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## Article

# Small Wins through Inducement Prizes: Introducing Challenge-Oriented Regional Prizes (CORP)

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**Abstract:** There is an emerging consensus that innovation policies must be geared towards solving societal challenges. The policy complexity of the third generation of innovation policy (TGIP), however, puts less-developed European regions at risk of being left behind from this novel policy paradigm due to lower institutional and governance capacities. Building on the concept of a small wins strategy that focuses on small-scale and bottom-up initiatives that are guided by a shared mission to address wicked problems, the article's methodology uses expert interviews, examples of challenge prizes, and desk research to explore whether inducement prizes can potentially engage less-developed regions (LDRs) in TGIP to address place-based societal challenges through a small wins strategy. The article introduces the concept of a challenge-oriented regional prize (CORP) as a stepping-stone policy tool to engage LDRs in TGIP through a small wins strategy, namely regarding issues of directionality, legitimacy, responsibility, and strategic orientation. CORPs are, however, not a silver bullet policy tool for LDRs to engage in TGIPs due to their design and implementation constraints.

**Keywords:** inducement prizes; societal challenges; open innovation; regional policy; mission-oriented innovation policy



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## 1. Introduction

There is an emerging consensus that innovation policies must be geared towards solving societal challenges such as climate change, pollution, biodiversity loss, obesity, or inequality [1,2]. The third generation of innovation policy (TGIP)—transformative innovation policies, challenge-oriented innovation policies, mission-oriented innovation policies—aims to address societal challenges [1,3,4]. Innovation policies have thus evolved from linear models focused on economic growth in the 1960s, to national innovation systems for competitiveness in the 1990s, to the most recent approaches oriented to transformative socio-technical regime changes and geared to solve societal challenges [1]. This shift is accompanied by a ‘normative turn’ in the regional innovation policy literature where established policy concepts are being reoriented to promote the green transition [5].

The third generation of innovation policy (TGIP) is a complex policy paradigm for regional policymakers who must develop new governance and administrative capacities to promote more systemic policymaking, to engage with legitimate, reflexive, and responsible governance arrangements, to coordinate policies across established regional policy silos, and to implement integrated policy-mixes to solve complex and wicked problems [1,6,7]. This new policy paradigm requires regional policymakers to address not just how to solve the societal challenge (which policy tools) but also fundamental issues of directionality (what future do we want), legitimacy (why do we want this future, who defines it), and responsibility (transformation by and for whom) [8]. These issues of directionality, legitimacy, and responsibility must be addressed when reorienting existing policy concepts towards TGIP [8].

The necessary policy transformation puts less-developed regions (LDRs) in the European Union (EU), which are regions whose per capita gross domestic product (GDP) is less than 75% of the EU average [9], at risk of being behind the policy bandwagon due to lower quality of their governments [10] and institutional capabilities [11]. The policy complexity of TGIP stems from the recognition that societal grand challenges require transformative changes beyond research and innovation to also include institutional, social, and organizational changes towards inclusiveness and sustainability [5,12]. There is thus a critical stance on whether LDRs have the administrative and governance capacities—which are the capacities to deliver tasks when given resources and authority—to even engage in such a complex policy paradigm [13,14].

The concept of small wins offers a promising avenue for regional policymakers in LDRs to engage in TGIP as small wins strategy focuses on small-scale and bottom-up initiatives that are guided by a shared agenda to address societal challenges [15,16] rather than through bold and radical changes stemming from the mission-oriented innovation policy framework [4]. Small wins emphasize that small, concrete, and consecutive actions can accumulate and reinforce themselves to lead to transformative changes [15–17]. They have four components. They should lead to concrete and visible results, shift current mindsets, operate at local and regional levels, and be endorsed by actors [16]. At the heart of a small wins strategy are propelling mechanisms—energizing, learning by doing, the logic of attraction, the bandwagon effect, and coupling—to overcome institutional, organizational, or knowledge barriers [15,16]. Several empirical studies illustrate the way that regional policies could contribute to these mechanisms and small wins effects [15,18]. There is, however, little knowledge as to how regional policymakers can initiate a small wins strategy to engage in TGIP, especially in LDR contexts.

Inducement prizes are often hailed as a very flexible policy tool that can deliver on a broad range of objectives [19,20], aiming to initiate research or innovative processes related to a specific issue by stimulating potential candidates with a monetary or non-monetary prize established by a sponsor ex-ante [21]. Innovation inducement prizes can be operationalized at different territorial levels—supranational with H2020 prizes, national with the challenge.gov platform, or local with Tampere hackathons—involving a broad range of actors to find a solution to a predefined challenge [22]. According to us, the policy flexibility and non-prescriptive approach of inducement prizes offers regional policymakers an opportunity to reorient the tool to address (i) regional societal challenges, and (ii) directionality, legitimacy, and responsibility concerns.

The article asks whether inducement prizes can be used in LDRs to engage in TGIP through a small wins strategy. The researchers conducted 11 semi-structured interviews with regional policymakers and prize experts to explore how inducement prizes could be operationalized to engage LDRs in TGIP through a small wins strategy. Following the call for ‘reinvention’ of regional innovation policy in an era of grand societal challenge [3,23], we reoriented an existing policy tool, the inducement prize, to align it with a small wins strategy to more broadly engage less-developed European regions in TGIPs. We thus introduce the concept of Challenge-Oriented Regional Prizes (CORPs) as one of the possible small wins strategies to engage LDRs in TGIP. CORPs are regional inducement prizes that aim to solve place-based societal challenges. The article provides some CORPs design and implementation recommendations for regional policymakers in LDRs to engage in TGIP through a small wins strategy.

## 2. Literature Review

The arguments in the literature review are the following: first, the third generation of innovation policy (TGIP) is a complex policy framework that is difficult to initiate in European regions with lower administrative and governance capacities. Second, regional policymakers in LDRs could adopt a small wins strategy to initiate and start engaging in TGIP. Due to their non-prescriptive approach and policy flexibility, inducement prizes

could be reoriented and used as a small wins strategy to engage in addressing (i) regional societal challenges, and (ii) directionality, legitimacy, and responsibility concerns.

### 2.1. Towards Third Generation Innovation Policies (TGIPs)

The shift towards the third generation of innovation policy (TGIP) emerged to respond to some shortcomings in the literature on innovation systems that focus on narrow systemic failures leading to policy fragmentations and that are geared towards market-based and technology-driven solutions to strengthen innovation systems [4,6,24]. TGIP aims to solve societal challenges and recognizes that economic growth has not only a rate but also a directionality, that a shared public–private–civil societal agenda must be constructed to reach legitimacy imperatives, that the state has a role in shaping new markets, and that there is a need for policy experimentation and a right to fail [1,4,12,24]. TGIP is distinctive from previous generations of innovation policies, as it aims to promote transition and disruption in socio-technical systems and offers a strong rationale for policy experimentations [25].

TGIPs such as missions can be categorized along three dimensions involving different features, namely their strategic orientations (legitimacy, directionality, intentionality, flexibility), their policy coordination (horizontality, verticality, intensity, novelty), and policy implementation (policy mix consistency, fundability, evaluability, reflexivity) [6]. Although TGIPs can have different features, TGIPs have in common that they include integrated arrangements that foster strategic orientations with a shared agenda to address some societal challenge, holistic policy coordination across policy silos, and an integrated implementation and policy mix [6].

National and regional policymakers are starting to operationalize the TGIP, such as, for instance, mini missions in Amsterdam, the Netherlands; strategic innovation programs (SIPs) in Sweden; renewable energies in the region of Schleswig-Holstein, Germany; shared agenda in Catalonia, Spain [25–28]. Despite their high administrative and governance capacities, that is, their capacities to act and deliver tasks [8], these innovative regions have faced several difficulties, such as multi-level policy coordination, bridging silos, demand articulation, directionality, and reflexivity when implementing mission- and challenge-oriented innovation policies highlighting the policy complexity of TGIP. Despite innovative regions adopting policy-mixes to promote the green transition, they also have many difficulties in engaging civil society more broadly [29].

TGIP builds on existing regional administrative and governance capacities and cannot be designed from scratch. Policymaking follows a path-dependent process. The OECD [6] found that national and regional mission-oriented innovation policy initiatives were not designed as missions but became rebranded as missions through a gradual policy reorientation. TGIPs not only require a capacity to learn and reflect from policy experiments in existing or new initiatives (reflexivity) but also a high-level political commitment. As a result, it is unclear to which extent LDRs can engage in TGIP. For instance, Cappellano et al. [14] suggested that regions have different capacities that must be combined through greater interregional coordination to find effective policy solutions to complex societal challenges.

The small wins strategy can offer regional policymakers a possible path forward to engage in “a logic of stimulating distributed innovation efforts to foster gradual, yet in-depth change in a desired direction” that could be more operationalizable in less-developed European contexts than large-scale, radical, and broad missions ([15], p. 2). In the LDR context, the small wins strategy can be about building regional administrative and governance capacities to engage in directionality, legitimacy, and responsibility issues, thus further engaging in TGIP.

### 2.2. The Use of Inducement Prizes for Innovation

Inducement prizes could be one of the small wins strategies to initiate regional transformative changes. An inducement prize contest is one of the oldest innovation policy measures that has been used to solve a wide variety of societal and technical challenges. Inducement prizes aim to solve a wide range of diverse challenges by offering a compen-

sation reward that can be monetary or non-monetary [30,31]. Prizes are a flexible policy tool that engage a broad audience and diverse groups of actors and sponsors to deliver solutions to challenges thanks to its low barriers of entry. The main objectives of innovation inducement prizes are to orient research efforts and to incentivize the creation of a desired technology [32].

Inducement prizes are often seen as a complement to grants and contracts to encourage technological innovation. Prizes are especially suitable when the objectives are concrete enough to be defined but the means to achieve them are too iterative, speculative, and uncertain for a grant or procurement [33]. In the case of research and innovation grants, the funding agency selects the grantees based on their capacities to deliver the expected results and their methodological approaches [33]. In the case of inducement prizes, the funding agency is not prescriptive as to whom and to how challenges must be addressed. Moreover, inducement prizes select the best solutions and not the principal investigator who is expected to deliver the best possible solution. Inducement prizes are also different from public procurement as they have a broader range of participants thanks to lower entry barriers, reward performance, and are success-contingent, leverage outside resources, and duplicate efforts, thus offering a broad range of solutions to address the same challenge, shift risk from the prize sponsors to competitors, are less prescriptive, and attract public interest and awareness [34].

The renewed public and private Interests in innovation inducement prizes emerged with the creation of the philanthropic X Prize Foundation in 1996, which gathered private sponsors such as Cisco, Google, Nokia, Qualcomm, and the Steel Oil companies under the leadership of Peter Diamandis [19,20]. The United States (US) government widely uses inducement prizes through different federal agencies, such as the National Aeronautics and Space Administration (NASA) and the Defense Advanced Research Projects Agency (DARPA), to solve different types of challenges from space exploration, defense, to energy and climate change [33]. Under President Obama's Strategy for American Innovation, in 2010 the United States (US) government launched the online platform challenge.gov that is managed by the General Services Administration (GSA) to centralize the publication of more than 1200 innovation inducement prizes from federal agencies with the objectives "to (1) bring new ideas to the table from unlikely sources to support major breakthroughs on enduring social and technological challenges and (2) to help address social needs in addition to science and technology challenges" [32,35,36]. In the European Union, there have also been efforts to promote the use of innovation inducement prizes in Horizon 2020 and Horizon Europe such as European Innovation Council Horizon Prizes for breakthrough innovation to solve societal challenges or Horizon prizes to solve innovation challenges [19].

The inducement prize is a flexible policy tool that has many benefits for sponsors such as identifying excellence, influencing public perception, engaging communities on specific problems, mobilizing a large and diverse pool of problem-solvers, strengthening problem-solving communities, educating individuals, and mobilizing capital [33,37]. Moreover, prizes can push participants to think outside the box and not only offer commercial incentives but, more importantly, motivations such as prestige and media exposure [38]. However, prizes have five main limitations and legitimacy concerns [33,39]. First, they can be seen as a "quick technological fix" to complex societal challenges. Second, they can lead to duplication efforts from competing teams to address the same societal challenge. Third, they require participants to self-fund themselves, thus limiting the participation of lower-income groups and small- and medium-sized enterprises (SMEs). Fourth, they can divest funds for traditional research grants. Fifth, they do not work for long-term fundamental research.

Inducement prizes can be part of the regional policy-mix to promote the generation and diffusion of innovation [40]. Regional innovation policies are devised in a multi-actor and multi-level context that can include a broad range of policy instruments such as direct and indirect measures, as well as demand-side and supply-side policy tools [40,41]. The policy rationale to promote competitiveness through reducing market and system failures

legitimizes policy interventions [42]. The recent policy debates about orientating innovation policies towards responding to societal challenges, rather than competitiveness only, “call for new lines of argumentation to systematically legitimize policy interventions” that favor policy experimentations [2,12] (p.1037).

A small wins strategy can promote this policy experimentation through gradual policy changes [15–17]. Inducement prizes can constitute a small wins strategy as they can lead to concrete and visible results, shift current mindsets, operate at the local and regional levels, and be endorsed by actors [19,20,32,37,43]. Small wins advocates for a bottom-up governance strategy for regional innovation policy to deal with grand societal challenges where propelling mechanisms—energizing, learning by doing, the logic of attraction, the bandwagon effect, and coupling—can overcome institutional, organizational, or knowledge barriers [15,16]. Thanks to its flexibility, inducement prizes have propelling mechanisms that can foster policy capacity-building (see Table 1).

**Table 1.** Small wins’ propelling mechanisms and inducement prizes. Source: the authors.

Small Wins’ Propelling Mechanisms	Inducement Prize Effect on Policy Capacity-Building	Supporting Literature
Energizing	Inducement prizes have a stimulating effect on the solvers and sponsors to build capacities	See [19,44,45]
Learning by doing	Sponsors learn by doing successive inducement prize rounds	See [32,37,43]
The logic of attraction	Prizes’ communication reinforces access to a broad audience and sponsors	See [19]
The bandwagon effect	Inducement prizes have increasingly been adopted in a broad range of territorial and governance levels to address a broad range of challenges.	See [20,22,35,37]
Coupling	Inducement prizes initiatives have been coupled with other initiatives and policy tools such as innovation procurement.	See [22,28,36]
Robustness	Inducement prizes have become numerous and institutionalized.	See [35,46]

### 3. Methodology

The research methodology uses 11 semi-structured interviews and secondary data to explore whether an inducement prize could be an effective policy tool in less-developed regions (LDRs) to engage in TGIPs through a small wins strategy, namely regarding directionality, legitimacy, and responsibility issues. The research conducted for this article is based on two sources of primary and secondary data: semi-structured interviews and desk research. The researchers conducted 11 semi-structured expert interviews from October 2022 to November 2022—lasting from 30 to 60 min—to gather extensive data on aspects of the research question (see Table 2). The semi-structured expert interviews were conducted with six regional challenge prizes’ representatives, and five academics and inducement prize experts from INNOCHALLENGE, NESTA, the OECD, and SITRA.

The researchers conducted semi-structured interviews—which were transcribed, coded, and analyzed—with experts who were identified through secondary documents based on their expertise on the topic of inducement prizes and with regional policymakers, namely in less-developed European regions, to gather data on five regional challenge prizes. The examples of inducement prizes were identified in the Interreg Europe Policy Learning Platform database that has gathered more than 3000 good practices in regional development policies [47]. The semi-structured expert interviews followed an interview guide that was adjusted to the specific role of each interviewee, namely whether they are regional practitioners or inducement prizes experts. The interview guide used questions in the OECD [6] (p. 38) report and aimed to explore the directionality, legitimacy, and responsibility of inducement prizes, the design and implementation of inducement prizes, and their policy transferability in LDRs. The regional practitioners were asked questions regarding the directionality, legitimacy, and responsibility of inducement prizes and their design and implementation, while prize experts were also asked questions regarding their policy transferability in LDRs.

**Table 2.** List of interviews. Source: the authors.

Interview	Type of Organization	Country	Date
INT1	Regional Council	Portugal	13/10/2022
INT2	Innovation Agency	Italy	14/06/2022
INT3	University	Greece	21/10/2022
INT4	OECD	France	21/10/2022
INT5	Innovation Agency	United Kingdom	20/10/2022
INT6	Private Company	Estonia	14/10/2022
INT7	University	Finland	02/11/2022
INT8	Intermediary Organization	Italy	21/10/2022
INT9	Innovation Agency	Ireland	11/11/2022
INT10	Regional Council	Poland	03/11/2022
INT11	Intermediary Organization	Bulgaria	10/11/2022

The desk research consisted of building the interviewers' expert knowledge on regional inducement prizes and then triangulated with the semi-structured expert interviews. The desk research mainly came from three sources: academic articles on inducement prizes; reports on inducement prizes from consulting companies, innovation agencies, not-for-profit organizations, and international organizations; and regional practices from Interreg Europe good practice database. The data analysis consisted of triangulating the gathered information to "produce empirically-based findings" and were coded to understand whether inducement prizes have some TGIP characteristics, namely regarding directionality, legitimacy, and responsibility issues [48] (p. 132), with the objective of exploring to what extent they can be used in LDRs. The data from the interviews and desk research were used to build a policy tool and to reorient inducement prizes to be more aligned with small wins strategy that will be introduced at a later stage—the Challenge-Oriented Regional Prizes (CORP).

#### 4. Illustrative Examples

The four selected prizes are: a top-down regional initiative to promote electric vehicles through a competition to win electric charging stations in the Azores, Portugal; a hackathon to respond to urban challenges in Sofia, Bulgaria; and three open innovation regional challenges to solve business and public sector needs in Trento and Lazio, Italy (see Table 3). The interviews with the four challenge prizes' representatives uncovered some relevant features of inducement prizes as a small wins strategy with certain propelling mechanisms to engage LDRs in TGIP while addressing some issues related to strategic orientation, directionality, legitimacy, and responsibility. For instance, in Azores, the charging station prize illustrated how to strengthen regional directionality issues; the open innovation challenges and hackathon illustrated the legitimacy issues by identifying challenges and rewarding the solutions. The semi-structured interviews with experts provided a critical frame to the range of possibilities and limits of inducement prizes in TGIPs, illustrating their role as a preliminary policy tool to "initiate change" (INT11) to give a strategic orientation through community-involvement and to reach "beyond the usual suspects of innovation" (INT5).

Among the examples of regional challenge prizes, the hackathon challenge prize in Sofia, Bulgaria, is the example that is closest to a small wins strategy due to having every propelling mechanism (see Table 4) and providing strategic orientation, directionality, legitimacy, and responsibility, thus engaging the region in TGIP. Sofia Development Association (SDA), a not-for-profit association that was created by Sofia Municipality, aims "to promote quadruple helix engagement and to pilot and test innovative solutions" (INT11). SDA has organized more than 20 different hackathons that are competitions to address

place-based challenges in Sofia. SDA started to use hackathons to find solutions to specific urban challenges due to the shortcomings of public procurement tools as they “require specific expectations to not be contested and need to be really clear about the expected solutions” (INT11). In November 2022, the Sofia Development Association organized the hackathon “InnoAirChallenge: just green transition and urban mobility”, which is funded by the European initiative Urban Innovative Actions to find urban mobility technological solutions in Sofia.

**Table 3.** Overview of the regional prizes that were explored. Source: the authors.

Region	Country	Description	Organization	Solvers	Prizes	TGIP Characteristics	Propelling Mechanisms
Sofia	Bulgaria	One-month competition to solve urban challenges (e.g., traffic congestion)	Not-for-profit	University students; Startups civil society	Monetary	Directionality, legitimacy, responsibility	Energizing, learning by doing, the logic of attraction, bandwagon effect, coupling, robustness
Trento	Italy	Open innovation challenge to find solutions to large companies’ or government’s challenges	Public–Private	Startups; SMEs	Services	Legitimacy	Energizing, learning by doing, bandwagon effect, coupling
Lazio	Italy	Open innovation challenge to find solutions to large companies’ R&D challenges	Innovation Agency	Startups	Monetary	Legitimacy	Energizing, learning by doing, robustness
Azores	Portugal	Competition for designing a roadmap for energy efficiency	Public	Public and Private companies	E-charging station	Directionality	Energizing, learning by doing

**Table 4.** Quotes illustrating small wins’ propelling mechanisms of inducement prizes. Source: the authors.

Small Wins’ Propelling Mechanisms	Selected Quotes
Energizing	<p>“The administrative work at the beginning it was really hard to come out with the rules of the challenge” (INT2).</p> <p>“The city administration actually starts to understand better the risks, the implications, the benefits, the whole process” (INT11).</p>
Learning by doing	<p>“We found out that it was too expensive for companies to accept the prizes and to install the e-charging station. Next prizes, we will include not only the equipment but also the installation costs” (INT1).</p>
The logic of attraction	<p>“It engages variety of stakeholders. It also has an educational value because it being a competition it also stirs excitement and it’s easily communicated, it’s more visible. So it helps us get important issues into the public agenda just because it communicates much more easily than a new public policy or just some sort of more administrative thing” (INT11).</p> <p>“We already have a community of people that are waiting for the next hackathon, we have schools, universities, we have media that are interested. And it is really easy to communicate. Really easy because previous winners of hackathon who tell their stories” (INT11).</p>



Table 4. Cont.

Small Wins' Propelling Mechanisms	Selected Quotes
The bandwagon effect	<p>"At the beginning, we used to launch the challenge just within Italy but now it's already one year that we have international open innovation calls" (INT2).</p> <p>"We always try to have someone from the national association municipalities in Bulgaria so they can scale up and replicate solutions in other cities" (INT11).</p>
Coupling	<p>"We wanted to try different types of cameras and devices that count bicycles before organizing public procurement" (INT11).</p> <p>"Ideally, we want to have a pipeline where the innovation contest is one of the tools of a broader strategy to foster innovation. The innovation contest is at the very beginning of this pipeline" (INT8).</p>
Robustness	<p>"Northern Hessen in Germany has chosen to transfer our open innovation challenge in their contexts" (INT2).</p> <p>"It is the only Bulgarian project funded by the Urban Innovative Actions initiative" (INT11).</p>

Following the call for 'reinvention' of regional innovation policy in an era of grand societal challenge [3,23], we use interviews and secondary data to reorient inducement prizes towards a small wins strategy to initiate changes and is largely inspired by the example of the hackathon challenge prize in Sofia, Bulgaria. Coming from more innovative regions, examples of such inducement prize mechanisms geared towards a small wins strategy are hackathons in Tampere, Finland, or mini-missions in Amsterdam, the Netherlands [22,28].

### 5. Introducing Challenge-Oriented Regional Prizes (CORP)

An innovation inducement prize is a flexible policy tool that can be designed along different criteria such as to define the challenge broadly or narrowly, to have public, private, or public–private sponsors, to have prizes that are monetary, non-monetary, or a combination of the two, and to have discrete or complex evaluation criteria [30,43]. Thanks to their policy flexibility compared to other innovation policy measures, there is a wide range of policy rationales for the use of inducement prizes, ranging from addressing market and system failures to building new markets and promoting public engagement [30,32,37]. Inducement prizes can thus be designed to be geared towards addressing place-based societal challenges and having a challenge-oriented approach. Therefore, we have constructed the concept of a challenge-oriented regional prize (CORP) that has the objective of solving place-based societal challenges through a small wins strategy. The operationalization at the regional level of such prizes is also guided by the strong knowledge that regional policymakers have of their innovation ecosystems [3].

CORPs allow sponsors to break down a complex societal challenge into manageable and coherent regional challenges that can be regionally addressed with place-based solutions [49]. CORPs are guided by the idea of small wins rather than 'big wins' through radical innovations to solve societal challenges [15]. Challenge prizes allow "to look at the scale in terms of lots of small innovations on the periphery in the ecosystem that come together and create change" (INT5). As a result, CORPs offer a policy measure for LDRs to promote small wins and to gradually participate in TGIPs by engaging citizens in the design and implementation policy process and establishing novel governance arrangements to promote policy experimentation. CORPs can thus strengthen interactions among quadruple helix stakeholders within the regional innovation ecosystem but also outside the innovation ecosystem [50].

CORPs must be carefully designed not only to identify the regional challenge and to attract the most competent solvers but also to answer questions such as selecting co-sponsors, defining the eligibility of participants, creating the competition's rules, defining participant's rights such as regarding intellectual property right issues, setting the awards and their criteria, and finding ways to capture the imagination of the public. The CORP design must be the outcome of a quadruple helix collaboration to reinforce its legitimacy. Indeed, the CORP design will have implications for the types of solutions that will be provided [51].

Prizes have a long history, and thus the design of CORP can follow some general guidance and recommendations, such as from the challenge.gov toolkit, INNOCHALLENGE Horizon 2020 project, or NESTA challenge prizes practice guide. For instance, the National Aeronautics and Space Administration (NASA) has widely used prizes, has a dedicated platform, NASA Solve, for prizes, and has given six recommendations for designing prizes. They are (1) the simpler, the better, (2) prizes must be relevant to the agency mission, (3) they must have the right level of difficulty, (4) they must be follow-on opportunities, (5) they must raise the interest of co-sponsors and competitors, and (6) they must foster public excitement [52]. To successfully design CORPs, regional policymakers must first learn from experienced experts and innovation agencies that have successfully implemented challenge-oriented prizes [53].

CORPs are not a one size fits all policy tool to solve any place-based societal challenges. As pointed out: “a lot of people think that inducement prizes are easy to run, and they are not [ . . . ] I don’t think they (governments) have the organizational agility to be able to employ prizes” (INT5). CORPs are “a good tool for the initial phase of a thing, of a process, of a policy. It’s very good for initiation” (INT11). Moreover, CORPs’ main benefits are “engagement of stakeholders and flexibility in solutions” (INT11). Regional sponsors must align the societal challenge to be addressed with the organizational architecture of the contest [54]. For the CORP design, regional policymakers must pay attention to four points. First, regional sponsors must assess whether multiple place-based solutions to the place-based societal challenge or part of it are possible given the budget and constraints. The place-based societal challenge must be identified through participatory process involving the public and broader civil society to provide strong directionality and legitimacy to the identified societal challenge see [22]. As pointed out:

“The topic of the challenge that you propose is of great importance. Because people are more likely to participate when the challenge is something they feel very strongly about. Particularly if they believe they could mend, they could prepare, they could propose something better” (INT11).

Moreover, there must be enough potential regional solvers who are willing to absorb the risk of competing in the CORP. Second, CORPs must follow an open and non-prescriptive approach that focuses on place-based challenges rather than solutions. This is aligned with the call for more experimental and tentative governance arrangements to respond to regional societal challenges [55]. In LDRs that often lack scientific and technological endowments, the identified place-based challenges must reflect place-based capacities to address them. Thus, place-based challenges that involve institutional, organizational, public-engagement, social, societal solutions, or technological solutions through recombination must be prioritized. Third, public sponsors must find ways to attract regional media attention, private, and philanthropic co-sponsors, as well as the interest of a broad range of participants who can bring multiple possible solutions to the same challenge. Private and philanthropic co-sponsors are especially important for offering monetary prizes, as “public institutions are not allowed to use taxpayers’ money for awards” (INT11). Regional public sponsors should “first start small and then scale-up in order to understand the regional context and European regulations” (INT2). Indeed, European regulations hinder regional policy experimentations due to perceived constraints, as highlighted:

“It was really hard to understand how to use structural funds money and which rules we had to follow to be compliant with all the provisions of EU regulation. So the administrative work at the beginning it was really hard to come out with the rules of the challenge” (INT2).

Thanks to their knowledge of their innovation ecosystems, regional policymakers can easily identify the private actors who “want to see some improvement in the place they live in” (INT11). Fourth, the prizes must be adapted to the regional needs and rules and thus can be monetary or non-monetary (incubation, services, mentorship, awareness-raising) or a combination of the two.

For CORP implementation, regional policymakers must pay attention to six points. First, regional public sponsors must collaborate with innovation intermediaries or regional anchors such as a university, an innovation agency, or technology park to co-implement the CORP. The organization implementing the CORP must have some agility and flexibility. Second, there must be some regional events and inspiring keynote presentations from world experts and team mentorship during the running of the prizes, as “policymakers should not wait passively and expect solutions at the end of the competition” (INT8). Third, there must be a set of clear and transparent criteria for participating, competing, and winning. There should be a limited number of criteria to maintain the unpredictability of potential solutions. Fourth, the efforts of participants and the winners must be publicized regionally and in European networks. Fifth, a well-known and charismatic external panel of judges from within and outside the region must be assembled to increase media exposure and reputation. This external panel can be complemented by civil society actors to build legitimacy for the winning solution. This is aligned with the call from the European Commission to promote responsible research and innovation [56]. Sixth, there must follow-ups awarded to result in long-term societal impact. Such follow-ups can lead to the construction of a more integrated regional policy-mix and could include some prototype, proof-of-concept, or public procurement opportunities.

CORPs can provide strong directionality to address some well-defined place-based societal challenges, “as compared to other policy tools, the directionality dimension is clear for prizes” (INT7). CORPs can thus engage LDRs in defining their policy directionalities. The place-based challenges must collectively be identified to respond to locally embedded problems that hinder the attainment of a more desirable regional future [57]. Community engagement and the collective definition of place-based challenges allow for addressing issues related to legitimacy in the selection of challenges. Indeed,

“Through challenge prizes, you can really look at the unusual suspects and you can look more broadly across the ecosystem to tap into those innovators who wouldn’t necessarily be on the radar of traditional funding, grant funding, private funding” (INT5).

There are, however, limitations in legitimacy for the selection of the solutions as this is most often done by expert panels. As a result, involving the public in the selection of solutions can strengthen the legitimacy of the solutions. The broad involvement of the public and problem-solvers can tackle issues related to responsibility. Some seed money for participants can broaden the range of participating teams. While CORPs can provide regional strategic orientation, they have limited benefits to favor policy implementation except when follow-up policies are implemented, such as public procurement of innovation (PPI). CORPs offer little benefit for policy coordination, as their design and implementation will not directly break government silos. As a result, CORPs must thus be a stepping stone to more policy experimentations and the design of a regional policy-mix to fully deliver its small wins promise.

CORPs constitute a small wins strategy as they can lead to concrete and visible results, shift current mindsets, operate at the local and regional levels, and be positively accepted by actors [16]. Indeed, CORPs lead to concrete and visible solutions through a competition, operate at local and regional levels, broadly engage in legitimacy-building practices, and, more interestingly, can also shift mindsets. CORPs can potentially improve regional institutions and the quality of governance in LDRs. As illustrated:

“Hackathons also educate and change slightly the administration. Because administrations are also involved in this process and you cannot support innovation unless you really understand what it is, what it engages, what it stands for” (INT11) and “we have seen is a mindset change and capacity building” (INT10).

## 6. Discussion and Conclusions

Societal challenges are complex, open-ended, and intractable problems that require systemic changes in multiple dimensions from technological to socio-institutional changes [58]. Due to being the most affected by some pressing societal challenges, LDRs must actively

take part in finding solutions to solve societal challenges. Less-developed European regions often will not provide quick technological-fixes due to their lower scientific and technological endowments but can provide effective institutional, organizational, public-engagement, social, and societal lessons, and solutions to respond to societal challenges. As a result, LDRs must engage in TGIPs, and initiating a small wins strategy is a promising path for them to do so. Following the call for ‘reinvention’ of regional innovation policy in an era of grand societal challenge [3,23], we reorient an existing policy tool, the inducement prize, to align it with a small wins strategy to more broadly engage less-developed European regions in TGIPs.

The article constructs and introduces the concept of challenge-oriented regional prize (CORP) as a policy tool for LDRs to initiate a small wins strategy and to start engaging in TGIP. As highlighted in interviews, CORPs can be seen as a policy tool for regions to initiate regional changes and to start engaging regions in defining strategic orientations, and responding to directionality, legitimacy, and responsibility issues. As such, CORPs can be seen as one possible path for LDRs to initiate changes and to start engaging in TGIPs and build institutional and governance capacities to experiment with more systemic approaches to solve place-based societal challenges. CORPs must respond to place-based societal challenges. CORPs can be, for instance, aligned with European policy directionalities such as from the European Cohesion Policy of European Green Deal objectives, where CORPs would promote pressing challenges for LDRs such as renewable energy, circular economy, sustainable transportation, sustainable farming, biodiversity protection, silver economy, attracting and retaining population, or water protection.

When they are well-designed, CORPs can engage LDRs in TGIPs through constructing a strategic orientation and structuring directionality, legitimacy, and responsibility, thus constituting a small wins approach overcoming institutional, organizational, or knowledge barriers in LDRs. Moreover, CORPs can be a tool to shift current mindsets and to respond to one of the main challenges faced in many regions regarding civil society engagement beyond the usual innovation suspects. However, despite being a flexible policy tool, CORPs are not a silver bullet for LDRs to initiate a small wins strategy and to engage regions in TGIPs, as they are not a simple and straightforward policy tool. Indeed, CORPs require specific regional administrative capacities and dedicated resources to effectively design and implement them.

In the policy process, policymakers and politicians frame their discourses in a way for the public to accept their intended solutions to solve the place-based challenges. Framing refers to how an issue or problem is defined and presented to wider audiences, as part of the process of setting policy agendas and priorities [58]. This agenda-setting involves the exercise of power and influence, conducted through a contest of ideas and interests [58]. In the case of CORPs where the solutions are not yet known, this opens a broad range of problem-framing not constrained by political power and influence that can contribute to building public legitimacy for the winning solutions, and ultimately lead to better governance and public trust in regional institutions.

The article offers three main policy recommendations. First, less-developed European regions could start experimenting with CORPs more systematically. When the regional capacities are limited, the co-design and co-implementation of the policy tool can be subcontracted to a third party such as a regional university, technology park, innovation agency, or consulting firm. Second, the European Commission could provide a guidance document with a clear regulatory framework regarding the design and implementation of CORPs and monetary prizes. Third, the European Commission could propose the creation of an open innovation platform—similar to challenge.gov or wazoku.com—to centralize CORPs and connect solvers with regional challenges, thus limiting the multiplication of regional and national platforms and their fragmentations. This is aligned with the European Commission’s open innovation objectives [59]. The European Commission’s platform could promote interregional CORPs to find solution-providers from all over the EU. Indeed, the societal challenges to be solved could be interregional as many less-developed regions face

similar societal challenges, thus fostering interregional collaboration. Moreover, winners must be proposed follow-up regional, national, or European funding opportunities—grants, innovation vouchers, incubation and/or acceleration, public procurement—to implement their solutions. Finally, European networks must publicize winners and competition to create momentum for adopting CORPs.

A CORP must be considered as one of the possible policy tools that can be included in a regional policy-mix. A CORP alone cannot solve all local societal problems and orientations. In the future, it would be interesting to study the complementarity between inducement prizes and other types of regional policy tools that could be implemented for responding to societal challenges. How to combine inducement prizes with innovation procurement and other regional policies? Accordingly, it would be interesting to think about the place of CORPs in the regional policy mix. For instance, can CORPs be a catalyst at the heart of various small wins actions, and how? This future research could allow for extended reflection on investigating what other policy tools could initiate a small wins strategy and how to reorient existing policy tools to make them more compatible with TGIP. Finally, an academic and policy debate must be opened as to whether LDRs must engage in TGIP or keep focusing on strengthening their regional innovation capacities to be more competitive.

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