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ORIGINAL ARTICLE

EPA EUROPEAN POLICY ANALYSIS

# Decision-making traps behind low regional absorption of Cohesion Policy funds

**Giovanni Cunico**[1,2] | **Eirini Aivazidou**[1,3] | **Edoardo Mollona**[1]

[1]Department of Computer Science and Engineering, Alma Mater Studiorum – University of Bologna, Bologna, Italy

[2]Business School, University of New South Wales, Sydney, New South Wales, Australia

[3]Department of Industrial Engineering and Management, School of Engineering, International Hellenic University (IHU), Thessaloniki, Greece

**Correspondence**
Giovanni Cunico, Department of Computer Science and Engineering, Alma Mater Studiorum – University of Bologna, Mura Anteo Zamboni 7, Bologna 40126, Italy.
Email: giovanni@cunico.org

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## Abstract

Within European Cohesion Policy, some regions manifest chronic problems with absorbing structural funds, probably due to inadequate administrative capacity. Despite the continuous assistance to improve capacity and the accumulation of learning and experience, poor performances still persist in some territories, rendering the initial explanation partial. By collecting (reports' analysis and field research), consolidating (grounded theory), and mapping (system dynamics) two Italian regions with contrasting absorption performance, this study investigates how regional authorities may be trapped in systemic decision-making structures that prioritize short-term outcomes perpetuating low absorption rates. Within a multilevel-governance context, we suggest that these decision-making traps stem from the discrepancy between European and local policy-makers' mental models; although European policies aim to promote timely absorption, sometimes they fail to acknowledge local authorities' actual agenda and may unintentionally prompt regions to overemphasize short term funds' expenditure instead of improving administrative capacity in the long term.

**KEYWORDS**
absorption rate, mental models, multilevel governance, regional performance, structural funds

## 1 | INTRODUCTION

Multilevel governance consists in the distribution of jurisdiction among multiple authorities so that decision-making is appointed to various actors (Hooghe & Marks, 2001). The European Union (EU) adopts a multilevel framework of governance to implement its Cohesion Policy (CP) (Hooghe, 1996; Piattoni & Polverari, 2016) that involves national, regional, and local authorities (vertical dimension) and stimulates the participation of nonpublic players, such as the civil society and economic players (horizontal dimension) (Dąbrowski et al., 2014). However, this type of political scheme entails a high systemic complexity (Smeriglio et al., 2015; Zahariadis, 2013); through the partnership principle, it includes actors with different objectives who make decisions at different phases of the CP process, including program preparation, implementation, and monitoring (Scheurer & Haase, 2018).

CP is the EU second-largest expenditure scheme after the Common Agricultural Policy (European Commission, 2021). The EU and the member states agree on the general framework (e.g., amount of resources, general procedures), whereas the implementation is delegated to local and regional authorities (e.g., interaction with local stakeholders, goals development, projects' selection criteria definitions). The CP is a redistributive policy structured in cycles of 7 years which aims at "reducing disparities between the various regions and the backwardness of the least-favored regions" (Commission of the European Communities, 1986, p. 9) and promoting the competitiveness of the most developed ones (European Commission, 2021). EU redistributes the committed budget to the regions, mostly according to their financial condition, to improve citizens' quality of life, reduce regional inequalities, and support harmonic economic development through the implementation of local projects. The available budget, commonly referred as "structural funds,"[1] is composed of EU resources along with a share of regional capital (i.e., regional cofinance). This budget is allocated to the local managing authorities (LMAs), namely the local agencies in charge of implementing the policy (e.g., regional authorities). Although CP has been active since 1988 (Brunazzo, 2016), the actual effect of the funds on regional wealth is not always homogenous (De Rynck & McAleavey, 2001; Fratesi & Wishlade, 2017). Several European governments encountered difficulties in spending their allocated structural funds (European Parliament, 2011), especially during fiscal crisis and austerity measures (Chardas, 2014). To stimulate regular and timely expenditure, in the latest policy cycles, the EU has implemented the "decommitments" policy; if the structural funds' utilization is delayed compared to the EU expenditure schedule, the EU contribution to the available budget is reduced (Bachtler & Ferry, 2015). To avoid this undesired occurrence, in some countries (e.g., Hungary, Italy, and Romania), LMAs implemented debatable strategies, such as the reduction of the regional contribution or the funding of projects already approved within national funding schemes, thereby increasing the proportion of utilization, the so-called "absorption rate" (European Court of Auditors, 2018). These behaviors potentially bring about the undesired consequence of reducing the total amount of resources invested in the region, thus hindering the effectiveness of the policy. Moreover, due to the lack of transparency and complexity involved in the governance, difficulties in determining the political accountability of the implemented policies' performance may emerge (Milio, 2014; Papadopoulos, 2007).

Given the importance of the policy, researchers have been focusing on investigating the reasons behind the poor implementation performance. The dominant explanation of

the deficiency in absorption is the inadequate endowment of administrative capacity in the LMAs (Incaltarau et al., 2020; Milio, 2007; Surubaru, 2017; Tosun, 2014), defined as "the ability and skill of central and local authorities to prepare suitable plans, programmes and projects in due time, to decide on programmes and projects, to arrange the co-ordination among principal partners, to cope with the administrative and reporting requirements, and to finance and supervise implementation properly, avoiding irregularities as far as possible" (Boeckhout et al., 2002, p. 2). Interestingly, while absorption rates' improvement occurred in some European regions with poor performances (Milio, 2007; Pálné Kovács, 2016), in others, advances hardly happened; in these latter cases, low absorption is a chronic issue, repeating itself cycle after cycle. This is somewhat contradicting since it is expected that LMAs may strengthen their administrative capacity over time as they accumulate experience and skills, define more effective procedures, enhance coordination (Aiello et al., 2019; Pálné Kovács, 2016; SWECO, 2010), and receive significant resources (i.e., technical assistance) within the CP context (Stephenson, 2016). Therefore, the administrative capacity as a static concept may not offer a complete explanation for this unexpected behavior (Bachtler et al., 2014); thus, the existing discrepancies could be attributed to additional factors (Milio, 2014). For example, the insufficiency of the decentralization tradition and collaborative policy-making within the EU could lead to the problematic application of the partnership principle across countries and regions (Dąbrowski, 2014). In this vein, researchers have been exploring the relations with other relevant dimensions, such as the political sphere, without yet reaching a shared consensus. For example, the role of political stability is still not untangled (e.g., Aiello et al., 2019; Hagemann, 2019; Incaltarau et al., 2020). As some regions within the same country showcase chronic issues while others do not, the root causes of the problem may lie within the specific LMAs' organizational dynamics. In this respect, by comparing two areas with good absorption performance, recent research has found that administrative capacity enhancement may depend on "strategic motivations of top public servants and the political salience" of CP in the local context (Domorenok et al., 2021, p. 72). In addition, cultural or structural restrictions, as well as a myopic focus on funds' absorption, may also impede strategic planning (Grosse, 2006). However, literature addressing absorption performance over time and exploring the underpinning operational, organizational, and systemic causes, is lacking (Incaltarau et al., 2020; Smeriglio et al., 2015; Wostner, 2008). In this context, Blom-Hansen (2005), Bachtler and Ferry (2015), and Domorenok et al. (2021) call for a closer analysis of the agents responsible for CP implementation and their reactions to regulation inputs. In a similar vein, Stephenson (2013) highlights an absence of research examining the practical implications of multilevel-governance policies.

In this context, this study investigates if and to what extent decision-making mechanisms at an LMA level could contribute to explaining why some regions have structural funds' implementation issues repeatedly. Specifically, we argue that some LMAs' decisions and actions hinder administrative capacity improvements over time, generating poor chronic CP absorption. In this premise, this study proposes a first effort to inspect the organizational drivers and decision-making underpinning the regional absorption behavior to elicit the operational structures of LMA administrative capacity. As a complex social system, the analysis of regional CP implementation asks for the deployment of a systemic approach (Bateira & Ferreira, 2002; Smeriglio et al., 2015). To study LMAs from an organizational and operative perspective, system dynamics (SD) is

employed since it allows the integration of operations management and behavioral science (Sterman, 2000). SD could provide the conceptual means for exploring a problem and its long-term evolution as a system of interconnected cause-effect relationships and feedback loops, which are difficult to be tackled with traditional models (Meadows, 2009). In fact, SD is a well-established approach to study complex nonlinear systems providing a holistic, operational, and dynamic (i.e., over time) point of view to explain why specific behaviors occur (Sterman, 2000). Thus, SD has been widely used to study the performance of strategic decision-making processes over time (Cosenz & Noto, 2016), rendering it an appropriate method to analyze the complexity of LMAs' organizational issues related to CP implementation and absorption.

To deploy the proposed methodology, two polar cases, namely a region known for its problems in absorbing the CP funds and another with efficient performance, were selected and compared, seeking differences in the decision-making patterns that potentially explain the opposite absorption results. Comparative approaches have been often adopted to study regional performance (e.g., Putnam, 1993) and CP in particular (e.g., Domorenok et al., 2021; Milio, 2007). Real data was collected through gray literature (i.e., EU reports) and field research (i.e., interviews and workshops), while a grounded theory approach was used to identify variables and relationships and build an SD model of the LMAs implementation procedures. Then, the obtained model was analyzed to identify any eventual core structures responsible for repeated absorption poor performances. Finally, decision-makers' understanding and expectations of the system were confronted with the actual operative structure to highlight pitfalls and fallacious beliefs. The remainder of the study is structured as follows. In the following section, the approach used to analyze the system is described. Then, the analysis is performed and the related insights are discussed. Finally, the study concludes with policy-making suggestions to unlock the eventual systemic impasse.

## 2 | METHODOLOGICAL APPROACH

### 2.1 | Data collection, consolidation, and mapping

This study revolves around the intersection of different scientific domains: CP research, organizational and behavioral theory, and systems studies. Such complexity poses significant challenges, which demand the development of a holistic method of research. First, the study revolves around the comparison of two European regional LMAs with contrasting absorption performances. The juxtaposition of the operational and decision-making processes permits to identify analogies (i.e., common traits shared by both organizations) and differences (i.e., specific aspects characterizing low and high CP absorption), allowing for the identification of the systemic causes responsible for poor performances. Notably, data about both regions' performance were retrieved from annual EU reports. As these reports are not available publicly, the authors requested and received them from EU officers via e-mailing.

Since only few specific primary data about LMAs' operations are available, we decided to adopt a field research procedure which is considered as a well-suited method for exploring new theoretical territories (Eisenhardt, 1989; Eisenhardt & Graebner, 2007). Data and information were collected through: (i) 16 semistructured interviews, meaningful for investigating and probing new and complex issues (Louise & Alison, 1994); and (ii) two workshops conducted

with European experts in CP, including representatives of two regions, to expand and validate the collected information, as Vennix (1996) prescribes (details about interviews and workshops are reported in Appendix A). The data retrieved from the different sources were then integrated and triangulated with the existing literature to reconstruct the details of the decision processes (Eisenhardt, 1989). Specifically, interviews and workshops targeted toward understanding what LMAs' procedures, priorities, and practical concerns are. This information was then used to develop a set of variables and relations (as complete as possible), using a grounded theory approach as a recognized practise in qualitative research (Charmaz & Belgrave, 2015; Glaser & Strauss, 1967). Generally, a "grounded theory of a studied topic starts with concrete data and ends with rendering them in an explanatory theory" (Charmaz & Belgrave, 2015, p. 4). In this context, repeating concepts emerging from thorough data reviews allow to identify provisional theoretical categories, while the relationships among them are constructed and refined through further data collection, inquiry, and analysis. The created categories and relational links are utilized as a basis for the development of a theory.

Finally, the obtained insights were crystallized into an SD model, following the grounded theory approach (Kopainsky & Luna-Reyes, 2008). The model captures the CP policy implementation processes and operations at the LMA level. It differs from the usual unidirectional logic (e.g., statistical regression) that is used to analyze the effect of an independent variable(s) on the dependent one. As already mentioned, SD poses special attention to mapping the internal causal structure of interconnections within a system (Meadows, 1980); in this complex nexus, a variable under study can act both as a dependent and an independent one in different cause-effect links, potentially generating feedback mechanisms (circular logic). In this way, SD contributes to the problem comprehension with an operational and dynamic perspective (Sterman, 2000).

From a technical perspective, a causal SD model captures the structure of a system by representing its major cause-effect links and feedback mechanisms connecting its variables (Figure 1). Arrows indicate the links that connect a cause to its effect. The causal impact of each relationship is presented with either a positive (i.e., both cause and effect increase or decrease; e.g., an increase in births raises population) or a negative (i.e., when cause increases (or decreases), effect decreases (or increases); for example, an increase in deaths reduces population) polarity. A circular sequence of causes and effects constitutes a feedback loop that can be either balancing (i.e., negative) or reinforcing (i.e., positive) (Sterman, 2000). If an initial increase in a variable leads to an eventual decrease

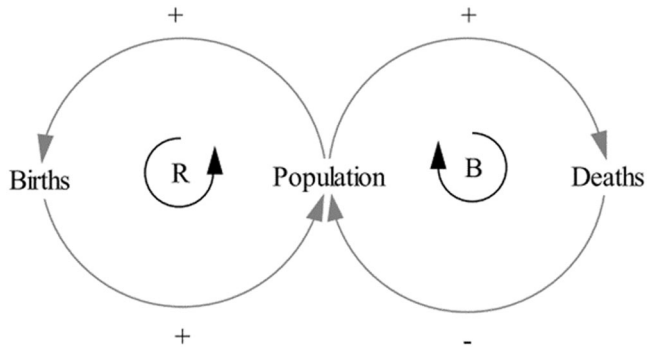


**FIGURE 1** Example of cause-effect links and feedback mechanisms in system dynamics

(or increase) in the same variable, then the feedback loop is considered balancing (or reinforcing). For example, an increase in population leads to more births which, in turn, will cause the population to grow even further (reinforcing loop—R). On the contrary, if the population grows, then the deaths will rise as well, which in turn will decrease the population size (balancing loop—B). A balancing feedback loop demonstrates goal-seeking behavior over time, while a reinforcing feedback loop leads to exponential growth or decay.

The articulated model structure is reported in Appendix B and the computational model (developed using Vensim® software) is provided as supplementary material based on Martinez-Moyano (2012) and Sterman and Rahmandad (2012) guidelines. The model structure was further presented in the abovementioned workshops to ask for participants confirmation of its correctness. Finally, the model was calibrated and validated (Barlas, 1996), and it was able to satisfactorily replicate the absorption rates of structural funds of a specific European region over three policy cycles 2000–2006, 2007–2013, and 2014–2020 (Appendix B).

## 2.2 | Conceptual SD framework: The iceberg metaphor

SD attempts to explain a problematic epiphenomenon by exploring a succession of layers (also known as the "iceberg") in which the deeper the investigation goes, the closer to the root causes of the problem it gets (Meadows, 2009; Senge, 1992) (Figure 2). Focusing on the CP implementation, the reports in the news or literature about LMAs absorption problems constitute the events. This evidence discloses the easily detectable aspects of a problem from a systemic perspective. Under this visible layer, there are the usually imperceptible causes of these events, which the SD focuses on. First, the events are part of a longitudinal pattern (e.g., absorption behavior) unfolding over time. By thinking in systems, such behaviors are interpreted as consequences of a particular system structure (e.g., CP implementation at an LMA level), conceptualized as a set of cause-effect operational relations, delays, and feedback

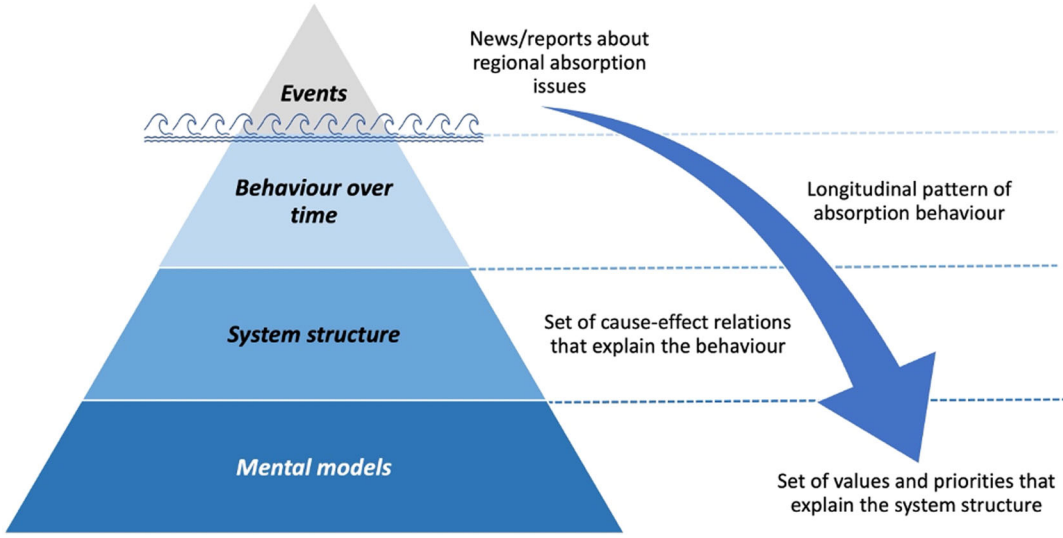


FIGURE 2 Systemic layers of analysis (iceberg metaphor) (Adapted from Meadows [2009])

loops within a system that may sometimes generate specific archetypical behaviors. Finally, the ultimate goal of the methodology is to uncover the mental models (Doyle & Ford, 1998; Senge, 1992), namely the set of values and priorities (conscious or unconscious) of the decision-makers and actors (e.g., regional policy-makers) that generate the system's structure. In fact, the mental models are defined as "networks of facts and concepts that mimic reality" from which policy-makers "derive their opinion of strategic issues, options, courses of action, and likely outcomes" (Morecroft, 1992, p. 13), which the quality of decisions and actions depend from. The iceberg metaphor constitutes the analytical framework, on which this study is based, acting as a new conceptual lens on approaching the problem of poor performances over time within the CP context.

## 3 | ANALYSIS AND INSIGHTS

### 3.1 | Events layer: Calabria (low absorption) and Emilia-Romagna (high absorption)

To study insufficient performances, the case of Calabria region, in South Italy, is used. Relevant literature and official reports highlight the region for its low CP absorption rates and base the causes of this "absorption incapacity" on the lack of LMA administrative capacity. As several sources report, the region's scarce absorption performance over the years has emerged as a repeated problem (Aivazidou et al., 2020; Corte dei Conti, 2017; Gandolfo, 2014; Leonardi, 2006; Milio, 2007). On the other hand, Emilia-Romagna region, in Central Italy, typically shows a high level of absorption (Aivazidou et al., 2020; Arbolino et al., 2016; Corte dei Conti, 2017; Hooghe, 1998). Therefore, Calabria was selected as a case study because it manifests chronic absorption problems, while Emilia-Romagna was used as a reference case to compare and assess the validity of the insights gained. Notably, the two regions belong to different socioeconomic contexts in terms of population, GDP, and employment rate, with the more than doubly populated Emilia-Romagna region showing considerably higher performance (Aiello et al., 2019); according to Eurostat (2022), in 2019, Emilia Romagna exhibited a twofold GDP per inhabitant (115% of the EU average) and a considerably lower unemployment rate (7.7%) compared to Calabria (56% and 25.5%, respectively). In addition, although deep political, institutional, and administrative reforms have been implemented in Italy during the last 30 years, contradicting CP outcomes among its different regions still exist (Milio, 2014). These two regions were considered as they were open to grant us full access to their CP data and related information.

These LMAs were specifically selected because both regions belong to the same country, allowing to assume that they operate under similar legislative and national contexts that render comparisons possible, while they have been already successfully used as comparative case studies in the literature about CP (Aiello et al., 2019; Aivazidou et al., 2020). In general, Italian regions have often been compared to each other to gain critical and general insights on regional and CP performances (Domorenok et al., 2021; Milio, 2007; Putnam, 1993) as they differ significantly in terms of socioeconomic development and cultural contexts but, at the same time, share common regulatory and formal institutions (Italy is a nonfederal country), offering a promising environment to conduct field studies and comparisons.

Within the framework of analysis, this information constitutes the events layer, namely the visible and known aspects of a problem from a systemic perspective. In the following sections, the deeper layers of the problem are investigated.

## 3.2 | Behavior over time layer: Low performance as an actual chronic problem

As Calabria has benefited from the structural funds since the beginning of the CP, a question that may arise is whether performance is improved along the programming periods or not. Figure 3 illustrates the absorption rate over time of the EU share of the European Social Funds (ESF, which constitute a part of structural funds) in Calabria for the cycles 2000–2006, 2007–2013, and 2014–2020 that is going toward closure (the series are available from 2003 for the first cycle until 2018 for the last one). Data show that absorption has not significantly improved over the years; previous cycles reached similar levels of funds expenditure (72% for 2000–2006 and 67% for 2007–2013), while the low steepness of the curve representing the current cycle absorption (2014–2020) apparently confirms that expenditure targets will not be met as well. Figure 3 further reports the region's absorption rate over time of the EU share of the ESF in Emilia-Romagna. Data show that, in 2000–2006 and 2007–2013 cycles, the region has a satisfactory performance reaching the maximum funds' expenditure (although 2007–2013 absorption is 95%, it is expected to reach 100% after final payments procedures are completed [European Commission, 2006; European Court of Auditors, 2018]). Finally, the last cycle curve of absorption shows a promising steepness, confirming an initially good performance.

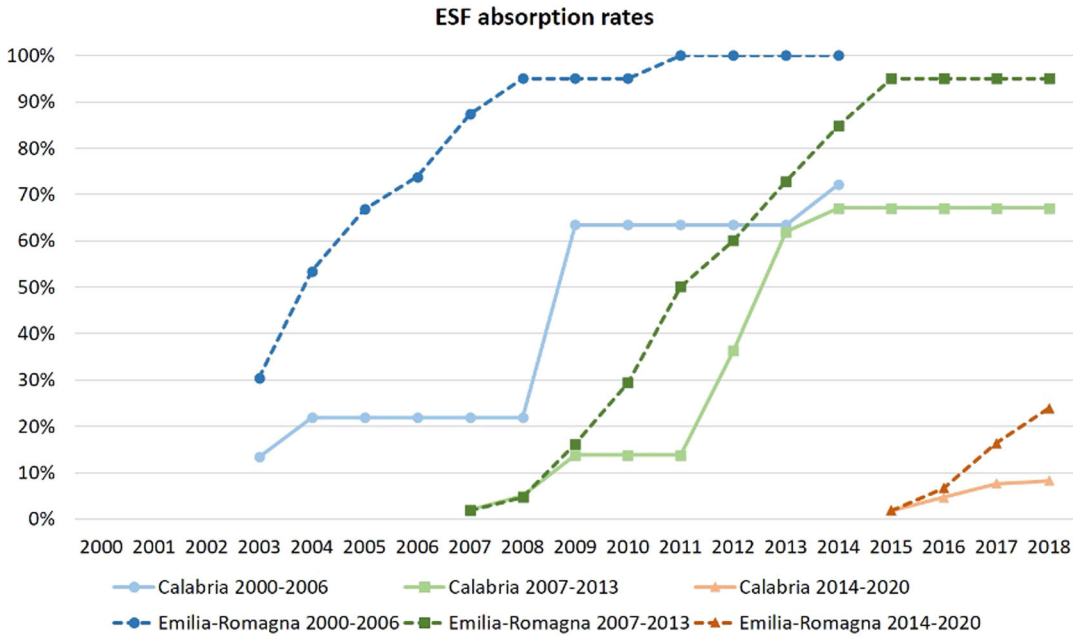


FIGURE 3 Time series for European Social Funds absorption rate in Calabria (Italy) and Emilia-Romagna (Italy)

For completeness, we further report the data over time about the European Regional Development Funds (ERDF) in the two regions in Appendix C. Similarly to ESF, also ERDF absorption in Calabria and Emilia-Romagna have contrasting performances. However, given the even more extensive use of cofinance reduction and retrospective projects by the Calabrian LMA (Corte dei Conti, 2017), its poor performance is not easily detectable in the graphs without a detailed deconstruction of the inflating effects of the two strategies (Aivazidou et al., 2020). Therefore, although, for conciseness reasons, we focus on the ESF funds' analysis, the insights gained further apply to the implementation of ERDF funds.

## 3.3 | System structure layer: Undesired traps

Through the analysis of the developed SD model, it was possible to reconstruct two core systemic structures representing how the internal LMA's organizational set of decisions may render the low absorption rates chronic. These two mechanisms have been simplified and conceptualized as system archetypes, a common practice to synthesise dynamic insights from complex models (Braun, 2002; Meadows, 2009). These structures, also known as "systemic traps," are a simplified representation of recurrent situations in which the system actors act, aiming at improving the system state, and end up perpetuating the problems or even rendering them worse. This fact is based on the inner system complexity, which hinders system players from acknowledging the real effect of their actions (Moxnes, 2004; Moxnes & Jensen, 2009). In this case, the LMA seems trapped by the perverse effects of some policies that the policy-makers use to increase the CP absorption percentage.

The "shifting the burden" archetype constitutes the first identified trap (Figure 4a). In this situation, when a symptom of a problem appears, it can be resolved by working on the "fundamental solution" in the long term. However, working on the fundamental solution requires effort, while a positive effect will be evident only after an inevitable delay. Although this is the appropriate way to resolve the undesired situation, the decision-maker might prefer to address its effort to alleviate the symptom as soon as possible, without focusing on the roots of the problem and shifting the burden away from the fundamental solution. Moreover, opting for the superficial "symptomatic solution" might generate side effects that undermine the fundamental solution intervention. The case of a person who borrows money to cover

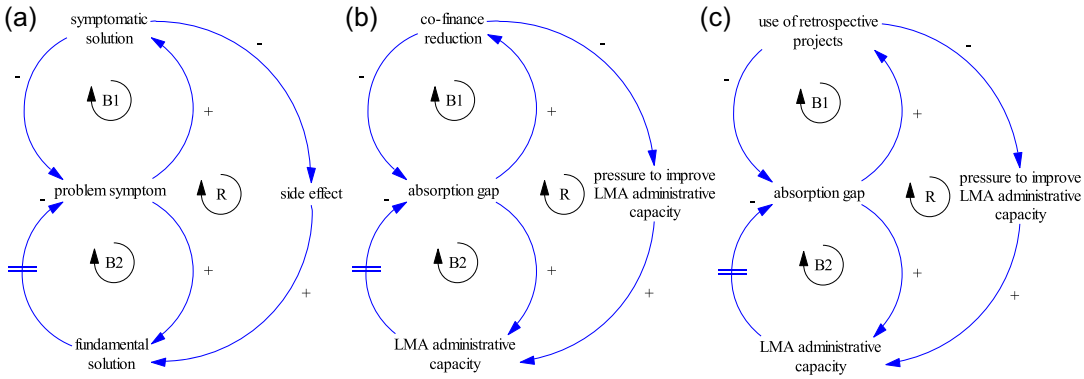


FIGURE 4 Shifting the burden trap within local managing authorities (a–c)

uncontrolled spending (which in turn will increase the debt further) instead of rapidly reducing the spending is an indicative example.

Within the CP absorption system, two policies by LMAs with delayed absorption appear to replicate this particular archetype: the cofinance reduction and the use of retrospective projects (Figure 4b,c, respectively). Cofinance reduction consists of the voluntary reduction of the regional share of resources available. Member states decide the cofinance amount, while the EU only sets the minimum percentage of national and/or regional contribution. Countries initially allocate higher percentages to invest as much as possible. With this reduction, the LMA decreases the amount of regional resources, which are added to the EU ones forming the allocated CP budget, to increase the absorption rate by reducing the available funds. Retrospective projects are "those which have incurred expenditure from national sources or are completed before EU co-financing has been formally applied for or awarded, that is, they are financed retrospectively" (European Court of Auditors, 2018, pp. 5, 6). Therefore, projects with similar objectives to the regional CP framework and approved in the context of other national frameworks are "moved" within the CP scheme since they are at an advanced stage of completion and they can rapidly increase the amount of EU resources spent (Corte dei Conti, 2017; Directorate-General Regional Policy, 2012; European Court of Auditors, 2018; Gandolfo, 2014).

In respect of the shifting the burden trap, when an LMA experiences a low absorption rate, and thus a high absorption gap, a plausible explanation is the lack of internal administrative capacity as a fundamental cause of the problem. For example, as presented, Calabria is recognized in the literature for having an endemically low LMA administrative capacity. When an LMA uses policies, such as regional cofinance reduction or retrospective projects to increase absorption, as Calabria does (Corte dei Conti, 2017; Gandolfo, 2014), it works only on eliminating the symptoms of the problem (i.e., by increasing the absorption rate value). This option generates the undesired effect of alleviating the pressure on the LMA to increase its administrative capacity; since the symptom of the problem is relieved, then the need for improving the capacity decreases. This leads to a deceleration in the improvement of the LMA administrative capacity; hence the root of the problem is not tackled, increasing the probability of occurring again.

The "eroding goals" archetype is the second identified trap (Figure 5a). If a system has to reach a goal, but it fails to approach it given the actual conditions, then a gap is created. To close this gap, it is possible to adopt actions to improve the actual state, which will enhance the system state after a delay. However, the presence of a delay decelerates the intervention effect and thus the gap reduction. This might generate pressure to adjust the goal by lowering the ambitions to reduce the commitment to the target and therefore have a lower gap. Taking as an example the level of air pollutants in a city, if the authorities have to cope with a high level of pollutants within a restricted number of days, they may decide to lower their goal by setting a new higher number of days in which they can exceed the pollution limits.

In the CP absorption system, when there is an absorption gap, the increase of the LMA administrative capacity could increase the resources spent and thus absorption in the long term (Figure 5b). However, given that this intervention requires time, the LMA might decrease the total resources available for spending (i.e., goal reduction) and thus "artificially" increase the absorption rate and reduce the eventual gap. In fact, when an LMA decreases the regional cofinance, it erodes its goal of investments. Although the data collection was focused on Italian cases, these policies have been used in other countries (European Court of Auditors, 2018),

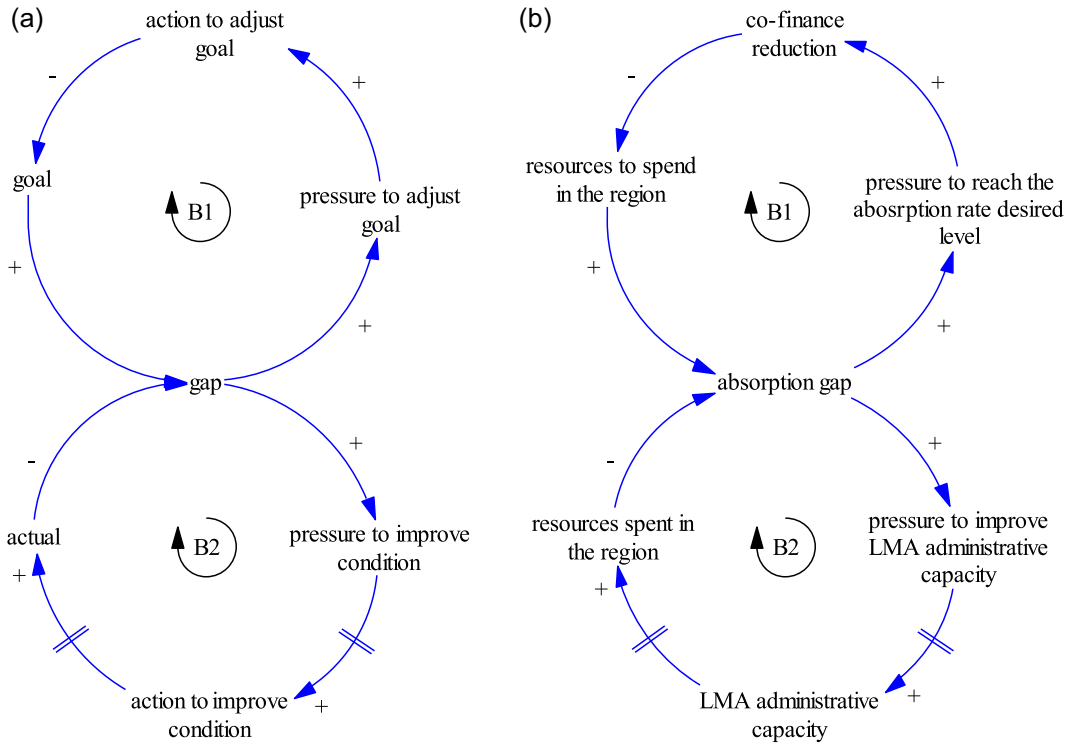


FIGURE 5 Eroding goals trap within local managing authorities (a, b)

such as Hungary or Romania. Therefore, the analysis and insights can be considered as generic and relevant to many European countries.

## 3.4 | Mental models layer: The root of systemic behavior

To identify the mental models that generated these specific systemic traps, we employed the collected field data and the literature (academic and gray) to reconstruct the policy-makers' logic behind the observed CP implementation operations. Specifically, the collected data were analyzed in more depth in light of the built systemic structures. This process was iterative as we went back and forth between the SD model and the data to identify the reasons and responsibilities for specific LMA actions and operations. Notably, the information gathered through the interviews and workshops was fundamental as they were mostly targeted at understanding LMAs' procedures and priorities. This iterative procedure between theory building and real-world data (typical analysis of case study research; Eisenhardt, 1989) was concluded when theoretical saturation was reached (i.e., the point in which no further insights emerged from the iteration between data, literature, and model; Eisenhardt, 1989). The outcomes of this analysis were then portrayed using SD language to be coherent and facilitate readers to interconnect the LMA implementation operations with the policy-makers' mental models.

The LMA policies embedded in the systemic structures under study act as shortcuts and might shift the LMA away from its primary concern that should be increasing its administrative

capabilities. In addition, paradoxically, these shortcuts tend to decrease the total amount of resources that a region has available for investments. However, these actions are not performed to hinder regional development; either the LMAs did not foresee the undesired side effects that they generated, or they had other priorities in their CP-related agenda. The reasons lie in the underlying mental models, which provide the system with structure and logic as represented below.

In general, the regional socioeconomic development (CP's primary goal) depends on the total investments, including CP funds and investments from other public funding schemes (Figure 6). Therefore, it is expected that the absorption of the CP funds constitutes the main driver of the system (highlighted in orange and italic), while the increase of the total investments is the ultimate goal for the local policy-makers (bold and highlighted in green and bold). The total absorbed CP funds, in turn, depend on the total available CP funds, which are comprised of the sum of the EU funds allocated to a specific region and the related regional cofinance. The ratio between the absorbed funds and the total available funds also determines the EU funds absorption rate. If the EU funds' absorption rate is low, it creates a gap with the desired absorption rate set by the EU. This gap, which is practically expressed by the regional inability to meet the financial expenditure targets set by the EU on time, generates the risk of EU decommitments, thus reducing the available EU funds. If the total amount of absorbed funds is low, which is supposed to be the main driver of the policy-makers' mental model, political pressure is expected to rise, thus prompting the LMA to modify its agenda and improve absorption (Cook et al., 1983). Therefore, to maximize the amount of absorbed funds, avoid exceeding EU deadlines, and lose the EU funds, increasing the administrative capacity constitutes the fundamental solution for an LMA (highlighted in dotted red arrows). Although

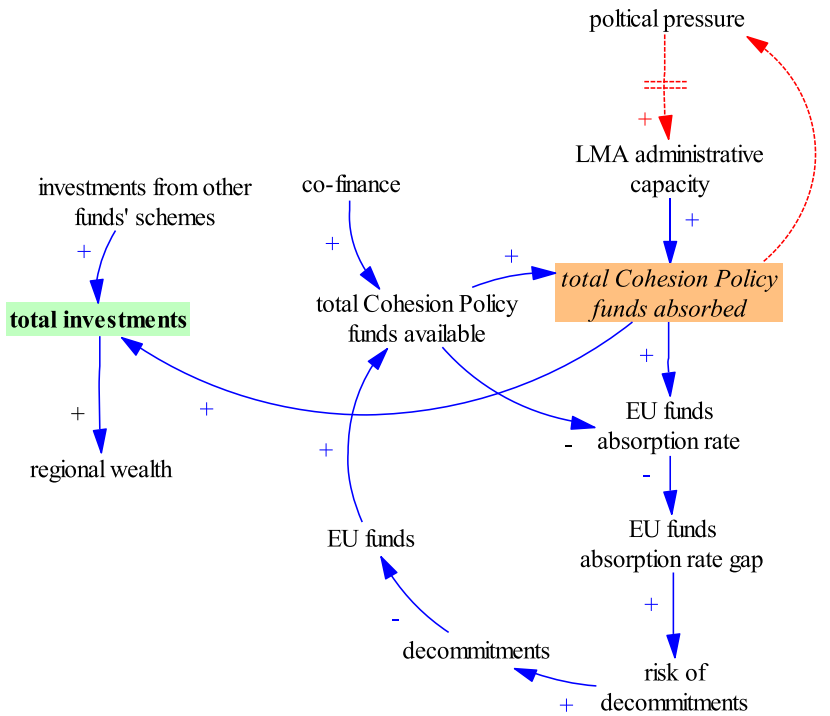


FIGURE 6 Expected local managing authorities decision-making mental model

this action should solve the problem in the long term, it requires time to manifest evident results.

The previous description represents the manner in which other institutions in the multilevel-governance scheme expect the system to work. However, as presented in the previous sections, in some cases, such as Calabria, this process is not followed. In fact, the mental models drive the policy-makers' decision-making toward counterintuitive and undesired policy outcomes. From a political point of view, since EU decommitments gather vast attention in the media (framed as "EU money is lost"), this risk has a considerable impact on the system and, therefore, generates massive political pressure that influences LMA agendas (Cook et al., 1983) (Figure 7). The protection against this risk becomes a priority among the objectives of the LMAs (highlighted in green and bold); since that political accountability is mainly financial based on the EU funds absorption rate (Davies & Polverari, 2011), this latter variable has become the new driver of the system (highlighted in orange and italic). Thus, the political pressure in the actual system depends on the absorption rate and not on the total expenditure. At this point, the LMA under the decommitments pressure can direct all the efforts and resources to improve the administrative capacity, risking decommitments in the current policy cycle, but with the aim of resolving the problem in the long term. Alternatively, it can opt for shortcuts to increase absorption rate and alleviate the decommitments' probability, shifting the focus away from the fundamental solution. The LMA policy-makers, who are trapped in chronic absorption issues, seem to adopt a short-term vision favouring the current political benefits (i.e., regional bad performance and EU funds lost will not be published on the media) instead of the long-term ones (administrative capacity will be improved to an acceptable level thus the region will not have to face the risk of decommitments).

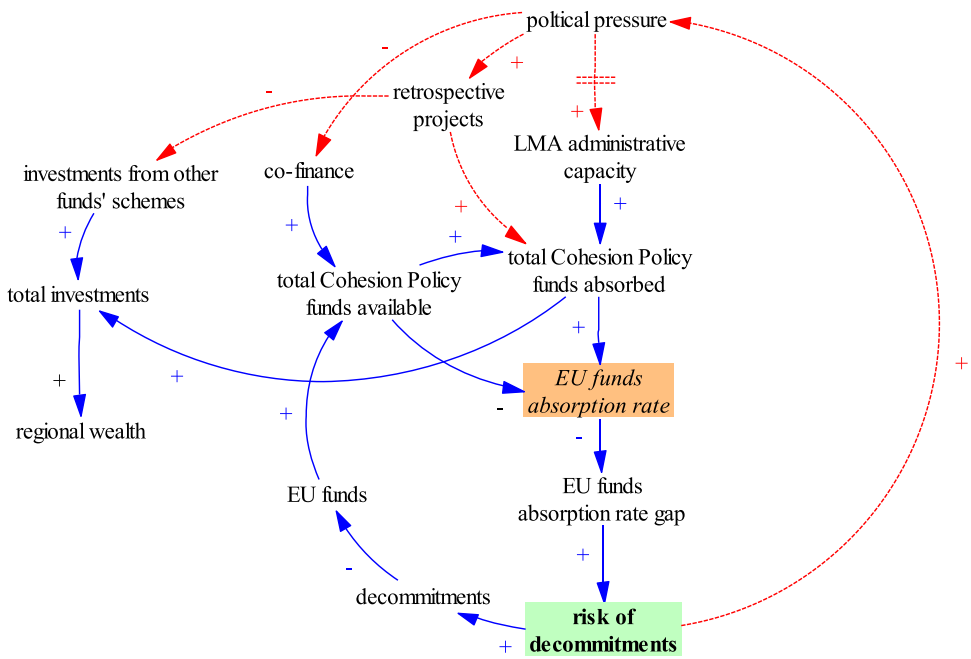


FIGURE 7 Actual local managing authorities decision-making mental model

Interestingly, although shortcut policies to increase the absorption rate, such as regional cofinance reduction and retrospective projects, entail major side effects hindering the impact of the structural funds in the local context, they are overlooked by the EU policy-makers. Cofinance reduction diminishes the total funds available within the CP framework and, subsequently, the total investments in the region. This latter fact constitutes a dramatic loss of opportunity for the local communities. Retrospective projects also end up lowering the public investments in the region; the resources used for funding these projects antecedently, when the projects are moved to the CP scheme, are called released resources and become hypothetically available for funding other projects. However, in Calabria, for example, there is no evidence that the released resources are then promptly reinvested (Corte dei Conti, 2017; Gandolfo, 2014). In fact, a region unable to spend an amount of resources under the CP scheme due to internal organizational reasons is probably incapable of investing the same amount of funds timely under other frameworks. Therefore, this action equals a loss of the investments originating from other funds' schemes. The two shortcut policies ultimately have the effect of decreasing the total investments, shifting the LMAs away from their actual ultimate goal within the CP system, ultimately undermining the regional socioeconomic development.

## 3.5 | Discussion

Setting strict expenditure targets over a CP cycle has been the response to previous policy cycles in which the absorption of funds was delayed and concentrated to the end of the program (Bachtler & Ferry, 2015). As irregular expenditure undermines the CP impact (Gandolfo, 2014), the original idea of the EU decommitments was to create a disincentive to procrastinate spending (e.g., in several European regions during the cycles 1989–1893 and 1994–1999, absorption was completed many years after the initially set closing date (Bachtler & Ferry, 2015; European Commission, 2014; Milio, 2007). The logic behind the decommitments is to reduce resources from LMAs incapable of spending them to render LMAs accountable for their inactions. However, the sanction mechanism of the EU decommitments appears to capture the local policy-makers' attention more than maximizing investments. From a political point of view, LMAs that lose EU funds also lose their credibility since citizens consider the inability to spend EU funds as a wasted opportunity.

In general, the introduction of financial deadlines mechanisms (i.e., "N + 2" and "N + 3" rules for which 2 or 3 years are provided to conclude a project and certify its expenditure) is believed to have a positive impact on the LMAs (Bachtler & Ferry, 2015). The increased pressure urged LMAs to improve planning, risk analysis, and monitoring, simplify procedures, support applications and projects, and increase their administrative capacity (Gandolfo, 2014; Polverari, 2011; Virnonen, 2008). On the contrary, decommitments might have generated drawbacks and unintended consequences in low-performing regions as they were unprepared to deal with strict targets. Specifically, decommitments create an incentive for the LMAs to implement shortcut policies that can ultimately contribute to perpetuating the chronic poor performance and might end up decreasing the total amount of investments in the regions. This impact goes in the opposite direction of the additionality principle at the base of CP. The CP potential lies in the additional EU resources to the regular national investments schemes and, for no reason, it should be considered a replacement of the latter (European Commission, 2006; Fitzgerald & Promè, 1996; Tosun, 2014). Notably, the EU decommitments' mechanism paradoxically tends to be a reality in the regions with the highest need for investments

(Georgescu, 2008). This is a practical example of unintended consequences generated by the attempts of the LMAs and member states to circumvent the decommitments regulation. Bachtler and Ferry (2015), in their analysis of the CP control mechanism effectiveness and design, already highlighted the possibility that negative conditionalities (i.e., sanction for not complying with rules and targets, such as the decommitment policy) could generate problematic side effects.

The dysfunctionalities above arise from a normative context oriented more toward financial accountability than to effectiveness (Rainoldi, 2010). In other words, EU decommitments privilege financial and procedural dimensions over the general performance and quality of projects (Polverari, 2011; Rainoldi, 2010), generating the need for increasing the absorption rate even if it is counterproductive for the region's sustainability. This is a practical example of what Polverari (2011) and Mendez and Bachtler (2011) claim; excessive concern about the absorption rate and audit phases (due to the severity of norms), instead of the actual policy results, has unintended negative consequences on the policy effectiveness. In fact, agents involved in the CP multilevel governance have different priorities, which could lead to an unproductive and harmful conflict (Behrens & Smyrl, 1999). This practically translates in the LMAs with absorption issues being politically judged on their ability to avoid EU decommitments (as journalists also emphasize the absorption rate gaps) until they might define their agenda (Cook et al., 1983) based on their avoidance. Since the media use percentages instead of absolute numbers, the political debate and accountability of local governments (Mulgan, 2003) usually rotate around the absorption rate topic. Therefore, the primary goal of the LMAs is to increase this rate through quick and radical solutions, even if they entail the reduction of the invested resources. In the same direction, we suggest that investing resources to improve LMA capacity without short-term results, and with the menace of the EU decommitments, is a risky strategy for regional governments. Decommitments may hinder the re-election of the regional authorities, while the political opponents in the future may benefit from the improvements in the LMA administrative capacity.

It this perspective, our research highlights that the enhanced learning capacity of Emilia-Romagna compared to Calabria can be a partial explanation for these dynamics, confirming the extant empirical research (Aiello et al., 2019). Calabria policy-makers seem trapped in avoiding the risk of decomittments that politically pays off more than improving long-term administrative capacity. This might be further exacerbated by the political fragmentation and long-time instability in the region (Aiello et al., 2019; Milio, 2008), as this context could prompt local decision-makers to short-term results to secure their political position. On the contrary, Emilia-Romagna has more stable institutions and an established learning feedback mechanism to improve administrative capacity (Aiello et al., 2019). In general, to the best of our knowledge, there is no evidence that determines whether stability or performance comes first in the CP domain. However, in contrast to Calabria, Emilia-Romagna, with its political stability, could have had the space and time to set up a learning feedback loop that not only provided a competitive advantage but also allowed to respond adequately to EU decommittment policies. In this light, the dynamics discussed in this study could contribute to the debate on the manner in which political stability unfolds (Hagemann, 2019; Incaltarau et al., 2020; Milio, 2008) by showing how, in practice, different levels of stability affect the LMA decision process. More importantly, these insights support, specify, and further expand the claims of Domorenok et al. (2021) under which local policy-makers' strategic motivations play a crucial role in enhancing regional administrative capacity.

Moreover, this study offers a real-world example of "measurement surrogation" (Black et al., 2018; Harris & Tayler, 2019) that happens when an organization "loses sight of its strategy and instead focuses strictly on the metrics that are meant to represent it" (Harris & Tayler, 2019, p. 64). The occurrence of such discrepancies between strategy and performance evaluation is of pivotal concern (Bjørnholt & Larsen, 2014; Black et al., 2018; Harris & Tayler, 2019; van Thiel & Leeuw, 2002) because they can devastate organizations by generating short-termism, blind pursuit of performance targets, or promotion of short-cut strategies to maximize performance metric despite their side effects. Measurement surrogation is not uncommon and has been identified in private companies (Harris & Tayler, 2019) and public administrations (Bjørnholt & Larsen, 2014; van Thiel & Leeuw, 2002). Specifically, van Thiel and Leeuw (2002) observed how, in the case of regulatory conditionalities in public administrations, a limited correlation between the indicators to evaluate performance and the performance itself could generate undesired behaviors, such as "short-termism" or else the so-called "performance paradox". In the CP case, the absorption indicator used by the EU (i.e., the absorption rate of the EU share of structural funds) poorly assesses the LMAs' actual performance. This fact generates a short-term vision that urges the local policy-makers to opt for rapidly augmenting the absorption percentage instead of improving their long-term administrative capacity.

Finally, in line with all theoretical explanations and claims stemming from case studies, reflections must be performed considering the generalizability of the findings (Eisenhardt, 1989). The results obtained may be subjected and dependent on specific external conditions or other determinants, such as socioeconomic contexts and political cycles. Therefore, on the one hand, readers should be cautious when handling the results of this study and directly applying them to other regions or cases as contextual factors may need to be discounted in their analyses. However, on the other hand, it is reasonable to expect that the dynamics described (e.g., political pressures to show good short-term absorption performance to voters over long-term improved administrative capacity) are not exclusive to the cases under study but they can be rather general phenomena (Easton, 1957; Garrì, 2010) that may also occur in other European regions and can help explaining why poor performance persists in regions with different socioeconomic and cultural backgrounds. The fact that other European regions show chronically low absorption and adopt short-cut policies similar to Calabria to increase absorption rate (European Court of Auditors, 2018) allows for a broader generalizability of these findings. Lastly, regional case studies and comparisons have already shown their potential for generating generalizable insights within CP research (e.g., Domorenok et al., 2021; Milio, 2007).

## 4 | POLICY INTERVENTIONS

Given that these shortcut policies to inflate absorption rates have also been used in other European countries (European Court of Auditors, 2018), EU should consider them as signals of alarm of potential suboptimal decision-making structures within the LMAs and, thus, provide general or tailored direct support. First, we argue about a set of solutions focused on the system's structure level. Indicatively, no postponements or allowance of shortcut policies, such as the ones described previously, should be tolerated (except for extraordinary causes) since they act against systemic organizational improvement. No regional cofinance reduction should be conceded, as this strategy has mostly negative effects on the local investments. LMAs should stick to their initial goals and not erode them when they cannot match them. If these goals are

rather ambitious, they could serve as a ground either for remarkable administrative capacity improvements or for better goals calibration in the future. In respect of retrospective projects, their use has already been partially restricted by the EU. According to the European Court of Auditors (2018, pp. 5, 6), "in the 2014–2020 program period, projects or operations that are physically completed or fully implemented before the beneficiary submits the application for funding are not eligible for EU funding." However, projects that are not yet concluded (physically completed or fully implemented) are still potentially eligible for funding within the CP scheme, hence "the risk of ineligible expenditure as well as the question of the added value of the EU co-financing remains" (European Court of Auditors, 2018; pp. 39–40). Thus, stricter limits on the use of retrospective projects or even their complete prohibition should be enforced. The actions suggested above should be connected to more precise targets of expenditure calibration, taking into consideration that the absorption tends to be quite slow in the beginning. Our interviews also revealed that high-performance LMAs have considered the usage of retrospective projects in the first implementation period to meet the financial expenditure goals. In this respect, the EU could consider the option of personalizing targets for each region based on their history and background (Bachtler & Ferry, 2015).

The second level of interventions involves reorienting local policy-makers' mental models, which can be done in parallel with the previously described structural ones. Specific actions may entail the adoption of performance indicators that highlight regional cofinance reductions and the use of retrospective projects and, in general, account for any eventual shortcut mechanisms. The development of such performance indicators may improve the EU assessment of the system's state and render the regional policy-makers' political accountability evident to their local electors.

Nevertheless, the proposed policies may correct or limit the undesired effects generated by the shortcut policies, but they cannot change the CP implementation paradigm, which is the root cause, in the long term. Interestingly, paradigm changes have recently become part of the debate on future CP directions (Bachtler et al., 2019). LMAs' actual mental models direct the efforts toward the compliance with a set of norms that regulate the financial process. This situation occurs due to: (i) the pressure for certifying expenditures, (ii) the risk of audit controls which could lead to implementation interruptions or resource restitutions, and (iii) the fear of the EU decommitments, rendering the financial management as the "centre of gravity" of CP implementation (Davies & Polverari, 2011; Polverari, 2011, 2015; Rainoldi, 2010). Therefore, a change in paradigm could shift this centre toward different objectives (e.g., project quality) that could unleash the CP potential. Although this type of actions entails a comprehensive discussion of the policy framework, there are also some targeted and less complicated interventions that could move the system in this direction. Specifically, reconstructing the decommitments mechanism could be a fundamental long-term solution, while several options exist for redesigning them. A provocative approach, which we define as "new mechanism of automatic takeover" would support assigning the Commission (or a mixed task force made up by EU and national officers) the task of directly managing the funds to be decommitted, instead of revoking them automatically. Indicatively, the new mechanism could convert the decommitted funds into "direct funds" (e.g., Horizon 2020 scheme). For example, Italy, which experienced absorption issues, conversely was efficient in applying and managing directly funded schemes (Chiellino, 2018). With this approach, the Commission can assist in absorbing funds and support the local population (the actual CP goal) to avoid the negative consequences of the decommitments on the citizens' quality of life. This would also provide a completely different "message"; the EU could be perceived even more as a concrete assistant of local communities and not as a "punisher." Moreover, the EU could have a first-hand experience of the problems that the LMAs experience to gather knowledge for improving future policy schemes. Nonetheless, this intervention

is envisioned to work as a deterrent to inefficient performances since having part of EU funds commissioned is a politically undesired outcome for local administrators. These interventions might be rather ambitious for implementation, as this process could require that the Commission should expand its capacity and rethink the political-administrative relationships and principles, such as vertical subsidiarity (Spicker, 1991). However, a more impactful and homogenous CP seems to require decisive changes in its underlying assumptions.

## 5 | CONCLUSIONS

Data series' plotting renders even more evident that some regions might have chronic problems in absorbing CP funds. In this study, we collected evidence through field research and literature about two regions with contrasting performances, extrapolated meaningful concepts using grounded theory, modeled them conceptually following the SD principles, and investigated insights gained through the different layers of the "iceberg" framework (Meadows, 2009). In this perspective, we offer a preliminary operational reconstruction of how the decisions taken by the local policy-makers produce unintended consequences and provide an explanation to the observed chronically low-absorption performances in several EU regions.

This situation appears to be an evident case of a systemic trap. Local policy-makers fail to solve the fundamental problem (i.e., low administrative capacity) since they focus on alleviating the problem's symptoms (i.e., through the short-term increase of the absorption rate). This phenomenon seems to be generated by the fact that the LMAs' mental models are more focused on increasing the absorption percentage rather than maximizing the absolute amount of investments. The root causes are connected with the LMAs' main political concern about avoiding the EU decommitments' policy, in case they cannot meet the absorption target on time. Therefore, the necessity of increasing the absorption rate favors the use of strategies that undermine the CP impact and purposes (e.g., lower investments). Several solutions can be implemented at the CP system structure (e.g., limiting the regional cofinance reduction or the retrospective projects' use) or at the LMAs' mental model layer. From this latter perspective, there is a need to intervene indicatively by introducing new key performance indicators (Cunico et al., 2021). However, the root solution appears to be the creation of tighter relationships among the implementation agents, ranging from a "simple" reform of the decommitments' mechanism to a more complex revision of the CP framework, entailing a radical change in the implementation paradigm. Notably, especially in the less developed regions, building administrative capabilities could be critical for their development (Bateira & Ferreira, 2002).

Although our study is based on the comparison between Calabria and Emilia-Romagna, it seems to have the potential to be generalizable (though, additional studies investigating this claim are necessary to increase confidence); it can serve not only as an explanatory framework for repeated poor performances in other Italian regions (Corte dei Conti, 2017; Milio, 2007) but also as analytical logic for European LMAs prone to use shortcut strategies to inflate CP absorption (European Court of Auditors, 2018). In this light, this study can be considered as primordial evidence that internal LMA dynamics can contribute to chronically low absorption rates and that local policy-makers' agency (e.g., mental models, decision-making, strategic motivation) could be a promising starting point for a new line of research within the CP and administrative capacity contexts (as suggested by Domorenok et al., 2021). To some extent, it can be speculated as a practical proof of a counterintuitive consequence generated by the adoption of financial accountability as a "centre of gravity" of the CP implementation (Davies & Polverari, 2011; Mendez & Bachtler, 2011; Polverari, 2011, 2015; Rainoldi, 2010). Specifically,

this study could set the ground for a meeting point between the theories of Blom-Hansen (2005) and Bachtler and Ferry (2015), further nurturing the debate about the EU control mechanisms. The latter authors claim the strong impact and effectiveness that the imposed conditionalities have on the LMAs. Our study supports this fact by showing how the decommitments mechanism affects the local policy-makers. In contrast, Blom-Hansen (2005) highlights that the EU mechanisms for CP control are weak since the LMAs can remould them. In fact, we proposed how the LMAs could try and succeed in circumventing the conditionalities imposed.

More in general, this study provides micro, operative, and practical examples of macro discussions within the existing literature. In their fundamental work on regional performance, Putnam (1993) showed how it depended strictly on the cultural background of the area. Specifically, they found that, in Italy, the medieval legacy of civic norms and networks could explain the visible differences between regional performances due to mechanisms of path dependency (Sabetti, 1996). However, building on that, Milio (2007) found that this is not valid in all cases, particularly regarding CP. By comparing southern Italian regions with similar cultural backgrounds, the author found that they exhibited different CP absorption performances. She explained that the true explanatory variable for such differences was the regions' diverse levels of administrative capacity; recent research has further supported her findings (Incaltarau et al., 2020; Surubaru, 2017; Tosun, 2014). Nonetheless, administrative capacity by itself as a static concept falls short of explaining why some regions persist in their poor performance while others improve, given the technical support national and EU authorities provide. On the top of that, Blom-Hansen (2005) and Domorenok et al. (2021) have highlighted how researchers tend to overlook the micro aspects in regional and CP studies in favor of more top-down and macro approaches. Our study joins this discussion by showcasing how it is also important to pay attention to the micro aspects of decision-making if we aim to fully understand the phenomenon of regional performance. In other words, the insights gained through this study suggest that, when studying regions and their performances, it is important to assess their formal and informal institutional contexts (macro approach; e.g., Milio, 2007; Putnam, 1993) but also to analyse the specific decision-making process (micro approach; e.g., Blom-Hansen, 2005; Domorenok et al., 2021) as they both ultimately concur, as well, in shaping regional behavior. Future theoretical efforts should further attempt to combine both approaches to provide a more robust understanding of the phenomenon.

Given the different set of insights gained through the adopted method, researchers in the future should also consider using more operational research methods when approaching CP and multilevel-governance contexts. Ensuing studies could adopt dynamic perspectives and investigate systemic structures and mental models of other CP agents to confirm the insights obtained and uncover further elements of interest. Specifically, the comparison with other LMAs internal decision-making processes are encouraged to deepen these preliminary results. However, as LMAs operate in different EU countries, the proposed explanation for their chronic poor performances should be further studied under the scope of diverse political and socioeconomic characteristics to provide effective and tailored solutions to the problem. In addition, SD practitioners should be involved more actively in the multilevel-governance debate since they could provide valuable expertize. This study highlights the necessity of adopting holistic and participatory approaches to embrace a systemic, multi-stakeholder, and longitudinal perspective of analysis when designing policies in multilevel-governance systems. The local agents in charge of implementation might have different agendas compared to the ones expected by the EU policy-makers, thus driving the system toward unexpected behaviors. SD in its participatory form (Vennix, 1996) could fit this scope, decreasing the probability of anticipating unexpected and unintended outcomes.

From a more practical perspective, this study also unveils the importance of the policy-makers' mental models in a multilevel-governance context and how regulators need to comprehend them to limit the emergence of systemic traps. Our study updates the discussion on the actual objectives of the CP and its future directions offering new perspectives (Begg, 2010; De Rynck & McAleavey, 2001; Stephenson, 2013), analyzes the risk of unintended consequences (Mendez & Bachtler, 2011) due to excessive focus on the financial dimension (Polverari, 2015), sheds light on the interaction of administrative capacity with the political sphere (Hagemann, 2019; Incaltarau et al., 2020), as well as highlights the necessity of a paradigm shift (Bachtler et al., 2019) and the importance of adopting a new point of view in the conceptual framework (Zahariadis, 2013), further showcasing how the mechanisms of democratic political accountability unfold in multilevel-governance environments (Papadopoulos, 2007).

Finally, this study uses data collected up to 2019. Since then, many aspects have changed both in the EU and worldwide. Several crises have occurred and are still going on (e.g., COVID-19 pandemic, war in Ukraine). It may be anticipated that CP (and, more in general, any EU regional and redistributive policy) will be constantly carried out under crisis circumstances and used to mitigate their consequences. Although it is unknown whether and when the world will stop being unstable, we expect that the provided insights can still apply and be meaningful. The period considered in our analysis already covers some important crises that significantly affected the Italian regions used as case studies (e.g., financial and national debt crises between 2007-mid 2010s). Although given the crises' pressures policy-makers were expected to focus more on spending the funds more efficiently, underperformance and systemic traps due to local policy-makers' mental models still occurred in this time frame. Therefore, anticipating and avoiding the bottlenecks that the local policy-making may generate is even more crucial in turbulent times in which EU provides regions with even more funds than usual.

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## CONFLICT OF INTEREST

The authors declare no conflict of interest.

## ORCID

*Giovanni Cunico* http://orcid.org/0000-0003-0450-7725
*Eirini Aivazidou* http://orcid.org/0000-0002-4208-2361
*Edoardo Mollona* https://orcid.org/0000-0001-9496-8618

## ENDNOTE

[1] Although in the common language structural funds often refer to the funds operating under the Cohesion Policy (CP) framework (i.e., European Regional Development Fund [ERDF], the Cohesion Fund [CF], and the European Social Fund [ESF]), they are part of a broad set of financial instruments governed and used by

the European Commission to pursue its regional policy objectives (OECD, 2020). Thus, structural funds further include the European Agricultural Fund for Rural Development (EAFRD) and the European Maritime, Fisheries and Aquaculture Fund (EMFAF). The first belongs to the Common Agricultural Policy (CAP), while the second is implemented under the Common Fisheries Policy (CFP). Although this study focuses on CP funds, the authors employ the terminology "structural funds" as it could be a more familiar term to a larger audience commonly used by the media.

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## AUTHOR BIOGRAPHIES

**Giovanni Cunico** has worked as a Research Fellow in the project PERCEIVE, an EU funded action aiming at improving policy-makers understanding of the EU regional policy implementation and communication, at the University of Bologna (Italy). After obtaining a Bachelor in Political Science at the University of Trento (Italy) and graduating from the European Master in System Dynamics, he is currently a PhD candidate at the University of New South Wales (Australia). He is interested in applying system dynamics and participatory approaches to policy development environments, grand challenges and sustainability-related issues.

**Eirini Aivazidou** is an Assistant Professor in Engineering Economics and Management at the Department of Industrial Engineering and Management of the International Hellenic University, Greece. She served as a Researcher at the University of Bologna, Italy, the Centre of Research and Technology – Hellas, and the Aristotle University of Thessaloniki, Greece. She holds a PhD in Sustainable Supply Chain Management (funded by the Onassis Foundation), an MSc in Transportation Engineering, and a Diploma in Mechanical Engineering. She has participated at European projects (H2020 "PERCEIVE," FP7 "GREEN-AgriChains") and published more than 20 articles in peer-review journals (e.g., European Journal of Operational Research).

**Prof. Edoardo Mollona** graduated cum laude in Strategic Management at Bocconi University in Italy and received a PhD degree in Strategic Management/Decision Sciences at the London Business School. He is currently full professor of Business Ethics and Corporate Strategy in the Department of Computer Science and Engineering at the University of Bologna. He conducts research on the relation between corporate and politics, on privatization processes and on the formal modeling of corporate behavior and long-term strategy sustainability. In this area of investigation, he has published books and journal articles and he has been principal investigator of EU-funded research projects.

## SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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## APPENDIX A

The interviews were semi-structured; the interviewers prepared a set of broad questions but were also willing to deviate from the script and inquire about other significant aspects based on the interviewees' answers. During the interviews, all the research team (usually two or three researchers) collected notes parallelly. The notes were then compared to get a more consistent and robust interpretation of the interviews and avoid misinterpretation.

To conduct the workshop, the guidelines provided by Vennix (1996) were followed. The authors facilitated both workshops. Elicitation techniques were initially used both times to collect knowledge from the participants such as brainstorming and round-robin ideas proposals. These were followed by convergent techniques that allowed to integrate the ideas collected together within one SD model structure.

Given that we presented each time an updated version of the model to the interviewees and workshop participants, they provided feedback on the validity of our model working in progress. This allowed us to have a continuous validation process of the model under construction (Table A1).

**TABLE A1** Interviews and workshop information

| Type | Number of participants | Participants' job titles | Organization type | Date and length |
|---|---|---|---|---|
| Interview | 1 | CEO | Private company (both beneficiary and intermediary company) | 17th April 2018, 105 min |
| | 2 | Researchers | University | 11th June 2018, 100 min |
| | 1 | Journalist | Newspaper | 25th June 2018, 140 min |
| | 1 | Officer | Local managing authorities (LMAs) | 10th July 2018, 150 min |
| | 1 | Employee | European Structural Fund (ESF) funded project participant | 17th September 2018, 50 min |
| | 1 | Officer | Europe Direct | 20th September 2018, 110 min |
| | 1 | Researcher | University | 25th September 2018, 110 min |
| | 1 | Officer | LMA | 25th September 2018, 80 min |
| | 1 | CEO | Private company delivering ESF funded courses | 5th October 2018, 60 min |
| | 2 | Researchers | University | 5th October 2018, 70 min |
| | 2 | Officers | Open Coesione (Italian Open Government initiative about Cohesion Policy) | 2nd December 2018, 100 min |
| | 2 | Officers | LMA | 26th February 2019, 150 min |
| Workshop | Approx. 20 | LMA officers, EU officers, researchers | | 26th October 2018, 300 min |
| Workshop | Approx. 15 | LMA officers, EU officers, researchers | | 18th June 2019, 120 min |

## APPENDIX B

Figure B2 is a qualitative representation of the causal structure of the model developed. The model was calibrated to simulate the European Regional Development Fund (ERDF), one of the constituents of the structural funds. It simulates the total absorption rate (i.e., both regional and EU contributions) of Emilia-Romagna region (Italy) over three policy cycles (2000–2006,

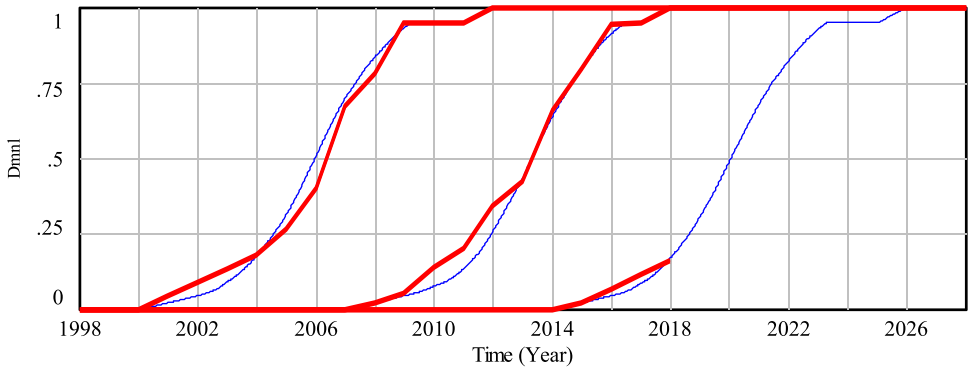


FIGURE B1 Absorption rates (thick red line—reference data; thin blue line—simulated)

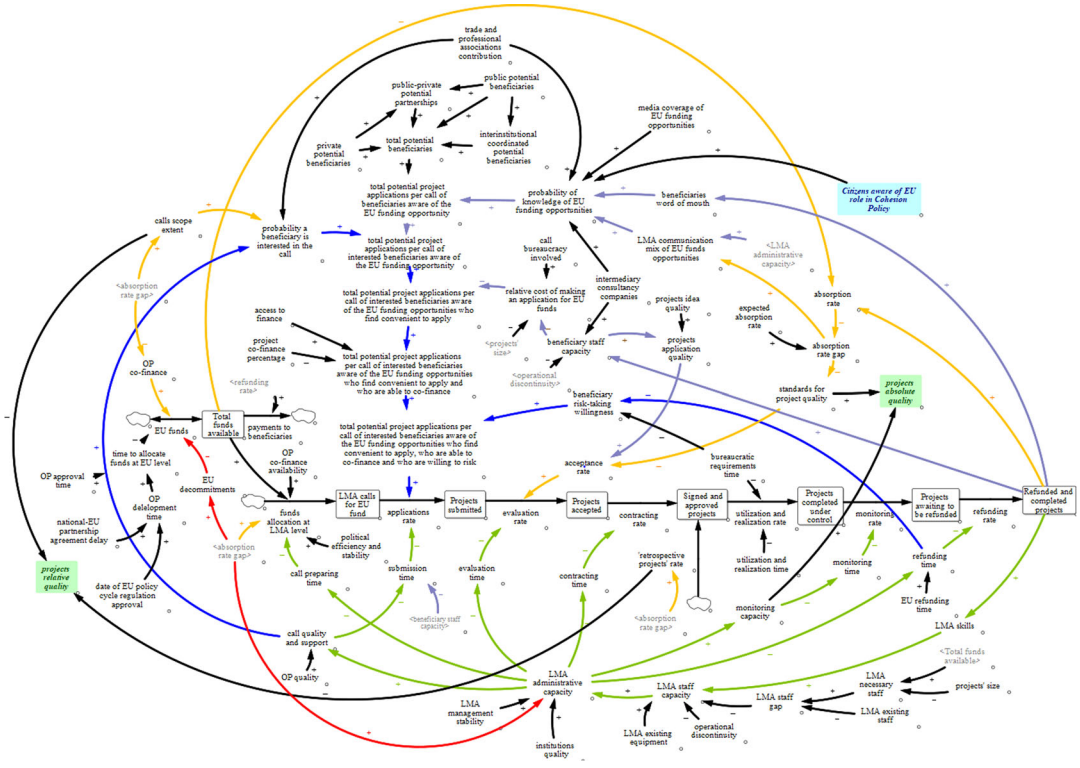


FIGURE B2 Cohesion Policy implementation system dynamics model (Links: black—main pipeline of funds absorption; green—internal local managing authorities (LMAs) operations; pink—external factors; blue—beneficiaries' dynamics; orange—funds' absorption and LMA policies; red—EU Commission decommitment policy expected effects)

2007–2013, and, partially, 2014–2020 till data were available). Data on absorption were retrieved from official annual reports acquired through email EU officers since that information were not available to the public. Concerning program period 2000–2006, data starts from 2003 so for the period 2000–2003 regular and constant absorption is assumed.

Figure B1 shows how the model's simulation outputs mimic the real time series (reference modes). Overall, the simulation runs replicate to a sufficient extent the S-shaped growth visible in the absorption data, providing further confidence in the realism of the model structure. In fact, the capacity of an SD model to replicate real data series provides a fundamental formal validation of its quality and validity (Barlas, 1996; Sterman, 2000). Additional rigorous validation tests were performed to provide confidence (Barlas, 1996): dimensional consistency, walkthroughs, extreme conditions tests, behavior sensitivity tests, modified-behavior predictions, formal inspections, and structure and parameter confirmation test.

## APPENDIX C

(Figure C1)

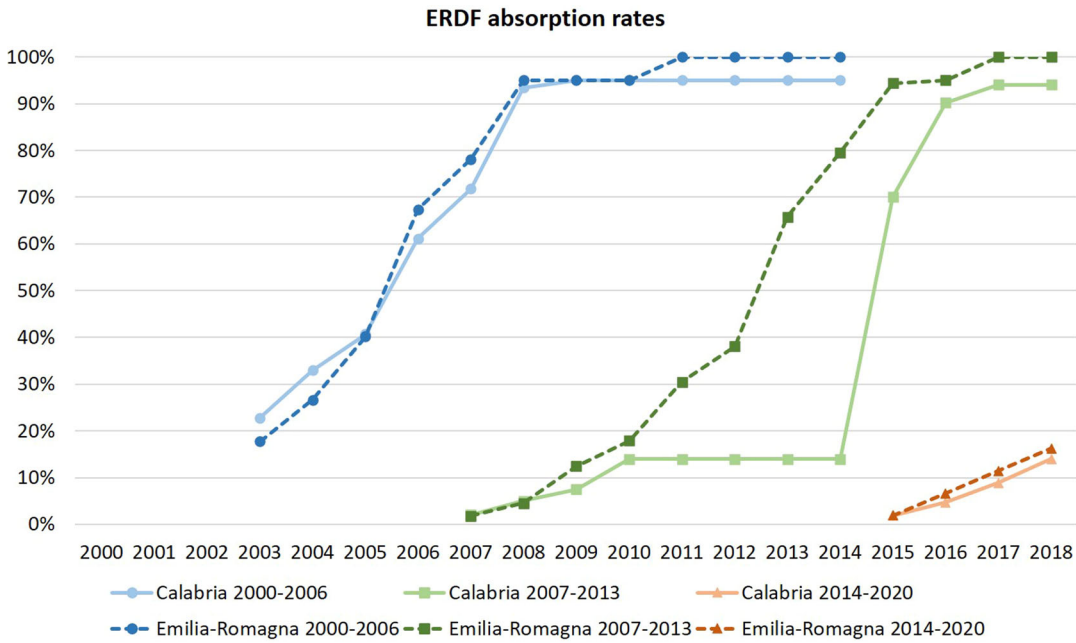


FIGURE C1 Time series for European Regional Development Funds (ERDF) absorption rate in Calabria (Italy) and Emilia-Romagna (Italy)