Putting Space in Place. Multimodal Translation of the Grand Challenge of Regional Smart Specialization from Policy to Cross-sector Partnerships

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Abstract

Place-based policies tackle grand socio-economic challenges through differentiated, context-sensitive interventions. However, they often run the risk of under- or mis-performing. This work studies how grand challenges translate from policy to cross-sector partnerships through place. By focusing on the place-based policy of regional smart specialization (RIS3) I investigate how the setup of science and technology parks mediates the practices of the actors in the translation chain: a transnational policymaker (macro), a regional broker (meso), and a local partnership which served as prototype for the regional policy (micro level). I document two types of practices - emplacement and space configuration - enacted at each level, and show how their interplay transformed the grand challenge from a cautious ideal at the macro level which balances risk and responsibility, to an optimistic and risk-prone approach at the partnership level. The study contributes to the policy and cross-sector partnerships literatures by documenting a two-sided effect of place-based policy and a consequent risk of ethical reversal, from an early attractor bringing partners together to a later accomplice keeping the partners together despite evident signs of failure. By adopting a strong multimodal approach, I also distinguish four types of multimodal outcomes - ideal type, prototype, virtual model, and lived artifact – which perform the two-sided effect and bring about the risk of reversal.

Keywords: grand challenges, cross-sector partnerships, place, space, policy, translation, regional innovation, smart specialization, science parks, multimodality.

1. Introduction:

There is agreement that many cross-sector partnerships (CSPs) occur because policymakers envision them as powerful tools for addressing grand challenges -i.e., collective problems such as sustainability or economic development which either originate in institutional failures and regulatory voids, or are beyond the solution capabilities of any single organization or societal actor (Dentoni et al. 2018; George et al. 2016; Ferraro et al. 2015; Van Tulder and Keen 2018; Waddock et al. 2015). For instance, two of the most influential transnational institutions, the United Nations and the European Commission, have turned grand challenge resolution through CSPs into flagship models, thereby setting the trend on a global scale (Owen et al. 2013; Utting and Zammit 2009). Yet, despite their popularity, widely recognized value, and the abundance of policies and practices in place to support them, CSPs focused on grand challenges often report ambiguous or unsatisfactory outcomes, or even failure (Babiak and Thibault 2009; Hodge and Greve 2007; Utting and Zammit 2009). A common problem for a CSP is translating broad, generalized, and potentially ambiguous calls for social change launched by governments and transnational institutions into tangible outcomes and results in local communities (Dentoni et al. 2018; Van Tulder and Keen 2018; Waddock et al. 2015). This introduces translation risk whereby divergent or inappropriate interpretations of a grand challenge based on local circumstances can result in an incorrect CSP organizational structure and process including over- or -under-ambitious goals, biased decisions, and conflicting courses of action (George et al. 2016; Clarke and Crane 2018; Grodal and O'Mahony 2017; Van Tulder et al. 2016). In the attempt to minimize translation risks, many development policies such as placement of infrastructure or local economic development schemes, are 'place-based': they aim at transforming places through the active involvement of local stakeholders, for instance by incentivizing high-skilled workers and organizations to move to disadvantaged areas, or governments, research institutions and private and public organizations to join forces in the transformation of a local area (Höglund and Linton 2018; Morisson and Doussineau 2019; Neumark and Simpson 2015). Despite the fact that place-based policies are

hardly new, their effects and performance in the real world are far from straight-forward (Kline 2010), and attention to the role of place has been extremely limited.

Places and the transformation of spaces into places in particular, play a pivotal role in the translation of grand challenges from broad goals related to social change into concrete courses of action. From socio-material perspective, place is a social production; it refers to how social actors translate dreams, hopes, objectives, and desire for change into material reality (i.e. a given space and time) (Lefebvre 1991). So far, research on the role of place in grand challenge policies or CSPs has been limited. This might seem surprising considering the close relationship between grand challenges and the locations especially the communities in which they emerge and transformation is awaited (Gieryn 2000; Lawrence and Dover 2015; McKeever et al. 2015). While the terms 'place' and 'space' are often used interchangeably (Gieryn, 2000), Castells (1996) and other sociologists of place (Cresswell 2014; Gieryn 2000; Lefebvre 1991; Low and Altman 1992) consider it important to distinguish between space as the flow of human imagery in search of concrete materialization, and place as the attempt to settle this flow into material shapes which become cognitively and affectively bounding. I argue that this distinction has the potential to offer a deeper understanding of how broad policies for social change succeed or fail to take concrete shape in real world places through CSPs. In this study, I am interested in how space- and place-making practices shape the translation of a grand challenge, and the consequences at each level of translation (i.e. from policy to CSPs).

I draw on empirical evidence from a multi-level longitudinal field study of the grand challenge of regional smart specialization enabled by science and technology parks (STPs). I study the challenge's original framing in the European Commission's Smart Specialization Strategy, how it was taken up as a regional project involving the establishment of a network of 10 STPs for smart specialization, and was finally handed to a local partnership. The objective of this local partnership was to create a science park prototype for the network but ended in crisis, risked default, and

advanced only by diverging from the policy recommendations and performing recursive revisions to space and place.

The findings of this study document a multi-level process of setting space into place based on the interplay between two multimodal practices: emplacement and space configuration. Specifically, the transnational policymaker (i.e. the European Union – E.U.), the regional policymaker, and the partnership leveraged emplacement practices to energize collaboration for regional smart specialization, and the configuration of space to identify potential risks and pitfalls. However, despite a linear translation of formal requirements across levels (i.e. space configuration), what was meant by place at each level changed constantly according to the actors' current purposes (i.e. emplacement). The interplay between linear space configuration practices and recursive emplacement practices occurred multimodally (i.e. through different arrangements of visuals and discourse), and contributed to morphing the grand challenge approach from balanced and cautious at the E.U level, to optimistic and risk-prone at lower levels. Thus, my study highlights the dual effect of place-based policy, and the threat of an ethical reversal: from an early attractor energizing collaboration to a later accomplice keeping partnerships together despite failure and through improvised courses of action. I contribute to work on CSPs, policymaking, place, and multimodality by conceptualizing place-making as a gradual, ongoing accomplishment in which the material and discursive practices of policymakers and CSPs are entwined and create unique outcomes which transform broad visions of social change during actors' attempts to stabilize them into objective forms.

2. Theoretical Framework

2.1. From policy to partnerships: The grand challenge of translation

Given the broad, uncertain, and totalizing nature of many societal grand challenges, CSPs are often first-of-a-kind experiments to enable policymakers to position their visions of the future in the real world (Dentoni et al. 2018; Utting and Zammit 2009; Waddock et al. 2015). For instance, the United Nations Sustainable Development Goals (SDGs Envision 2030) call for concerted actions to

deal with 17 of the biggest contemporary challenges which include climate change, poverty, economic growth, and responsible innovation with SDG 17 'Partnerships for the Goals' flagged as the only feasible way to implement the other 16 goals (Nations 2015; Utting and Zammit 2009). Similarly, with its Horizon 2020 program and the following EU Cohesion Policy 2021–27, the European Commission dedicates the bulk of its budget to promoting a Smarter Europe through regional innovation systems (RIS3) (Höglund and Linton 2018; Commission of the EuropeanCommunities 2014). The latter initiative exemplifies transnational policymakers turning to a place-based approach where there is no 'one-size-fits-all' solution for a grand challenge, given that places of intervention differ greatly in terms of strengths, capabilities, and institutional contexts (Tödtling and Trippl 2005; Morisson and Doussineau 2019). As a result, many high-level policies see partnerships of local stakeholders as a promising leverage in the design of place-sensitive interventions which value the specificities of local areas (Neumark and Simpson 2015; Kline 2010)).

Despite the rising trend, we still know little about the relationship between policy and CSPs, and even less about the role of place in such relationship. Most research tries to understand CSPs from an actor (behavioral) standpoint, without consideration of the larger institutional context in which they are embedded, or the possible interconnections between policymakers and CSPs (Babiak and Thibault 2009; Bitzer and Glasbergen 2010; Vurro et al. 2010; Clarke and Crane 2018). However, policymakers often shape the trajectory of a CSP, for instance by providing significant finance (Bryson et al. 2009; Grodal and Granqvist 2014), by imposing specific rules and regulations (Bitzer and Glasbergen 2010; Höglund and Linton 2018; Martí 2018), and by issuing specific guidelines, warnings or examples to elicit desired behaviors (Vurro et al. 2010; Brinkerhoff and Brinkerhoff 2011; Grodal and O'Mahony 2017; Van Tulder et al. 2016). In turn, CSPs' are both dependent on policymakers and actively shape policy by lobbying about their own concerns, and negotiating policy requirements and steering them in desired directions (Vurro et al. 2010). Thus, how a grand challenge will be addressed depends on the interdependencies among and recurrent actions of CSPs

and regulatory policy. The concept of institutional translation further unpacks this relationship (Latour 1987; Lawrence 2017; Vurro et al. 2010). According to Grodal and O'Mahony (2017), unlike companies with employees, policymakers cannot exert centralized control over CSPs. Since policy guidelines are often deliberately broad in order to resonate with stakeholders across different contexts and geographies, they also frequently are subject to misinterpretations (Dentoni et al. 2018; Martí 2018). For instance, policymaking can engender initial excitement and momentum around a social issue but as the field matures this momentum may dissolve, or the attention of local stakeholders may shift in new directions, causing both policy and CSPs to perform differently than expected (Grodal and O'Mahony 2017; Lawrence 2017).

In sum, since grand challenges are not static and are subject to feedback loops, phase shifts, and tipping points as they evolve (Ferraro et al. 2015), they should be studied as chains of translation: as processes in which the different actors in a network constantly instill their interests causing transformations and divergence to the initial grand challenge. As discussed by Latour (1987) in his seminal study, instead of traveling in abstract ways, the interests of policymakers, regulators, organizations, governments, and civil societies are often substantiated by visuals and material artifacts. In this view, the attention to imagery and discourse in the initial stages of a CSP should not come at the expense of the socio-material practices through which CSPs connect to policy and generate material outcomes during their lifecycle (Bryson et al. 2009; Prichard et al. 2010; Van Tulder et al. 2016; Finch et al. 2017). When policies are place-based, a socio-material perspective calls for an understanding of how policy and CSPs relate through place.

2.2. Place making and grand challenge translation from policy to CSPs

According to many authoritative voices, it is difficult to provide precise definitions of place (Cresswell 2014; Gieryn 2000; Lefebvre 1991; Low and Altman 1992). *"Given that place is everything and everything is in its place"* (Cresswell 2014: 7), things that exist in the world and have a socio-geographical basis can be ordered and grouped in multiple different ways, as spaces, locations, territories, enclaves, landscapes, and generally as 'bundles' of material features which

acquire social meanings and functions through day-by-day experiences. There is a tendency in sociology to establish relations between space and place. According to Lefebvre (1991), space is the spontaneous expression of the individual's desire; place is what individuals make of their desires, or in other words *"place is space filled up by people, practices, objects, and representations"(*Gieryn 2000: 465). Studying the socio-material production of the practices which connect space and place allows these distinctions to be reconciled (Cresswell 2014; Gieryn 2000). Accordingly, a place is a remarkable outcome, and what makes it so is the unwinding spiral of material and interpretative practices whereby social actors' expectations, memories, desires, unacknowledged prejudices, and intuitions struggle to take form and find a place in the material world (Low and Altman 1992; Gieryn 2000; Lefebvre 1991).

Despite these theorizations, research on the role of place and space in CSPs which address place-based policies is limited. This is somewhat surprising in view of the strong relationships between grand challenges and the locations particularly communities, in which they occur, and the frequent expectation that CSPs must provide tangible proofs of performance in the local contexts in which they are embedded (Gieryn 2000; Lawrence and Dover 2015; McKeever et al. 2015). Some studies highlight that places mediate how regulators, individuals, and organizations negotiate common concerns over broad societal issues. For instance, policymakers might talk about places or use them as exemplary visual devices to mobilize collaboration in desired directions. Lawrence and Dover (2015) show that considering physical places such as storefronts, churches, and health centers as alternative locations for supervised injection sites for drug addicts increases the legitimacy of the idea of a drug injection site in the community. In addition, place-based policies may allow policymakers to focus a partnership's problems and trace future development directions (Bitzer and Glasbergen 2010; Coenen et al. 2012; Finch et al. 2017). For instance, in large-scale construction projects with high risks of failure such as nuclear plants and world fairs and events (Expo, Olympic Games, etc.), policymakers use visuals such as construction drafts and plans to remind the partners of the need to comply with standards and regulations, and to monitor their performance across time

(Ross and Staw 1986; Van Marrewijk et al. 2008). On the partnership side, places can constitute a sensemaking device with respect to policy indications, and be a long-lasting source of social and symbolic legitimation (Bitzer and Glasbergen 2010; Lawrence and Dover 2015). When organizations are faced with ambiguous or malleable reference points at higher levels, they may use material artifacts such as buildings, objects, and technologies, and visual accounts such as reports, drafts, and sketches to legitimate their actions and seek new opportunities in their environments (André et al. 2018; Finch et al. 2017; Comi and Whyte 2018).

As the examples above suggest, a focus on the relationship between place-making and space not only highlights the practical work of turning visions into material forms but also may explain why in the process some visions succeed, some fail, and many others drift from initially intended directions. The tension between place-making as discourse and as material experience stands out as particularly important in the examples provided above. According to Castells (1996), a hallmark of the current society is that the space of flow (i.e. the interests, expectations, commitments, and practices which individuals mobilize discursively during place-making) is by default over-dimensioned, and more ambivalent, ethereal, and fast-paced than the space of places which is naturally bound to and constrained by physical resources. However, the way that discursive and material practices contribute to the transition of space in place requires more investigation. Research on multimodality provides an integrative perspective on the phenomenon. According to Zilber (2017), place constitutes an important occasion for a multimodal analysis of how ideas travel across borders. If the translation of a grand challenge is seen as a place-making practice, and place is seen as a combination of visuals and discourse which produce unique effects on the world distinct from those generated by each mode alone (Höllerer et al. 2017; Boxenbaum et al. 2018; Zilber 2017; de Medeiros Oliveira et al. 2017), the challenge becomes understanding place-making as an array of multimodal arrangements and their effects along a translation chain.

3. Research Context and Methods

3.1. Research setting

I draw on empirical evidence from a multi-level field study on the European Commission's strategy to foster regional smart specialization through science park partnerships between industry, research, government, and civil society. Research and Innovation Smart Specialization Strategy (RIS3) are E.U. integrated, place-based economic transformation agendas pursuing growth and prosperity by enabling regions across Europe to focus on their social and economic strengths. I collected data at the levels of E.U. strategy, regional strategy and local partnership implementing the E.U. and regional strategy.

Regional policy or cohesion policy is the E.U.'s main investment policy targeted at all E.U. regions and cities to support job creation, business competitiveness, economic growth, and sustainable development, and improve the quality of life of citizens[1](Commission of the EuropeanCommunities 2014). As part of this cohesion policy, the RIS3 strategy invites stakeholders from the so-called quadruple helix (i.e., research, industry, public entities, and civil society) to create collaborative projects which deal with a common innovation or development concern. Since 2010, STPs have become popular tools for implementation of the RIS3. The objective is for them to become science-based growth poles to stimulate economic diversification, growth, responsibility, sustainability, and quality of life across Europe (Höglund and Linton 2018; EuropeanCommunities 2013). The European Commission created the S3 platform to support the RIS3 by providing information, methodologies, expertise, and advice to national and regional policy makers, and offer guidance to CSPs involved in smart specialization projects. I use the S3 Platform to study E.U. policymaking related to STP partnerships, including advice, guidance, and good practice for their establishment and management.

[1] The European Commission is a transnational policymaker representing the executive branch of the E.E., responsible for proposing legislation, enforcing E.U. law, and directing the E.U.'s administrative operations. The E.U. plays a predominantly enforcing (rather than executive or legislative) role with respect to regional policy although Regulation (EU) 1301/2013 of the European Parliament and of the Council of December 17, 2013 provides a legal base for the 'smart specialization strategy' (EU) 1301/2013).

The ex-ante RIS3 conditionality for accessing funding requires E.U. member states and regions to put in place smart specialization. To study the translation of the E.U. policy to STP partnerships, I examined the intermediation of a European region which allocated E.U. funding for smart specialization at the local level. I investigated a long-term regional project to create a regional network of 10 science parks and conducted a longitudinal four-year study of the first STP partnership financed by the region via the RIS3 funding scheme which has been promoted as a prototype for the regional STP network. The STP is the result of a partnership involving a local university, a private research lab, a local municipality, a chamber of commerce, a public utility company (PUC), three local industry associations, a local innovation office (LIO) which planned and manages the STP on behalf of the partnership, and the region's research and innovation unit (RIUR) which coordinates the activities of the science parks in the regional network. I entered the field in 2014 when the partners had recently signed an innovation agreement defining their mission, goals, and approach to the setup of the STP. I was able to observe how these broad goals translated into a STP project, and in turn how the STP buildings materialized, were occupied by multiple stakeholders, and suffered subsequent crisis and contestation, and underwent change and expansion.

3.2. Data Sources

I exploited multiple sources of data to support the theory building process including semi-structured interviews, archival data, and participant observations.

Semi-structured interviews. I collected primary data from semi-structured interviews with participants at the local and regional levels. I conducted 42 interviews lasting on average 100 minutes. Respondents included members of the partnering organizations (e.g. directors, politicians, managers, researchers, and public officers) including the RIUR and interviews were recorded and transcribed . I asked informants about their understanding of the RIS3, local innovation, and science parks and inquired in depth about their expectations regarding the partnership and STP project, and their relationship with the region's innovation policy. I also asked about how the partnership had

evolved and its initial goals and expectations, and the first common decisions made, initiatives introduced, outcomes obtained.

Archival data. I collected archival data (total of 354 documents) at all three levels of analysis. At the E.U. level., I searched the S3 platform for events and communications regarding STPs and identified 39 pertinent documents including the main policy document issued by the E.U. in 2013 entitled *Setting up, managing and evaluating E.U. science and technology parks. An advice and guidance report on good practice,* known as RAGG (EuropeanCommunities 2013), a 2013 technical research report (Nauwelaers et al. 2014), 12 minor reports on STP initiatives across E.U. regions, and 25 press releases and communications about STP events, spotlight advice, and guidance and good practice endorsed by the Commission. At the regional and local levels, I used publicly available databases to conduct an autonomous search for documents produced between 2013 and 2018 which were integrated with other resources provided by informants (e.g. sketches, drafts, and copies of 3D models provided by partners or by the project's architects). I ultimately included 22 official documents regarding the regional level only, and other 68 documents on STP partnerships and the region's STP network project. I also scrutinized 225 press articles that mentioned the Region's smart specialization strategy, the partnership or the place of the STP.

Participant observation. During 2014 to 2018 I conducted participant observation of 28 meetings among partners to discuss aspects related to the partnership or the STP (10 directors' board meetings, 3 shareholder meetings, 4 discussions to promote the park and its activities, and 11 informal partner meetings), resulting in 42 hours of observation. Table 1 presents the data sources, and a list of the informants by organization, archival data, and typologies of participant observation.

Insert table 1 here

3.3. Analysis

The interview recordings were transcribed verbatim and together with field notes of my observations and archival data were imported into an integrated database. I collected and analyzed

the data following a grounded theory approach (Strauss and Corbin 1998). I distinguished among three levels of analysis: E.U. policymaking, regional brokering, and local STP partnership. To allow temporal sequencing of the data and an understanding how the partnership evolved with respect to policy indications, I identified two temporal stages: T0 (2013-2014) is the time frame of European and regional level policymaking and the establishment of the partnership, and T1 describes events at the partnership level during 2015-2018 (from partnership growth to crisis management).

The first phases of grounded theory development involved open-coding of recurrent first order concepts. The first analysis highlighted the data's multimodality. Visions about RIS3 and recommendations (i.e. advice, suggestions, examples, requirements) about how to set up a STP for RIS3 occurred frequently in both the interviews and the archival data either as text or as visuals such as pictures, schemes, drafts, or models. In a multimodal approach (Zilber 2017; Höllerer et al. 2017) distinguishing between visual and textual modes makes sense only as an analytical lens to allow the researcher to ask new questions which go beyond the cumulative effects of two self-standing modes. In line with this approach, I both paid attention to the text and visuals and qualified their interaction across the three levels. This allowed me to identify text-visual arrangements underlying the socio-material practices of setting space in place.

Based on the first-order codes, I examined the second-order themes, working up to more abstract theoretical aggregates (Strauss and Corbin 1998). For example, advice at the E.U. level often featured positive talk and visual examples of shared, proximate, state-of-the-art places and facilities for smart specialization science parks; I labeled these 'exemplifying emplacement options'. They were supported by a set of requirements and warnings about how to ensure the science park responded to the RIS3. This involved value ('how to make sure your science park is generating value') and standards and metrics (e.g. minimum area, facilities, distribution of occupants). I grouped these categories under the label 'securing value through space configuration requirements'. I later grouped 'exemplifying emplacement options' and 'securing value through space configuration requirements' under the label 'foreseeing the third-generation science park'. I

performed similar data inquiries at the region and partnership levels. During these operations, I also realized that the advice given at each level was either encouragement (i.e. energizing) or warning, and created a theoretical aggregate 'energizing vs. warning'. I noted also that 'exemplary emplacement' frequently co-occurred with energizing, and 'space configuration requirements' frequently co-occurred with warning. During axial coding, I distinguished at each level the outcomes of putting space-in-place: ideal typing, prototyping, virtual modeling, and lived artifact, and inquired about the relationship with emplacement and space configuration. I used coding themes related to text-visual arrangements to qualify each of these outcomes (Boxenbaum et al. 2018) and came up with four different multimodal arrangements, one for each stage. I also coded for connections across the three levels of analysis to shed light on how emplacement and space configuration strategies interplayed to create warning and energizing for future actions, and thus how space gradually changed into a place for the stakeholders.

4. Findings

The grounded model in this study investigates how the practice of putting space into place shapes the translation of place-based policy to CSPs, and in particular, how the formation of a science park influenced a CSP's implementation of the RIS3. Putting space in place refers here to a collective process of leveraging discourses and visual examples of spaces and places either real or imagined, to materialize visions of social change into the present. The model includes a translation chain which spans two temporal intervals (T0 and T1) at three distinct levels: E.U., regional, and partnership. I document that the STPs for RIS3 emerged from the interplay between actors' practices of emplacement and space configuration which serve across levels energizing and warning functions respectively. In figure 1 white color refers to emplacement strategies and their energizing function, and black color refers to space configuration practices and their warning function (see also figure legend). For each stage, I highlight four outcomes through which the STP gradually materialized across levels, produced by different combinations of emplacement and space

configuration practices - ideal-type, prototype, virtual model, and lived artifact. I also show that each outcome is substantiated by different multimodal (i.e. discourse-visual) arrangements in which the visuals respectively supplement, complement, juxtapose, and drive the text. Throughout, I describe in which ways the multimodal arrangements in the STP outcomes are responsible for the partnership's drift from policy expectations. Figure 1 provides an overview of the grounded model. The succeeding sections present the findings for each stage.

Insert figure 1 here

Section 1. E.U. Policymaker: Foreseeing the 'Third-Generation Science Park'

I found that the process of putting space into place was triggered by the policy goal to promote smart specialization as a collaboration challenge. The E.U. cohesion policy for 2014-2020 suggests that CSPs are expected to drive RIS3 transformation across the E.U., based on science parks as the principal implementation tool. However, according to a European Commission report, existing STPs provide mixed evidence about their utility for the smart specialization challenge (Nauwelaers et al. 2014). The E.U. RAGG report provides advice on good practice for a new generation of STP partnerships based on comparison with earlier science parks which placed too much attention on physical place at the expense of their goals and functions:

> "The third generation of technology parks was defined in 2006 when some 30 of the world's leading park directors, developers, academic researchers and consultants gathered for a workshop in Manchester. (…). In summary it was concluded that the third generation will have all the features of a good second generation science park, but parks would be physically constructed to create spaces and environments that are conducive to high levels of creativity and innovation both informal and formally organized. These 'collaboration spaces' are made available to the occupiers of the STP but also draw in other companies and suppliers of services to create a rich mix of organizations and people that come together to improve the productivity of the highly complex processes involved in taking knowledge, turning it into a product or service and bringing it to market." (E.U. RAGG, E.U. communication nr.10)

The extract above suggests that the ideal type of 'third generation science park' is based on examples of emplacement options which energize participation in RIS3 partnerships, and space configuration requirements which warn about possible errors and pitfalls in RIS3 partnerships, as follows.

Exemplifying emplacement options: On the one hand, stakeholders interested in contributing to STPs were presented with a range of collaboration possibilities and encouraged to play an active role in designing their own STP model. To be successful, the STP should build on the local area's distinctive characteristics rather than adhering to a pre-designed model:

> "There are almost as many models of science parks as there are science parks. Every development is different, addressing a specific set of local circumstances, assets, opportunities and problems (…)And it is precisely for these reasons that we have made Smart Specialization Strategies a condition that has to be fulfilled before any funding on research and innovation is spent from the European Structural and Investment Funds." (E.U. RAGG)

To promote and mobilize RIS3 collaboration, a frequently adopted practice was exemplifying emplacement options -that is to include in the RAGG document and its appendices exemplary images of best-in-class second-generation STPs and use text to explain what made the locations in the images meaningful and potentially successful, highlight examples of valuable architecture and landscape transformations related to previous partnerships, and point out limitations which the new-generation STPs must overcome.

In general, third-generation science parks were envisioned as state-of-the art, shared, and proximate places. Table 2 shows that investing in state-of-the-art STP facilities such as innovative architecture, renewable buildings, or technologically advanced laboratories was foreseen as an opportunity to (re)qualify territories as 'innovative places' and generate economic and reputational advantages for the stakeholders in those territories. Images of state-of-the art science parks in prestigious locations such as Oxbridge or Silicon Valley constituted a way to further substantiate and demonstrate the values behind such vision. However, to fully achieve this potential, third generation science parks had to become 'hubs' – that is dense concentrations of shared and proximate facilities owned by heterogeneous stakeholders from universities to private companies and local government. Shared laboratories, conference rooms, and open spaces were described as the 'living matter' of STPs, and policymakers expected these facilities to promote knowledge sharing, creative problem solving, and knowledge dissemination. The fact that there was no single STP model appropriate for all cases, and that each participant would be able to make it "suitable to

one's needs" (E.U. RAGG) evoked freedom, provided reassurance, and mobilized interest in STP collaborations. In addition to images of real buildings, sketches and diagrams were used to suggest the multiple possibilities of emplacement. Table 2 provides several examples (see 1-5) of how text and visuals were used for emplacement purposes at the E.U level. It also provides examples of emplacement and space configuration at the regional and partnership levels which are described in the following sub-sections.

Insert table 2 here

Securing value through space configuration requirements: The E.U. policymaker often counterbalances energizing through emplacement with warnings based on space requirements. Specifically, as a result of past experience of under-performing STP partnerships, the E.U. recommends a prudent approach to STP emplacement. Requirements related to partnership behavior are entrenched in requirements related to space configuration. Although all participants were encouraged to shape the STP in line with the region's strengths, the success of STP partnership was highlighted as depending largely on social and economic conditions in each region. Before investment and commitment to particular STP locations and facilities, third generation science parks should conduct an audit to establish the feasibility of the project. To avoid failure or complications, STP partnerships were advised also to adopt a stage-gate model which would mean the project would be terminated if the outcomes of the particular stage were not achieved. Partners were warned that at any stage endorsement of projects not showing "tangible benefits" would damage their position and be considered as cheating the community. Regions and local governments were advised also to sanction partnerships which failed to develop an audit culture and back up words with actions. In this view, auditing is a social responsibility mandate, and indications for place and space establish the underlying material contract:

> "Do not fund large pan-region revenue projects through the STP at this stage – the risks of failure with an untested team are simply too great. Do not fund ambitious speculative building programs. (…) While securing opportunities for development is important, doing so unwisely would risk to harm one's investments at the expense of the local community." (E.U. RAGG)

In addition, partners are required to provide evidence that they are offering "not just sites, but services". In the early stages of a project in particular, this warning is manifested in specific standards and metrics for space configuration. The most frequent are related to the STP's minimum surface area (3000m2), the need to include collaborative spaces in STP premises to ensure 'managed serendipity', modular configuration of the spaces to reflect the diversity of the occupants, and programmed expansion of the physical venue to enable new growth opportunities in the mature stage.

While configuration requirements were predominantly discursive (i.e. written text), it was also common practice to systematize standards and metrics as diagrams, tables, and sketches. This allowed policymakers to emphasize key aspects and increase their visibility and immediacy in policy documents (see table 2 examples 2, 3 and 6).

To sum up, the ideal 'third generation science park' type proposed by the E.U. policymaker is an attempt to convey a balanced vision of innovative yet responsible STP partnerships for RIS3. The main strategies employed were energizing through exemplary emplacement options and warning through space configuration requirements. Importantly, both emplacement and space configuration strategies were accomplished multimodally by combining visuals and text representing the meaning of the message (Boxenbaum et al. 2018; Höllerer et al. 2017). Table 2 examples show that the ideal type of third generation STP is predominantly a discursive accomplishment (i.e. broad goals and expectations about the possibilities of STPs for RIS3) supplemented by visuals which strengthen and support the discursive imagery, translating it to the present. I therefore labelled the multimodality of the ideal type supplementary. The vignette in figure 2 quadrant (a) further exemplifies the multimodal nature of the STP ideal type, and its energizing and warning functions.

Insert figure 2 here

Section 2. Regional policymaker: Prototyping the "High-tech Network"

To distribute E.U. funding for smart specialization, the region promoted establishment of a regional network of 10 science parks called "The Hi-Tech Network" . The network aimed at encompassing the region's social, economic, and technological strengths in locally meaningful places. However, while at the E.U. level this vision was delivered through a balanced approach on risk (i.e., energizing) and responsibility (warning), the region largely prioritized energizing over warning.

Embedding place in local meanings: The emplacement strategy adopted by the regional policymaker consisted of encouraging regional stakeholders to unleash the RIS3 potential in their region by addressing change collectively. Local governments, universities, research organizations, profit and non-profit organizations were invited to join forces within the regional STP network to address the grand challenges, such as the economic crisis, globalization, and climate change, that could not be tackled by one of these entities on its own:

> "Despite the depth of the economic crisis (…) our Region has proved to be competitive, capable of differentiation, and flexibility (…) but the strength lies in the unity of our region which has the ability to trigger a positive reinforcing circle whereby collaboration triggers more efficient resource utilization, bolder innovation, and increasing returns on scale- not intended only as incremental effects deriving from economy and industry, but in the broad sense of cumulative advantages, deriving from the development of specific skills and knowledge, from the opportunities for easier transmission of ideas and experience and from the opportunities deriving from a continuous differentiation within unification." (Region, S3 report n.2)

Similar to the E.U. level, partnerships were energized through emplacement. The region envisioned a network of 10 specialized STPs expected to prioritize high-potential sectors (i.e., agrifood, automotive, construction). A regional advice document provides details on the characteristics, functioning, and practical emplacement of the STP network, and an example of a prototypical STP. Table 2 shows that the STP locations had to be locally meaningful and physically interconnected in order to convey an image of the region as a high-tech network of physical nodes, junctions, and infrastructures. For example, STP partnerships were advised to choose a location with social and historical meaning to the community such as a strategic urban hub, an ex-industrial area in need of urban requalification, or a historical neighborhood, and highlight the opportunities

for links to other meaningful locations in the region. This advice was provided in the form of text and images symbolizing the region's strengths (engines for automotive industry, grids for the energy industry, cutting-edge buildings for the construction industry, etc.), stylized visuals alluding to future partnerships (e.g. an engineered Rubik's cube), and virtual network prototypes including interconnected buildings, logos, and geo-positioned technological artifacts. The vignette in figure 2 quadrant (b) is an example of a multimodal strategy whereby visuals complemented discourse. The regional policymaker depicted the extremities of the future network on the regional map and pinpointed (i.e. geo-positioned) the 10 envisioned nodes, while offering descriptions of the ideal location and space requirements for each node.

Securing value through space configuration requirements: To ensure project value, STP partnerships were required to respect certain standards related to the space configuration and services being offered. Space configuration requirements (standards and metrics i.e. minimum surface required, innovative space layout and state-of-the-art laboratories) were almost identical at the regional and E.U. levels. Table 2 example 10 shows the space anticipated for the STP prototype had been compartmentalized in detail, and assigned to specific actors before the establishment of the formal partnership. However, despite strong warnings about the need to create 'not just sites, but services', social accountability in the form of required partnership behavior (e.g., E.U. recommendations about early auditing and termination of unsuccessful partnerships) was lacking in the regional documents. Consequently, space configuration served as proxy for the quality of the services being offered. The interview extract included below, shows that RIUR, the region's delegate for the coordination of the network, advised that all STPs must provide a 'network portal'. On entering the building, visitors should be asked about their needs and informed about the services and competencies available in the region. According to RIUR, this strategy would help to solve the limitations the STP as a physical enclave of people and technologies and respond to the 'not just sites but services' mandate (see also table 2 and figure 2).

However, although the region assumed the role of network coordinator through RIUR, there were few indications about responsibility for monitoring partnership performance beyond space configuration, and poor definition of the role of RIUR in the process:

> "What role does RIUR have in relation to STPs, well, as you know, the STPs have not been ultimated but at this stage we are coordinators of the high-tech network and we monitor the development of the infrastructures, in particular the transfer of the laboratories in the STP. And we are trying to interact with future STP managers to develop a function that every single STP will need to have, and that is a portal. The portal is actually a physical space to be located inside the park, preferably at the entrance, and serves as a welcoming point, when company X rings the bell, it musn't get lost in the STP's immensity, it enters the portal and is guided by the portal manager to the best that we as region can offer (…) let's say the truth, from a construction standpoint, we provided guidance, but we do not have control over how the STP is configured, this is the local partners' job, they own the space and decide what's best for them, that's the whole point, right? But we provided lots of indications, and they know that the labs, and the portal, they will need to be there (…) The network is not active yet and there is plenty of time ahead, but we are thinking about creating some other support tools like a database for networking opportunities because these sites must be alive, they need to be full of people, events and collaboration projects, they can't be just brick and mortar."(Interview, RIUR, Innovation Officer)

In sum, the region prototyped a network of 10 STPs to materialize the RIS3 vision at the local level. Collaboration was energized by embedding the places of STPs in local meanings which appealed to a heterogeneous pool of stakeholders. Warnings regarded both space configuration and the services being offered, although the former was prioritized and acted as a proxy for the latter. The prototype was conveyed multimodally (i.e. visuals complemented discourse) and served the dual function of energizing interest around a common cause, and ensuring standards were respected.

Section 3a. Partnership: Taking custody of the territory's future

The local partnership studied received funding for the first STP prototype for the high-tech network, and were responsible for governance, site setup, and project management issues. The following extracts show that members of the partnering organizations were familiar with the smart specialization challenge set by European and regional policy, and enthusiastically embraced the STP project as an opportunity to set up a community project. This highlighted the "custodianship" or "trustkeeping" responsibility at partnership level:

> "We (as partnership) have a vision for the community, not for ourselves. Today we are called to make it come to life (…) We are trustkeepers of a territorial vision, so to say." (LIO President, Interview1)

> "Clearly the European Commission has had an impact on this (the STP project). They presented this huge project at the E.U. level that defines a set of macro-objectives about innovation, smart

> specialization, inclusive growth, etc. As you can imagine, they distribute funding according to strategic goals. It's not like there is a document that all local administrations must implement, they're not directives, but there are certain guidelines, certain suggestions (…) And we are using that as a turning point in our ways of working and how we approach new goals because if we want to thrive we must start admitting that we can't to do this alone, nobody can, actually." (Interview Municipality Manager 1).

To fulfil their custody mission, the partners designed a virtual model for the future STP which pieced together policy indications and diversified views about the project. This was accomplished by layering place versions on the one hand, and complying with space configuration requirements on the other.

Layering place versions: In line with policymakers' energizing about meaningful emplacement and warning about creating not just sites but services, I documented a proliferation of goals, agreements, and initiatives at the partnership level intended to fill up the STP space from the earliest stages of the project in order to make what informants often described as a *"meaningful place"*. While all partners agreed that the STP constituted a much-needed tool for RIS3, this common agenda was interpreted differently by each partner, according to its particular interests. For instance, while the municipality was mostly interested in regenerating the northern area of the city as an innovation hub accessible to the entire community, the industry associations wanted the STP to be a complex of R&D labs and education venues for private firms, universities wanted a new research campus, and the RIUR aspired to having a network portal. The LIO wanted to be appointed manager of a hybrid site which would include all of these interests. As the partnership evolved and the municipality architects started working on the first STP construction drafts, the different versions of place began to generate dyadic collaboration agreements and uncoordinated design drafts. Thus, despite the common frame of custody, the grand challenge of smart specialization was pursued according to multiple visions of place (e.g. community innovation hub, private R&D complex, research campus, network portal, hybrid venue) which relied on the partners' contrasting agendas. One of LIO's top managers whom I interviewed several times, described a visual image that best represented this process as a container overwhelmed by liquid ideas and proposals:

> "Everyone expects something new from this park every day (…)Yesterday, the Municipality was all in on city rebranding, today I need to find space for fablab educational programs for schools, then we had the industrial art exhibition thing, and only heaven knows what else will happen tomorrow. Are we sure we know who pays for all this? (…) The University asks and promises a lot, no offence, yet offers very little in return (…) Industrial association nr. 1 promised me that they will put a man in here, full-time, or at least part-time, for some days of the week, beginning maybe with the second half of this year, so yeah, we were thinking about doing the regional hub office in here (points to an area on the STP mock draft) but I also heard the other day that RIUR would like to allocate this space to something that is portal-related so, yeah, uhm, why is this suffocating? Because everyone seems to have their own agenda about what this place should be, and they're just pouring ideas in here little by little, it (the STP) is becoming a container, a collector of fluids or a melting pot, if you will." (Interview, LIO top manager, 2nd round).

Complying to space configuration requirements: Analysis of the park's construction project revealed that the partners worked in collaboration with designers and engineers to ensure full implementation of policy guidelines on the material setup of the STP. A team of architects from the municipality created a virtual model for the building combining guidelines on strategic infrastructures, state-of-the-art architecture, and layout requirements, including modular spaces with offices and private areas, modern research laboratories, open spaces dedicated to startups and spinoffs, large conference rooms to host dissemination events, and many other facilities favoring collaboration. Figure 2 quadrant (c) depicts the various interpretations of the model built by municipality architects. The virtual model is very detailed and aligned with the actual building (see figure 2 quadrant (d)). Attempts to adhere scrupulously to the policymakers' space configuration requirements, even resulted in the warning to provide 'not just sites but services' being represented visually as silhouettes of businesspeople and visitors. The architects tried also to simulate future uses of the park in their sketches and renderings by envisioning visitor itineraries, anticipating parking lot mobility flows, and planning infrastructural (i.e. tramway and railway) transportation nodes, as described below:

> "It is an architect's job to make the place fit the goals. The team tried to make sure the building encapsulates the history of the site that we all agree to be amazing (…). I set up a photovoltaic system and used sustainable materials to build spaces that are open and inspiring and can facilitate interaction, where people can see what they are doing, but also have their own privacy (…). We did not make a cafeteria there on purpose; we expect people will use the one in the adjacent building. This way they will meet on the hallways and have more chances to talk (…). The area is already connected to the (name of new high-speed railroad station) and I will soon connect it to other five hotspots, in line with our smart specialization priorities." (Interview, Municipality Architect n.1).

This initial stage thus captures the high levels of energy displayed by the partnership in designing a virtual model for the first STP in the High-Tech Network. The warning and energizing strategies employed by policymakers nourished the partners' custodian role and mobilized them around a common idea of a meaningful place. However, while the partners thoroughly respected the space configuration requirements, they proposed different versions of meaningful place according to their particular interests. The virtual model of the STP relied on *juxtaposed multimodality*: Visuals such as drafts, sketches, and renderings overlapped discourses about meaningful places and generated a dual movement simultaneously towards and away from policy recommendations.

Section 3b. Partnership: Living space as accomplice

The science park was completed on schedule in two years, and was officially inaugurated in 2014-2015. It initially occupied an area of 3,500 m2 and a facility area of 3,700 m2. The press described both the external construction and the internal space layout as 'futuristic', 'innovative', and 'attractive' (archival data). At the end of 2014, it was runner up for the *Mies van der Rohe Award*, a prestigious E.U. innovative architecture prize. The internal layout was designed as a wood and glass beehive in which closed spaces alternated with open spaces and enclaves to provide a reception area, a conference room, five two-story spaces to house high-tech research labs, a co-working space, a space to house the STP portal, and four other rooms to use for meetings and co-working (see table 2 and figure 2 (d)).

As the STP buildings materialized, the partnership entered a stage of crisis due to difficulties in connecting the flood of versions of place in the first stage with the actual STP place that had been built by the partners together. Tensions related to the discourses and visuals about place and space led to threats of STP bankruptcy and imminent partnership default. These tensions emerged in the contexts of space configuration (dealing with empty space) and emplacement (re-visioning place).

Dealing with empty space: Figure 2 quadrant (d) (upper part) depicts the park's internal layout and its 'perpetual emptiness', lamented by many informants and obvious during my many visits to the building. While the design, layout, architecture, and facilities were deemed to be in line with the

policy recommendations, those experiencing the STP as daily workers or as visitors were aware of the gap between reality and expectations which generated anxiety about the future. These included empty labs furnished with high-tech equipment, empty parking lots, and deserted co-working rooms which indicated unambiguously that *"something was not quite right"*, as described by the manager of Ind.Ass2 :

> "I remember I had this talk a year and a half ago or so, and I was saying that this park will be the real test for LIO, and for our collaboration, for what matters. And here it is, a beautiful toy that everyone was excited about for so long and that no one wants to play with. Some months ago I accompanied there a delegation of 3 of our companies' top management, you know, LIO asked me to so I was glad to do it, but it was embarrassing because everything was so quiet, you could easily see something was not right, I had to explain to them that this was a period of transition, that everyone was working on the new expansion project, so I started to talk about how cool that would have been. But I felt embarrassed walking in there and I assume others may have had the same problem (…)." (Ind.Ass2, Manager).

In general, each partner was deeply unhappy about inability to perform its version of place because of the interference of the other partners' versions. The conflicts and tensions generated reluctance to finance the STP, and at the end of 2017 the board of directors began holding secret meetings at three-week intervals, to discuss the threat of imminent financial bankruptcy.

Re-visioning place: Since the actual place was tangible proof of the partnership's failure to provide value for themselves and the community, it shifted from being "everyone's place" to "no-one's place". Consequently, the partners experienced a sense of 'placeless-ness', and the need to drift away from the actual place and re-vision it:

> "This is not who we are (…). It (the building of the STP) is just torn apart between what we all hoped (…). We live it each day, and yet it feel under accomplished, somehow. As singles and as a community, we can do better than this, and we have a chance to prove it (…)." (LIO President, BOD meeting)

Interestingly, instead of dissolving the partnership, the partners decided to try to pursue the initially envisioned potential through a mechanism I describe as 'accomplicing in the name of a place-to-be'. The public organizations in the partnership together with Ind.Ass1 decided to fund and manage a STP expansion project which would include regeneration of the other four buildings in the area over a four-year time horizon. For several reasons, the expansion project which increased the scope, importance, and number of functionalities of the STP space became the partners' preferred solution:

Not only did it avoid public exposure to bankruptcy scandal it also gave the partners time to rethink the partnership and bring the project to be closer to their ideal vision of place.

The vignette below shows that ethical debates took central stage at this time and focalized the STP building. Although partners often contemplated the building as a sign of ethical and financial failure, they also felt compelled to go back in the field and realize the building' potential. Although their actions were in neat contradiction with the balanced and prudent approach advised at the E.U. level, the partners did not respond to E.U. calls for social accountability (e.g. early auditing, abandonment of risky projects). Paradoxically, they justified the expansion project as a sign of responsibility to the policymakers, and the local community:

> "Ex-President, LIO: -So you're telling me we're in this situation because the Municipality didn't pay for (name of project assigned to LIO)?
> Legal advisor, Municipality: -But that was some tens of thousands of uhm and here we're talking about many hundreds of uhm, Euros, I'm sorry, I don't agree, how can this be? (
> Ex-President, LIO: -No, it's not just that, uhm, we haven't been generating, uhm, much revenue from projects, actually none from technological transfer, since the University has only recently transferred its equipment here but the labs are still empty…
> University Department deputy: -So it's our fault? Our labs are as active as they have always been (…) I repeat, we are working regularly from our campuses (…) while LIO has taken commissions on our projects by default.
> Ind. Ass1 member & Province delegate: -Look, we're in trouble because this is deep, and it concerns all of us, also because (name of LIO general manager) left us a very complicated situation, all these eluded bills in the balance sheet are a serious concern.
> Ex-President, LIO: -From what I know, he felt he had no choice, I mean how many times have I summoned you to say we need to pay employees' salaries or we go bankrupt and risk ending up on the first cover of all newspapers? (…) Remember people came to him asking for a paycheck, not to you. He just wanted to show a better financial situation and attract some short time cashflow before we found a shared solution (…).
> Ind Ass1 member & Province delegate: -Yes, but this further complicates our financial position and our ability to come clean, which I repeat, we need to do.
> Legal advisor, Municipality: -So I spoke to the Mayor, and I know some of you also have, under no circumstances can this end up in the newspaper. I think I all agree about that.
> Newly appointed President, LIO: -So I have news on this, as many of you know, CoC and Ind.Ass1 have offered to invest, and, of course, take the lead in the project of expansion of the STP area, this would cover most of the debts for LIO and the STP, of course not right away, but in the next 12 months or so.
> CoC representative: -In our view, the expansion project is the best alternative we have. Not just for the financial situation but also for our territory, the local industrial community is counting on this project and the Region expects the STP to be an exemplary prototype for an entire network of science parks.
> Legal advisor, Municipality: - All agree that the STP is a necessary and useful project, for us and the territory. The question is how to do this safely and equitably, that's our concern."

As these extracts show, the materiality of the STP building was key to the decision to expand the project despite evident signs of failure. On the one hand, the actual place was experienced as a threat

that is tangible proof of the partnership's imminent bankruptcy; On the other, it constituted an energizer that is a tangible starting point for something bigger, better, and more meaningful. Figure 2(d) shows that while the STP building remained deserted (upper side), the partners held an inauguration event for the expansion project in the STP meeting hall and went on guided area trips with the Municipality architects to learn about the history and future of the new construction site (lower side). From a multimodal perspective, for the first time the visual experience of the actual STP overrode the partners' discourses about the future and pushed them in new directions. Table 2 examples 25-33 document that the multimodality of the lived artifact was visual-driven. They show also how the partners combined real images of the actual STP with mock drafts and virtual 3D renderings of the expanded STP to represent the promise of an exciting future which each partner could own (i.e. re-visioning emplacement).

Epilogue: The expansion project, which was still ongoing in mid-2021, strengthened the collaboration between the municipality, industry association 1 and the PUC to enable better decision coordination and secure financing for the project. Despite the previous imminent failure, it was agreed that the LIO should be appointed coordinator of the enlarged STP and continue to ensure the portal function for RIUR. The rebuilding brought STP back to life and engendered new waves of emplacement and space configuration. During this period, many other STPs in the high-tech network have begun construction or currently are being inaugurated, and images of their state-of-the-art buildings can be browsed on the region's dedicated website.

5. Discussion:

This work investigated how grand challenges translate from policy to CSPs through place, and documented a process of setting space into place which involves the interplay between two types of practices across institutional levels: emplacement and space configuration. I have described a partnership which failed to meet policymakers' expectations about realization of third generation science parks for smart regional specialization despite apparent adherence to both the high-level

vision and the practical requirements. I showed that failures in translation are not necessarily the fault of one entity and do not always constitute specific turning points. Instead, the identity of a place-to-be may gradually diverge during actors' very attempts to stabilize it into objective forms. Several of the findings from this study provide new insights for work on CSPs, policymaking, place-making, and multimodality.

5.1. Emplacement, space configuration and the two-sided effect of place-based policy

Several studies have examined grand challenge policies, CSPs and places from different angles. There is an assumption that place facilitates the translation of grand challenge policies into partnerships by disambiguating policy, mobilizing partnerships, and monitoring their real-world impact (Bitzer and Glasbergen 2010; Coenen et al. 2012; Finch et al. 2017; McKeever et al. 2015). This study contributes to work on policymaking by highlighting the two-sided effect of place-based policies. On the one hand, places can be leveraged in policy to create credible, tangible, and actionable practices for lower level stakeholders. On the other, there is the threat of an ethical reversal of the place-based effects of policy, from an early attractor bringing the partners together to a later accomplice keeping the partners together despite evident signs of failure. This theorized two-sided effect of place-based policy also adds to work on CSPs which rarely discusses partnership evolution from a place-making standpoint. We know from the literature that early partnership accomplishments such as values, goals, and identities can foster cohesion and advance partnership collaboration but also can push partnerships into failure or mediocre performance via discrepant, unrealistic, or ill-defined courses of action (Austin and Seitanidi 2012; Babiak and Thibault 2009; Le Ber and Branzei 2010; Prichard et al. 2010; Ungureanu et al. 2020). This study documents the important roles of place and space in CSPs' struggles to materialize broad ideals of social change across their lifecycles. I have shown that CSPs often constitute prototypes for social change policy, first-of-their kind initiatives which allow policymakers to test their visions of the future (Bitzer and Glasbergen 2010; Grodal and Granqvist 2014; Owen et al. 2013). This study provides a redistribution of the burden of failure from the CSPs and the grand challenges to the institutional

fields in which these are bred (Utting and Zammit 2009). While pioneering CSPs may be accused of designing or planning places inadequate for the grand challenges they are supposed to tackle, their courses of action are often the result of institutions' active efforts to influence their trajectories on the one hand, and the partnerships' efforts to adopt policies to their specific needs on the other. Thus, it is proposed that grand challenges are studied as chains of socio-material translations: processes whereby actors at different institutional levels constantly instill their interests and visions about the future by forcing them into being in the present through multimodal practices of emplacement and space configuration which transform the grand challenge as it travels along the chain.

At the top of the translation chain, I documented the remarkable ability of transnational policymakers to elicit attractive visions of the future by combining visuals and discourses with energizing and warning functions. The case of the European RIS3 policy suggests that policymakers often learn from previous experience to actively lobby participation in a grand challenge but also to prevent their indications from being misinterpreted. As the E.U. policymaker strived to convey a balanced view about RIS3 partnerships in terms of risk and responsibility, emplacement strategies were used to energize risk, for instance by exemplifying opportunities and rewards, and space configuration served to trigger responsibility, typically through standards and metrics which warned about partnership pitfalls. Importantly, I have provided evidence showing how the grand challenge of regional smart specialization morphed along the translation chain, from a socially responsible view balancing opportunity and risk at the policy level, to an unbalanced view increasingly prioritizing opportunity over responsible risk management at the lower levels. Unpacking the interplay of emplacement and space configuration practices in the transformation of place-based policies should contribute to a better understanding of the two-sided effects of place on policy and partnerships. Specifically, I show that emplacement and space configuration followed different patterns in the translation process, such that space configuration is linear and emplacement is recursive, as follows.

On the one hand, space configuration requirements were repeated across levels in a quasi-ritualistic manner. A possible explanation is that leveraging 'immutable' objects (Latour, 1987) such as standards and metrics can provide legitimacy for both partnerships and policymakers, by signaling compliance with institutional norms for partnerships and an impression of constant vigilance for policymakers (Beckert 2021; Finch et al. 2017; Siebert et al. 2017). Some recent studies provide support for these statements; Since grand challenges are commonly broad, organizations may be tempted to escape or simplify institutional requirements for social responsibility which seem too stringent or unclear, by focusing on material actions which are easier to follow and have a reassuring effect (Beckert 2021; Finch et al. 2017; André et al. 2018). Standards and metrics can serve as organizing tools for space which is malleable in nature, and can be distributed, isolated, differentiated, or intersected according to the purposes at hand (Lefebvre 1991; Rodner et al. 2020; Siebert et al. 2017). Space configuration requirements, then, act as an anchor in the space of discursive flow, a strategy which settles understandings for self and others when place is still tentative and ill-defined.

In contrast, emplacement fluidifies requirements, allowing a place's substance to change even though the form stays virtually the same. Four different emplacement practices are documented: exemplifying place options, embedding place in local meanings, layering place versions, and re-visioning place. These practices reach a climax as each actor in the translation chain enriches place with new meanings, and adds new relevant dimensions to the chain. de Medeiros Oliveira et al. (2017) study of the Minhocão, a 3.5-kilometre elevated highway in São Paulo, Brazil, shows that when place entails multiple associations with past and future possibilities, positive and negative, it becomes the contested terrain of a community, a 'scar' waiting to be healed by many hands. In this way, places report back to spaces in a recursive relationship.

These considerations support the asymmetry between the space of flow and the space of place reported by Castells (1996) and discussed by other sociologists and geography anthropologists such as Low and Altman (1992), Gieryn (2000) or Lefebvre (1991) who consider space as a potential

void to be filled with a flow of human desires, interests, expectations, objects, and images of the future, and place as the practical, material, and affective accomplishment of this need.

Relatedly, the distinction between energizing through emplacement and warning through space configuration has the potential to advance theory on the relationship between space and place. Accordingly, the more a place is cognitively and affectively meaningful to a wide range of participating actors, the more individualized, collectively articulate, and difficult to govern it becomes, although an illusion of immutability is preserved by the repetition of space configuration requirements during translation. According to Branzei et al. (2018) and André et al. (2018), a highly performant material artifact is expected to drive long-term consistency and objectivity on the one hand, while maintaining flexibility for context-based adjustments on the other. This study's conceptualization of emplacement and space configuration sheds further light on this dual effect and has the potential to unpack Latour's (1987: 7) notion of material artefacts as "immutable mobiles", meaning that artefacts such as science parks mobilize different values, conflicts, and concerns across space and time thanks to actors' localized emplacement practices, and yet demonstrate an apparent immutability throughout their displacements thanks to actors' attempts at standardization through space configuration practices. To further understand the effects of the interplay between recursive emplacement and linear space configuration, I discuss the role of multimodality in translation processes.

5.2. Reconceptualizing translation as multimodality

As argued above, the process of putting space into place is predominantly a negotiated struggle of meaning-making across levels. Yet, while the policy, partnerships, and grand challenges literatures study this struggle from a discursive standpoint, the findings of this study highlight the need to explore entities *"more immediate than words"* (Pickering, 2017: 7). The concept of multimodality stems from the idea that experience is synergistically composed of different sensory modalities which can be separated through analysis but coexist in a field of experience (Boxenbaum et al. 2018; Höllerer et al. 2017; Zilber 2017; Meyer et al. 2013). In line with this definition, I

showed that both emplacement and space configuration practices extend beyond language to include devices such as images of real or hypothetical places, plans, drafts, sketches, prototypes, and real or imagined bodies, materials, and virtual renderings.

As a first contribution to multimodal research, this work shows that different visual-text arrangements produce different effects along the translation chain. So far, much theorizing has been done about the differences between text and visuals (Barberá-Tomás et al. 2019; Comi and Whyte 2018). Accordingly, while speech and traditional writing materialize linear and sequential meanings, visual artifacts are characterized by a certain 'immediacy' which may have a dual effect on the observer as both energizer and constraint. On the one hand, visuals stimulate imagination through their implicitness, ambiguity, and openness (Meyer et al. 2013) and are particularly well-suited to reconciling inconsistencies, transcending dichotomies, and addressing topics that are difficult to articulate verbally (Jones and Massa 2013; Rodner et al. 2020; Siebert et al. 2017). On the other hand, certain signs (e.g. traffic signs, warning postings) can be used as explicit visual cues for instruction or coercive prohibition because they are usually hard for observers to ignore (Barberá-Tomás et al. 2019; Boxenbaum et al. 2018; Meyer et al. 2013). However, while most multimodal studies aim at showing the additional effect of visuals with respect to text or *vice versa*, a strong multimodal perspective acknowledges that visuals and text are inseparable and co-emergent in experiential terms because they perform rather than merely signifying reality (Pickering 2017). In contribution to such view, this work identified different types of multimodal arrangements and unpacked their socio-material effects. Specifically, four multimodal arrangements were described, each corresponding to a different place-making outcome: visually supplemented discourse for ideal types, visually complemented discourse for prototypes, visual-discourse juxtaposition for virtual models, and visual-driven discourse for lived artifacts.

As a second contribution to multimodal research, this study highlights the key role of visuals in emplacement in general, and in the interplay between recursive emplacement and linear space configuration in particular. Accordingly, the more central emplacement in the translation chain

(from ideal to prototype, virtual model, and lived artifact), the more visuals assume a leading role in the experience of place, accounting for why meanings and ideas diverge in translation and how people ultimately experience very different realities from those imagined. In other words, this study calls for a new conceptualization of translation processes and outcomes as multimodal socio-material arrangements.

It has been shown that while photographs invoke the past and energize towards the future by example (e.g. ideal typing), space configuration visuals such as technical drawings, charts, or maps often carry an implicit sense of facticity which verbal language cannot equal mainly because of the accuracy and plenitude of description that they evoke. The warnings or requirements inscribed in such visuals are easily processed and translated instantaneously and memorably, prompting immediate action (Barberá-Tomás et al. 2019; Boxenbaum et al. 2018; Comi and Whyte 2018; Höllerer et al. 2017). From an ontological standpoint, a material artifact's imperfection -for instance, a place which is under construction- evokes a non-presence urging to be filled and dragged into being (Gieryn 2000; Lefebvre 1991; Pickering 2017). This ontological urgency, I argue, may transform place-making into the partnership's *raison d'etre*, as happened in this paper. In addition, if photographs, drawings, and sketches are to be considered as 'semi-real', then 3D simulations present to the senses as 'super-real' (Justesen and Mouritsen 2009) - that is as able to materialize with detail multiple futures in the present and allow actors to simultaneously live them. Last, I have shown that when super-real visuals clash with lived artifacts, several unwanted or unexpected consequences may occur such as rigidities, dependency paths, agency traps, and unethical behavior. However, actors can bridge the gap between imagination and experience, as evidenced by this partnership's ability to go beyond the temporary experience of placeless-ness and progress despite obstacles, rigidities, and evident signs of failure by accomplicing in the name of a place-to-be. I refer to this pattern as recursive emplacement. According to Lefebvre (1991) place can be entrapping because it elicits both the illusion of transparency (i.e. space and mind as one and the same thing), and the realistic illusion that space is separated from sensory and mental experience

and acts upon the self with the force of external reality. Since these two illusions embody and nourish each other, places are difficult to govern and often backfire as happened in this study. Then, the evolving multimodality of a space that is searching for a place in the world is *"the idea of a thing that does not "fit into itself", that is "inside-out", reveals an imaginary of materiality with a dual ontology: thing and idea, physically imposing yet somehow unreal"* (Lefebvre, 1991:55).

5.3. Conclusions, limitations, and future research directions

Place and space are often used interchangeably but are fundamentally different, and this difference is key to understanding how grand challenges translate from policy to CSPs. This study argues that a social challenge may travel divergently across societal levels due to the interplay between two socio-material and multimodal practices, emplacement and space configuration. One of the main findings from this study is that multimodal tensions regarding space and place constantly shift actors' experiences of a grand challenge as they try to stabilize it in objective forms. This study calls for policymakers, policy brokers, partnerships, organizations and individuals to take distributed responsibility for the 'lost-in-translation' risk. The two-sided effect of place-based policies, that of energizer and constraint, calls for policymakers to go beyond best practice learning and embrace critical thinking about the multiple ways in which their high-level visions and practical indications may shape the actions of CSPs (Utting and Zammit 2009). At the same time, to critically navigate the enthusiasm and delusions of place-based social change, partnerships are called to learn from the experience of other first-of-a-kind initiatives for social change.

This work has some limitations. While I studied a CSP representative of a region which drew strongly on the European vision for social change, generalization cannot be made based on a single case study. For instance, other representative cases of science park partnerships across Europe might diverge less from policy and be less problematic than those reported in this study. Future research could study how the specificities of geographical locations impact place-based policy enactment. Also, I here documented an interplay between recursive emplacement and linear space configuration practices, but other places, partnerships, and grand challenges could result in different

patterns of translation. Studies may particularly benefit from examining the place-making dynamics of partnerships which performed well because they stayed on course with respect to policy, and of partnerships which succeeded precisely because they diverged from the policy indications. Importantly, this study dealt with a place in-the-making which was driven strongly by the actors' visions of the future. Other CSP places might be conditioned at least as much by their past as by their hypothetical futures (de Medeiros Oliveira et al. 2017). Another important aspect highlighted in this research is that CSPs often constitute first-of-a-kind policy experiments but with time they become second or third generation solutions to correct previous policies. Cross-case comparison could investigate which situation triggers higher translation risks, and how that relates to energizing and warning across levels.

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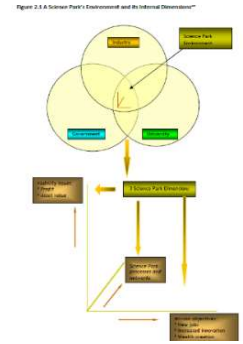
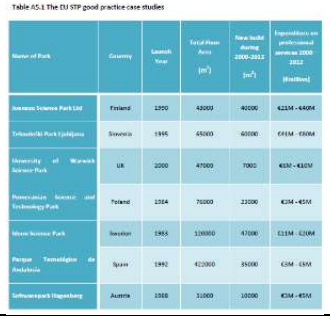
TABLES AND FIGURES

Table 1. Data sources, including details on informants by organization

Source & amount	Level of analysis	Details
Semi-structured interviews *Total:* 42, fully recorded-fully transcribed with 35 informants *Average length:* 100 minutes	Partnership	*Informants by organization:* • **Municipality**: Innovation Officer1; Innovation Officer 2; Municipality Urban Planning Director - Project Chief Architect; Director Joint Venture with PUC for Project Extension • **LIO**: President, Managing Director; R&D Officer 1 – Innovation Projects; R&D Officer 2 –Activities inside Science Park; R&D Officer 3 – Responsible of Fabbing Lab • **University**: Chancellor; Vice-Chancellor; Engineering Department Dean 1- Project Initiator; Engineering Department Dean 2 – Project Implementer; Engineering Department Responsible of Technology Transfer; Leaders of Research Groups 1, 2 and 3 required to move in the Science Park; Researchers (R1 to R5) in RG1, RG2 and RG3 required to move in the Science Park • **Chamber of Commerce**: President • **Industrial Association 1**: Director; Innovation Officer 1 & 2. • **Industrial Association 2**: Managing Director; Industrial Relations Officer • **Industrial Association 3**: President at T1- Project Initiator; Innovation & Economic Development Officer • **Public Utility Company**: R&D Senior Manager • **Private Research Center**: Managing Director
	Region	• **RIUR:** Director; Technology Transfer & Innovation Officers 1 & 2.
Participant observations *Total:* 28 *Timespan:* 2014 - 2018	Partnership & Region	10 Board of Directors meetings 3 Shareholder meetings 4 public events 11 meetings between partner organizations
Archival data *Total:* 354 official documents & press articles *Timespan:* 2013 - 2018	Partnership & Region	225 press articles about the science park project 8 documents about science park project posted on websites 13 internal documents of partner organizations (e.g., reports, budgets) 2 protocols regulating the partnership 6 public announcements and calls for funding 10 brochures of the activities of the partners 15 brochures of the events and activities of the science park 2 architectural projects 10 promotional videos 2 construction site plan
	Region	4 strategic reports 3 protocols 8 public announcements 2 calls for funding 5 construction site plans
	European Commission	2 principal programmatic reports: "Setting up, managing and evaluating E.U. science and technology parks. An advice and guidance report on good practice" (RAGG) & "The Role of Science Parks in Smart Specialization Strategies. JRC Technical Reports" 12 other reports on specific STP initiatives in the E.U. regions 10 press releases and communications about STP-related events 15 documents containing spotlight advice, guidance and good practice indications by studies endorsed or commissioned by the Commission.

Table 2: Multimodal interplay of emplacement and space configuration strategies across levels of translation

<table>
<tr><th>OUTCOME X LEVEL</th><th colspan="2">STRATEGIES OF SETTING SPACE INTO PLACE</th><th colspan="2">FUNCTIONS</th><th>MULTIMODAL ARRANGEMENT</th></tr>
<tr><td rowspan="4">E.U.:
IDEAL TYPE</td><td>EMPLACEMENT</td><td rowspan="4"> 
Ex.1 (left figure): Example of second generation STP with text description: “The above buildings are sometimes collectively known as a “park centre” or “park hub” as they are the places where both formal and informal interactions occur and the places where the knowledge base organisations and park management are most likely to operate their principal proactive business and innovation programmes. Ideally, these buildings should be at the focal point of the STP and relate to each other physically thereby encouraging the staff of the park companies to see this part of the park as a natural extension of any other building that they occupy. They are also the buildings that need to be built during the early stage of the STP’s development. As the park grows the majority of the buildings will be either: Larger units in multi-occupier buildings. These are needed to take the growth of businesses from the incubator units, the growth of tech companies coming to the STP from outside the park or teams form larger technology companies establishing a regional presence. Owner - occupied or rented buildings developed to accommodate a single organization.” (E.U. RAGG)
 
Ex.2 (left figure): Diagram containing emplacement and space configuration advice, with text description: “GSK have an R&D facility on the North Carolina Research Triangle Park, which is the oldest science park in the world; What good STPs are attempting to achieve through their networking and programmes is the development of a matrix of relationships among stakeholders such that the locality operates more like Silicon Valley “where there is a continuous and high rate of transformation of knowledge and ideas into streams of innovations and the continuous formation of new companies exploiting those innovations” (…) GSK have also created their own innovation campus next to their corporate R&D labs in Stevenage to the north of London and they are about to embark on creating an R&D facility on the University of Nottingham Innovation Park (a relatively new STP). In case it is thought that these ideas may be rather theoretical, it is worth bearing in mind the words of Dr Andrew Witty, CEO of GlaxoSmithKline (GSK plc.) (…) “Building the right ‘software’ into a Park is where the true value lies.” (E.U., RAGG)
 
Ex.3 (left figure): Summarizing table and introduction to the EU STP ‘good practice’ case studies with text:“The STP case studies in this report were not selected at random. Rather, they were selected because each park:
• Was mature – more than 10 years old
• Had a floor area of at least 20,000 m2
• Had constructed some new buildings during the period 2000 – 2012
• Operated a programme of professional business and innovation support activities that was at least €3 million over the 2000 -2012 period.
(…)</td><td>ENERGIZING</td><td rowspan="2">Ex.4: “STPs have much they can offer in supporting economic development in a locality. They are one of the few parts of the innovation ecosystem that root into the local economy new innovation-led businesses and inward investors. By working with others, they can also close certain types of weakness in the innovation ecosystem, improve the culture of entrepreneurship in knowledge-based sectors and stimulate greater numbers of higher added value employment opportunities.” (E.U., STP report n.1)
 
Recent development at the Technology Park of Andalucía, Spain
Ex.5 (left image): Recent developments of an urban area as implemented by a STP’s partners. (E.U.RAGG)</td><td rowspan="4">IDEAL TYPE:
visuals ***supplement*** discourse

-Real & imagined visuals (images of buildings, diagrams & tables) supplement policymaker’s visions about the future and bring testimonials of previous projects</td></tr>
<tr><td>Exemplifying emplacement options:
• valuing shared, proximate, state-of-the-art facilities</td><td>Advocate & mobilize RIS3 collaboration</td></tr>
<tr><td>SPACE CONFIGURATION</td><td>WARNING</td><td rowspan="2">Ex.6. “The feasibility study is the most well understood approach to determine whether the public sector should invest in a new STP or not. (…) It is quite normal for the calculation of a proxy ‘potential’ to form part of a feasibility study. However, to be meaningful the output estimates need to be based on a careful analysis of those STP features that determine likely success (described in chapter 3) within the context of the state of the local economy and existing innovation ecosystem. The presumption of near ideal local economic conditions or the underplaying of likely shortcomings in any of the STP success factors will lead to a gross overstatement of the total value of the outcomes or the time by which they are achieved or both.” (E.U. RAGG)
 
Ex.6 (left figure): table summarizing social accountability requirements and accompanied by text: “If any of the critical factors are not satisfactorily addressed by the feasibility study, then public sector funders should not offer funding until plans are changed to accord with good practice.” (E.U., RAGG)</td></tr>
<tr><td>Securing value through space configuration requirements:
• setting facility standards & metrics</td><td>Commit to social accountability: -“walk the talk”, “not just sites but services”</td></tr>
</table>

<table>
<tr>
<td rowspan="2">Region:
PROTOTYPE</td>
<td>EMPLACEMENT

Embedding place in local meanings:
• emblematizing the Territory's strengths (physical nodes, junctions, infrastructures)</td>
<td>  
Ex.8, 9 (left images): Abstract and stylized images of partnerships and networks with text: "We talk about a regional ecosystem of innovation with the perspective of making innovation a process based on collective dynamics, not just on individual efforts. Region, Universities, research bodies, business organizations, and many local authorities want to make a significant contribution to regional action. This system, not to be considered closed or exhaustive, is hinged on the following main protagonists (…) The pivot of the innovation system, wanted by Region, is the Regional High Technology Network, coordinated by RIUR (consortium company of the Region with universities and research institutions) and established from industrial research laboratories and centers for innovation: a network of structures capable of intercepting and recombine key enabling technologies (…) The Network is structured around 6 industrial platforms capable of addressing technological innovation needs for large part of our production system: Advanced Mechanics and Materials, Agribusiness, Construction and Construction, Energy and Environment, Life Sciences, ICT" (Region, S3 report 1)

 
Ex. 10 (left image): Regional maps containing symbols and logos of the region's main industries, (RIUR website powerpoint)</td>
<td>ENERGIZING

Unleash local potential for RIS3 collaboration</td>
<td>Ex.12: "As mentioned in all recent programming documents for regional economic development and innovation, the starting point in our Region is the presence of an extremely dynamic production system consolidated as a result of a long process of growth that has led to significant processes of specialization and accumulation of knowledge 8…) thanks to an increase in exchanges intensity and collaborative relationships, sharing of common resources, mutual competition, and consequently, strong ability of spontaneous innovation (…) (Region, S3 report 1)

 
Ex.13 (left image): Slide with symbols and logos of the region's main industries, (RIUR website powerpoint)</td>
<td rowspan="2">PROTOTYPE: visuals complement discourse

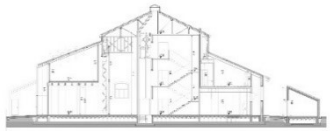
-Real & imagined visuals (images of buildings, territorial maps, symbols & logos of industries & locations) complement policymaker's indications about what must be prototyped</td>
</tr>
<tr>
<td>SPACE CONFIGURATION

Securing value through space configuration requirements:
• setting facility standards & metrics
• configuring a physical access point (portal)</td>
<td>Ex.10: "The total area of the STP will be 100,000 square meters, divided as follows: (partner name) 6,500 sqm; (partner name): 10,000 sqm;.(partner name): for 10,000 square meters; (partner name); 1,000 sqm; (partner name) 380 sqm; incubator for new businesses deriving from (partner name) 2000 sqm." (Region, Report on STPs n.1)

 
Ex.11 (left image): Region's Hi-Tech Network portal website with text description: "In the Equipment Catalog you can find the instruments offered by the High Technology Network and its Laboratories for your industrial research activities. 3D printers, antennas for receiving and transmitting signals, accelerometers, climatic and anechoic chambers and ... much more!"</td>
<td>WARNING

Commit to social accountability "not just sites but services"</td>
<td>Ex.14: "The ten STPs will be characterized as a network of infrastructures for research and innovation that will configure the available space as follows: industrial research laboratories developed by the scientific organizations of the territory and of primary interest for the local industry which will transfer a stable part of their staff and qualifying scientific equipment; service structures and spaces for dissemination, spaces for demonstration and information activities; reception facilities for businesses and for organizing technology transfer and innovation support activities; spaces organized to host innovative spin-offs or private laboratories for high-tech companies (newly established or attracted to the territory); a portal that gives information on the whole network, including on the laboratories present in the rest of the territory." (Region, Report on STPs n.1)</td>
</tr>
<tr>
<td>CSP (t1):
VIRTUAL MODEL</td>
<td>EMPLACEMENT</td>
<td> 
Ex.15 (left image): Virtual rendering of the new STP Area with tramway and text description: "The second strategic axis of the masterplan, Urban Projects, is to spread the city identity and effects in the Northern Area in order to produce urban quality. Integrating railway and tramway means going from an infrastructure that separates to an infrastructure that unites and generates public traffic, thus community relations. The tramway is no longer the boundary line of the Northern area but the new front line, the backbone, if you will, of the new public city." (Mayor's letter, City Strategic Masterplan)</td>
<td>ENERGIZING</td>
<td>Ex.21: "We believe we have worked stubbornly in recent years to achieve great part of these goals. However, we cannot proceed on a path - even if enlightened and futuristic - without the active contribution of each of you. We would rather do less but do it together (…) so that economic development is not just your business, but a common work for the growth of the city (…) The city must accept this challenge. We are ready to do it. The heart beats in the North Area of our distinctive skills: education, mechatronics, renewable energies. Together we can make this project the heart beating in our city's whole body. (Mayor's letter, City Strategic Masterplan)</td>
<td>VIRTUAL MODEL: visuals juxtapose discourse

• Virtual visuals (mock drafts & virtual 3D renderings) overlay discursive</td>
</tr>
</table>

	Layering place versions: • bringing place to reality through - mock drafts • performing local transformation through virtual renderings	 Ex.16 (left image): Virtual rendering of the new STP Area in (City Name): Urban Requalification of Northern Area (Ex Industrial Area) with comment by Municipality Architect nr 2, Interview: "Have you seen the new renderings of the STP project? Let me go through them one-by-one (…) You see, in this picture (see left) we tried to give an idea about how it will all play out, the urban requalification, it is screaming innovation. I want to point out, as I have in a recent press release, that it's not my vision, nor the University's vision, nor LIO's vision, this is everyone's vision right here"	Anticipating commitment to the project	 Ex. 22 (left image): Attached to Mayor's letter, picture taken during a partners' public meeting about the STP.	descriptions of the future
	SPACE CONFIGURATION Complying to space configuration requirements: • inscribing facility standards into drafts & renderings • virtually animating configured spaces	  Ex.17 (left image): Construction sketch for the new STP (internal space configuartion) Ex.18 "Our area is this one, you see here? We worked with the architects to make sure that the lab had the right requirements interms of light, airing, security features, and ergonomics (…) I know the conference room will be downstairs, and also the portal space, the welcoming point (…) (Head of Private Lab, Interview) Ex.19 (left image): Virtual rendering of the new STP (internal space configuration) Ex.20: "We are now talking about the space to allocate for the citizen service portal, you see this space here? The idea is to put 5-6 open or semi-open desks and have people from (names of partners) coming in and working from here by rotation once a week, like a city service portal, so to say (…), this will be our space (…) and here, the most important part (..) Region always talks about it, the famous aggregation place, the common living room where people can stop, sit down and talk, or here to the left they could even organize unplanned meetings (…) (LIO top manager, intervew 1).	WARNING Calling for joint responsibility	Ex.23:"The Northern Area of our City is complex: it is not a void to be filled, but a fullness to be rearranged (…) We have given, with this masterplan, ideas and precise objectives, delimited areas of territorial application, and concrete projects, all supported by a common vision. This strategic document is based on the common work, carried out in recent years, based on European standards and international comparisons (…)" (City Strategic Masterplan) Ex.24:"To do this, we need to stand together. Credibility means we need everyone to make tangible commitments" (LIO President, interview)	
CSP (t2): LIVED ARTIFACT	EMPLACEMENT Re-visioning emplacement: • experiencing placelessness • accomplicing in the name of the 'place-to-be'	   Ex.25 (image left): new sites in the Northern area to be requalified as part of the Enlarged STP area; Ex.26 (image top right): Virtual rendering of the Enlarged STP area Ex.27 (image lrft): The mock model of the Enlarged STP	ENERGIZING Relaunching commitment to the project	Ex.31: "This type of projects is risky by default because no matter how hard you try, there are many factors you can't control, there is no easy way to say, look, if I had done this and that, and If I had had all the money and support I needed this place would have been stacked with people and activities right now (…) for sure I would have liked not having to beg our own partners for money to save our common project, can you believe how humiliating that is? And to do everything secretly so that nobody finds out, sneaking around like that, I agree, it doesn't feel good (…) but all long-term projects have their ups and downs (…) What we need right now is to see and share commitment to the common cause" (LIO, Top Manager, Interview 3).  Ex.32 (first image to the left): partners' visit to the new construction site for the expansion project	LIVED ARTIFACT: VISUALS DRIVE DISCOURSE • Experienced and imagined visuals (mock drafts, virtual 3D renderings, photos and expeditions to new construction sites) drive partners' discourses about the future
	SPACE CONFIGURATION	Ex. 28: "You see, it was pretty embarrassing, LIO asked me to do some PR for the STP, bring some entrepreneurs over and show them the area, talk about the projects, but it was all	WARNING	Ex. 33: "The STP is empty, yes, but it is not our fault. We go there, our people work from there. But we have science labs,	

	Dealing with empty space: • talking empty space (just sites, no services) • mutual blaming	empty, the corridors were empty, the offices were empty, and since it's all glass you could perfectly this emptiness (…) What I was telling them was at odds with what they were experience in there, at least this was my feeling (Ind Ass2, Interview 2). Ex. 29: "The risk is that this becomes nothing more than a real estate project (…) an empty box with a big ribbon on top, and we need to find a solution to make it work as planned" (LIO president, BOD meeting). Ex. 30: "This is not what we expected. This was supposed to be a vibrant place, loud and alive, and it just turned into this dead thing that nobody really identifies with (…) My guess is that this space is just too small for everyone's goals to fit it, and this is how we gradually come up with the expansion idea (President of the Joint Venture between Municipality and Utility Company, Interview)	Acknowledging the reality gap	not theaters, it's not something exciting that people come and see, you need other projects, meetings, events (…) What have they (the other partners) done so far? To me, their presence has been null, and LIO has not been much of a powerful broker either (Head of Research Lab nr 3, University, Interview) Ex. 34 "So far we are the only ones in there, so we are not interacting with other organizations, which was the whole point, right?" (Head of Private Research Lab, Interview)	

Figure 1. A grounded model of the interplay between emplacement and space configuration practices in the translation of grand challenges from policy to CSPs

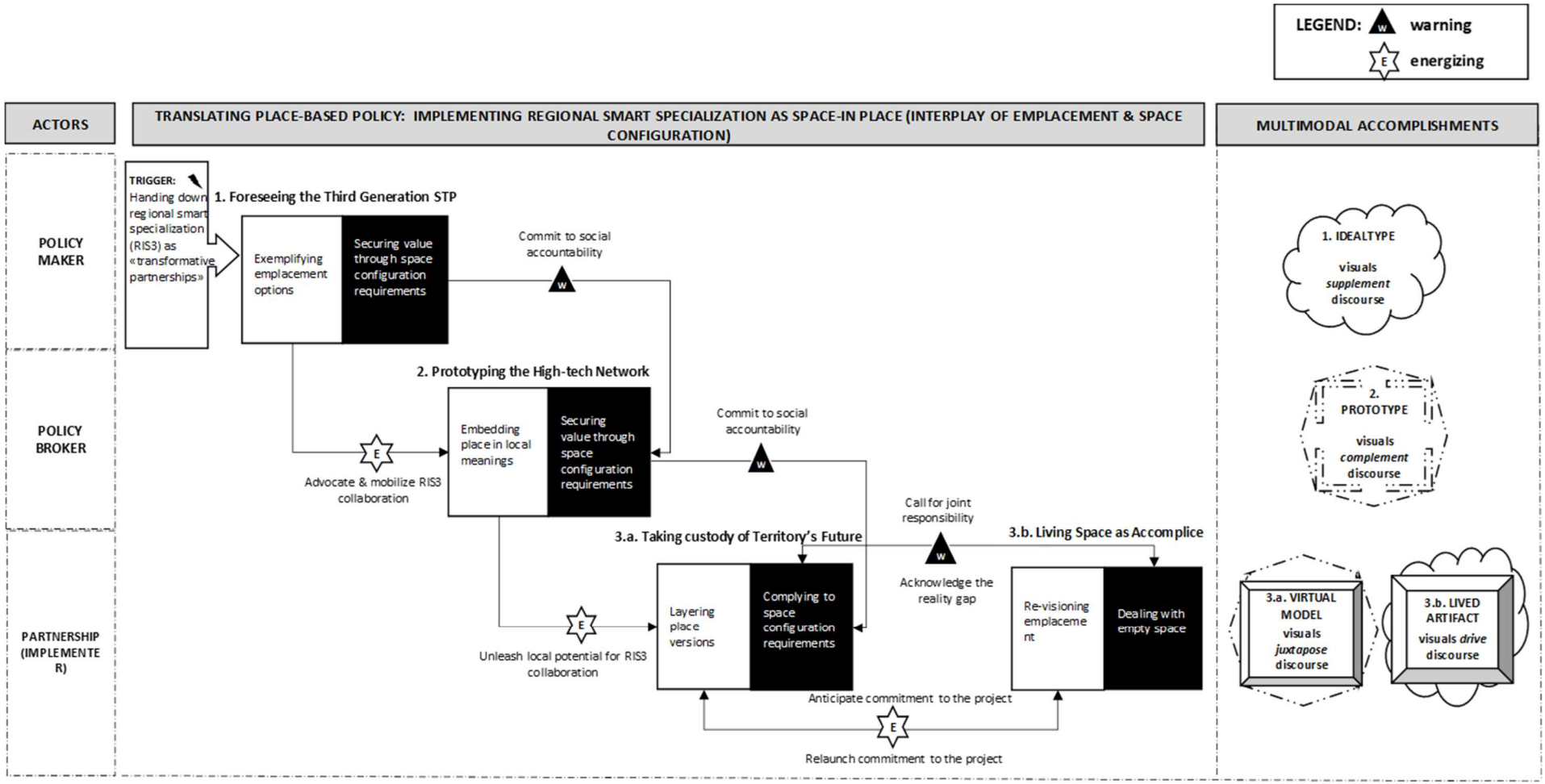


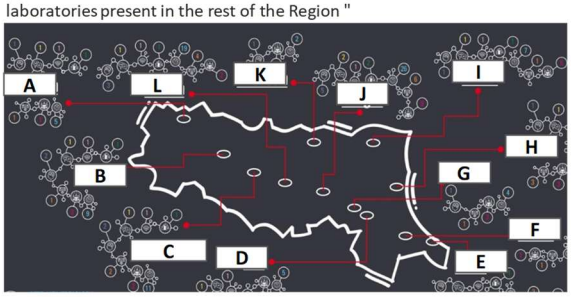
Figure 2. The multimodal arrangements of translation outcomes. From ideal type, to prototype, virtual model and lived artifact.

(a) STP as ideal type (E.U.)

The heart of a modern science park is often called 'a hub'. It consists of different types of buildings allowing for frequent formal and informal interaction between different communities, an environment where both planned and serendipitous innovation occurs. Innovation beyond pure research relies on active exchange between many people to take ideas, develop technologies and systems and commercialise them to meet market opportunities. It is a highly professional "contact sport". People need to meet and collaborate at the levels of one-to-one, in small groups or facilitated workshops, in seminars and in conference mode and each of these modes can be in-person or virtual or a combination of both. The few meeting rooms often found in incubation centres may fulfil part of this need but these facilities are inadequate to cover the above spectrum of interactions. Furthermore, there need to be players like University Institutes who plan and orchestrate programmes using purpose designed and technology sector specific facilities that are directed towards technology transfer and business innovation and sometimes spin-out businesses.

(b) STP as network prototype (Region)

"The ten STPs will be characterized as a network of infrastructures for research and innovation that will host: industrial research laboratories developed by local research organizations which are of primary interest for the local industry, (including research staff and state-of-the art scientific equipment); professional service structures for technological transfer, dissemination, and knowledge exchange; reception facilities for businesses; spaces organized to host newly established or attracted high-tech companies, innovative spinoffs or private laboratories; a portal that provides information on the entire network, that is, also on the research laboratories present in the rest of the Region "



(c) STP as virtual model (partnership T0)

(d) STP as lived experience: from crisis to expansion (partnership T1)