for digital investments is vital to achieving sector-specific as well as general policy objectives (e.g. Digital Agenda for Europe, national and regional strategies). Data analysis tend to show that the regions allocate a significant share of their Structural Funds (ERDF, CF, ESF and YEI) to digital investments (5% on average), although with important disparities between them (ranging from 0% to 30%, see map 2 in the annexes). Moreover, regional digital strategies observed in the case studies tend to consider digital investments from a holistic perspective. Indeed, they typically address several policy objectives (e.g. economic development, social inclusion and training in the French case study; climate change, energy and transport for the cross-border case study, etc.).

This situation is in line with the Cohesion Policy framework's efforts to favour the concentration of resources on digital investments (e.g. through TO2) and a holistic approach (e.g. through the DAE objectives, to some extent through the Digital Growth Strategy EXAC). However, there is not enough evidence to back a causal role of the framework, as several other factors might be at play. Also, the extent to which the different policy objectives form a coherent set and not a mere juxtaposition remains to be clarified.

The case studies moreover reveal some ambiguities in how the framework of Cohesion Policy, specifically TO2, favours the concentration of resources for regional digital strategies. Indeed, as shown in the French case study, social inclusion initiatives using ICT might be recorded under other TOs than TO2, implying potential inconsistencies in the budget lines. As a consequence, the existing TO system might not be fully adapted to concentrate resources for ICT given their horizontal and pervasive nature.

The concentration of funding for digital investments in some sectors also seems limited in the observed regional digital strategies. For instance, the Italian case study suggests that the contribution of the EAFRD to digitalisation in agriculture might be limited, revealing some missed opportunities in the formulation of regional digital strategies.

## **2.3 Mixed evidence regarding ICT-related EXAC for the formulation of regional digital strategies**

The different case studies reveal some mixed evidence on the role of EXAC in supporting regional digital strategies. The specific attention to broadband with a dedicated EXAC seems adapted because of the highly technical dimension for this type of investments, that has led to

significant problems during the 2007-2013 period (as shown in the Polish case study). However, in general, limited regional administrative and technical capacity seems to remain an issue, affecting the quality of the EXAC. In particular, previous research has shown that in many regions, the precise requirements and assessment methodologies of EXAC remain unclear to administrators (Stancova and Sörvik, 2015). As ICT are highly pervasive, a horizontal priority defined in the Cohesion Policy framework might be more relevant to integrate aspects that are often neglected in the strategies formulated so far (e.g. social inclusion).

## **2.4 A framework favouring partnership to formulate effective regional digital strategies**

As stated previously, building partnerships and consensus between the local stakeholders (policy-makers, businesses, experts, NGOs, citizens, etc.) is key to formulate high-quality regional digital strategies. Indeed, they allow for a proper assessment and goal-setting approach, while also mobilising stakeholders for the delivery phase (Technopolis, 2002). Even if issues in terms of stakeholders involvement (e.g. major or even excessive influence of well-established industries compared to emerging sectors) have been identified in the formulation of regional digital strategies for 2014-2020 (Stancova and Sörvik, 2015), the case studies show that the Cohesion Policy framework provides tools to favour the development of these partnerships. This positive influence can be channelled through the use of specific approaches (e.g. Smart Specialisation Strategies) or dedicated instruments. For instance, the Integrated Territorial Investment of the French case study has developed links between stakeholders in the context of an administrative reorganisation (merging cities). Moreover, it can induce partnerships between stakeholders that are typically not in close contacts (e.g., in the French case study between actors of economic development, training, social inclusion and ICT). The case study on the cross-border project for smart city also suggests that the rules of the Cohesion Policy framework, such as the maximum co-financing rate, can provide an incentive for the consolidation of new partnerships between academia, cities and businesses in different countries to attain common digitalisation and environmental objectives.

These partnerships favoured by Cohesion Policy are also meaningful during the delivery phase of regional digital strategies. In particular, partnerships can improve the delivery of regional digital strategies by mobilising the relevant expertise that might be lacking to some stakeholders. For instance, in the cross-border case study, smart city demonstration projects have been realised through a public-private partnership via the European Institute of Innovation and Technology.

## **2.5 A framework contributing to improvements in delivery mechanisms and exchanges of experience on ICT interventions**

As a general comment, it is possible to observe improvements in the delivery of regional digital strategies across programming periods, in a policy-learning process. For instance, the development of broadband networks in the Polish region of Podkarpackie is supported by a new

model of public-private relationship with the telecom companies, tackling technical and administrative issues observed in the previous periods. The framework of Cohesion Policy might affect this process, though it is difficult to disentangle it from other factors.

More specifically, the development, adaptation and diffusion of innovative delivery mechanisms to support ICT investments by SMEs are identified under the Cohesion Policy framework. For instance, the Spanish case study shows the gradual adaptation and generalisation of innovation vouchers for the digitalisation of SMEs. This ability is strengthened by the existence of networks and labels to circulate good practices. For instance, a URBACT label has been awarded to the French project, with prospects of transfer to other regions, favouring the development of adapted regional digital strategies.

## **2.6 Mixed and insufficient evidence on synergies with other EU instruments and between Structural Funds to deliver digital investments**

For the 2014-2020 programming period, the Cohesion Policy framework has been reformed to facilitate synergies between Structural Funds and with other EU instruments (e.g. alignment of cost models between H2020 and ESIF) (European Commission, 2014b; Ferry et al., 2016). Despite this effort, limited evidence is available to show a significant impact on synergies for digital investments.

In the case studies, there are some examples of complementary interventions funded by the ESF to support another action of greater scope financed by the ERDF (e.g., in the Polish or Lithuanian cases). However, no direct synergies with EU instruments outside Cohesion Policy have been observed in the case studies, even in some promising sectors (e.g. Research and Development with Horizon 2020 for the cross-border case study). Ongoing development of some initiatives, such as the Digital Innovation Hubs to tackle SME digitalisation, could strengthen these synergies soon (European Commission, 2017b).

### 3 Conclusion

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During the 2014-2020 programming period, regional digital strategies have gained importance under the Cohesion Policy framework, both in terms of policy attention and funding. As such, the adaptation of this framework to formulate and deliver regional digital strategies is a crucial factor in ensuring the success of individual projects and achieving more general policy objectives. Studying the experience of individual projects in their strategic context can inform the analysis about the extent to which the Cohesion Policy framework is fit to carry out successful regional digital strategies.

Based on a review of the literature and a series of case studies, it can be argued that the Cohesion Policy framework is currently in a consolidation process to favour the formulation of regional digital strategies tailored to the local context while contributing to overarching goals. In particular, new mechanisms such as the Thematic Objectives and Ex Ante Conditionalities have the potential to support these strategies, provided that a series of identified limits are addressed (e.g., increasing technical and administrative capacity). The EXAC and TO systems could be revised to account for the specific horizontal dimension of ICT. Additionally, some sectors, such as agriculture or the environment, may benefit from increased policy attention to better reap ICT-related advantages. Partnership-building through specific approaches or instruments (e.g., Smart Specialisation, ITI...) can help to achieve adequate formulation of regional digital strategies and seems to be an important channel of influence of the Cohesion Policy framework. This framework can also facilitate the implementation of effective regional digital strategies by promoting the use of innovative delivery mechanisms (e.g., innovation vouchers) or by connecting stakeholders facing similar issues. Efforts should be pursued to grasp untapped potentials, for instance, regarding synergies with other EU instruments that are relevant to ICT (H2020, COSME, etc.).

Overall, the main contribution of the Cohesion Policy framework seems to be its ability to foster tailored and holistic regional digital strategies and nurture partnerships between stakeholders, both during the formulation and delivery of Programmes. To consolidate these findings, future research may attempt to adopt a more comprehensive and systematic approach of regional digital strategies under Cohesion Policy, i.e. based on a representative sample of such strategies.

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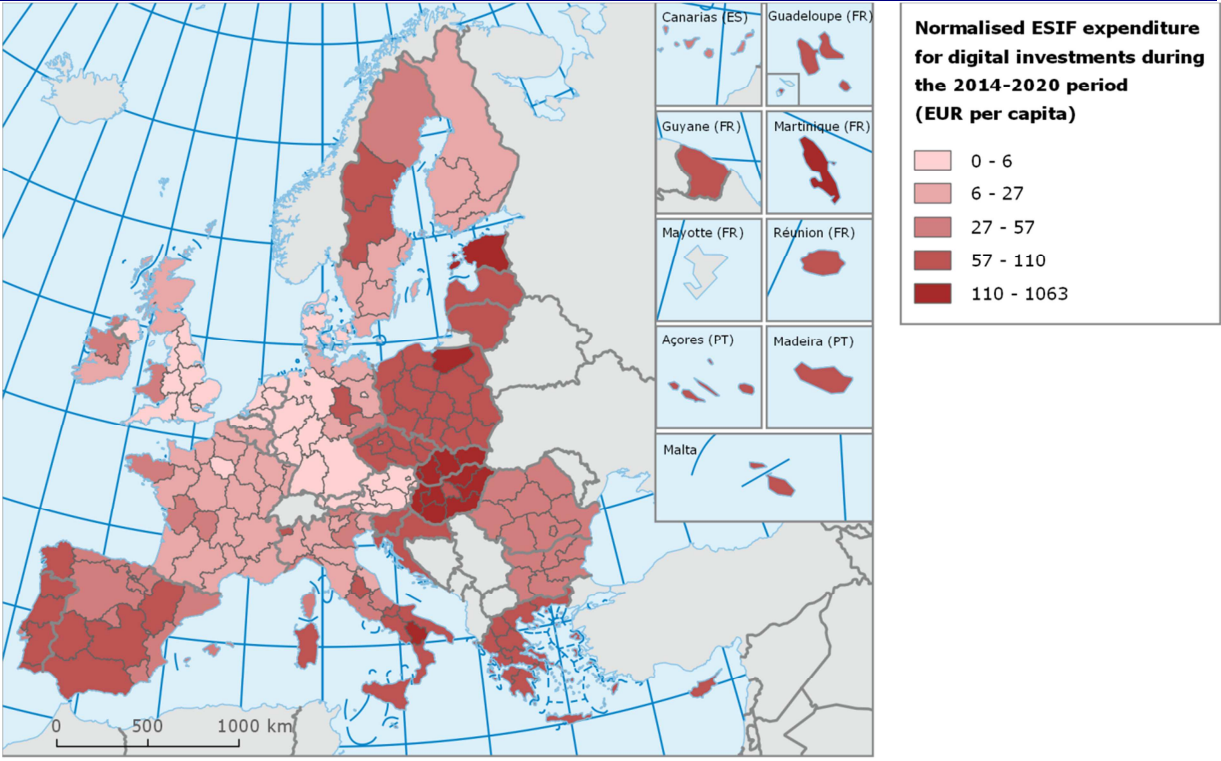
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# Annexes

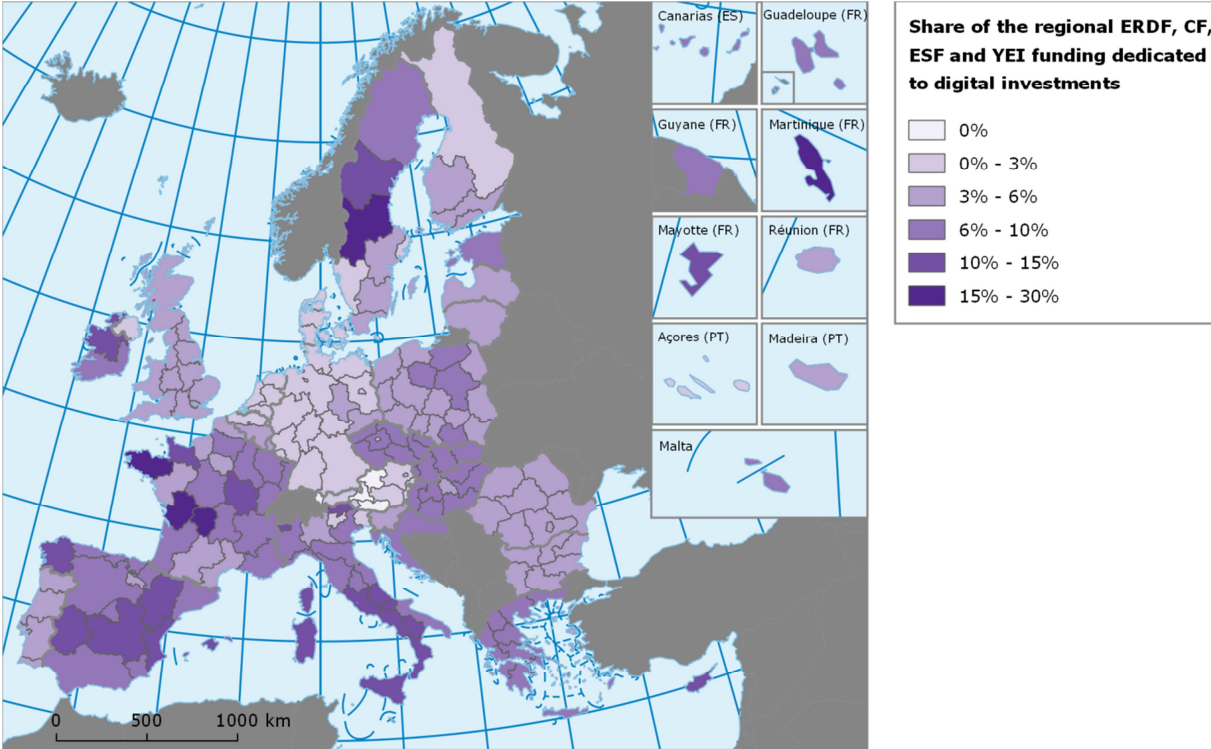
**Map 1. Normalised ESIF expenditure for digital investments during the 2014-2020 programming period.**



**Note:** Including all the Structural Funds (ERDF, CF, ESF, YEI, EAFRD) except the EMFF  
**Source:** Authors based on data from Eurostat, 2017; JRC, 2017a, 2017b.



**Map 2. Prioritisation of digital investments during the 2014-2020 programming period.**



Source: Authors based on data from JRC, 2017b.