# Transformative social innovation for sustainable rural development: An analytical framework to assist community-based initiatives

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## ABSTRACT

The interactions between bottom-up initiatives and top-down structures in the implementation of regional development policies and projects are complex in theoretical and practical terms. Using concepts such as transformative social innovation, adaptive governance, and bridging institutions, we developed an analytical framework to enhance understanding of the processes by which local top-down and bottom-up forces enhance sustainable rural development by co-developing bottom-linked governance. Bottom-linked governance is a multi-level middle ground where actors from various political levels, geographical scales and industry sectors come together to share decision-making. Social innovation has the potential to be transformative, but to do this, it has to be able to scale-up and provoke changes in the governance system. Using a rural social innovation initiative in Costa Rica, we tested our framework and considered the enabling factors of bottom-linked governance. They comprise the various bridging roles the initiative must play: network enabler; knowledge broker; resource broker; transparency and conflict resolution agent; and shared vision champion. We also considered the critical success factors of bottom-linked governance. Bottom-linked governance and social innovation together comprise how planning practice contributes to social-ecological regional development. Sharing of power and participatory decision-making facilitate more flexible, inclusive and effective planning. Our analytical framework was helpful in understanding how a social innovation initiative fostered transformation and contributed to sustainable rural development.

## 1. Introduction

A constant challenge in regional planning practice is how to effectively implement development policies and projects that bring sustainability to rural regions. Although the participation of communities in planning processes has been much discussed, the tensions between bottom-up initiatives and top-down structures are still difficult to reconcile (Butler et al., 2015; Molden et al., 2017; Taylor and de Loë, 2012). With the increasing experience of these tensions by rural regions, there is growing concern about how rural development initiatives manage this tension (see LEADER/CLLD, EU program e.g. Dax, 2006; Dax et al., 2016; Pires et al., 2014). By combining the bodies of literature on adaptive governance of social-ecological systems (SES), social innovation, and bridging organizations, we consider how a regional governance system can be transformed into an adaptive system that facilitates planning practice, which encompasses bottom-up and top-down collaboration.

The aim of this paper is to improve understanding about how political structures and governance levels can be better connected in theory and practice. We therefore designed an analytical framework of transformative social innovation. Specifically, we explore how social innovation initiatives promote transformation in a SES, i.e. a rural region, by fostering bottom-linked governance. Bottom-linked governance refers to a collaborative middle ground where actors from varied political levels, geographical scales and industry sectors converge to share decision-making (Pradel Miquel et al., 2013). The analytical framework we designed is informed by the theoretical reflections presented here, as well as by our empirical work with a specific social innovation, the Association for the Development of the North Zone (ADEZN) in Costa Rica. We conclude with reflections on the insights our analytical framework provides for the theory and practice of rural planning and regional development.

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## 2. Bringing together theories about social transformation

### 2.1. Regions, social-ecological systems and adaptive governance

The term, region, is somewhat ambiguous, can be nebulous, and does not necessarily imply a precisely-demarcated area (Paasi, 2013). Nevertheless, similar to the concept of territory, region refers to geographical location and to all the relationships among the social, economic, ecological and physical processes that comprise it (Allen et al., 1998). Understanding that regions consist of social as well as natural domains, and that the internal processes between them are intertwined, implies that regions are dynamic, complex territories. Thus, a region can be considered as a social-ecological system (SES) (Biggs et al., 2010; Folke, 2006; Ostrom and Cox, 2010).

Adaptation is defined as the capacity of a SES to learn, combine experiences and knowledge, and adjust its responses to changing external and internal pressures and processes, while continuing to develop, thus resulting in overall improvement (Barnes et al., 2017; Berkes et al., 2003). An adaptive governance approach provides an effective way to create an inclusive and forward-looking vision of sustainable rural development, in which the varied, multi-level actors develop resilience, embrace change, and are empowered to influence future development trajectories (Barnes et al., 2017; Davoudi, 2012; Imperiale and Vanclay, 2016). Spatial planning practice operating in an adaptive governance system is likely to be more fluid and inclusive, thus facilitating more effective decision-making, especially in complex situations (Butler et al., 2015; Menzel and Buchecker, 2013; Wilkinson, 2012). For a governance system to be adaptive requires that the socio-political arrangements governing the SES: (1) actively involve different actors; (2) embrace diversity of values, interests, perspectives, and management methods; and (3) are able to effectively reconcile conflict (Castro-Arce et al., 2019). Drawing on Dietz et al. (2003), Chaffin et al. (2014, p.7) pointed out that an optimal adaptive governance system "requires a structure of nested institutions (complex, redundant, and layered) and institutional diversity (a mixture of market, state, and community organizations) at the local, regional, and state levels, connected by formal and informal social networks".

Scholars highlight social innovation as being key in triggering an ongoing process of change and renewal, thus promoting an adaptive governance system (Baker and Mehmood, 2015; Biggs et al., 2010; Spijker and Parra, 2018; Westley et al., 2013). Social innovation has the potential to be used to identify the factors and leverage points that foster transformative change in an SES and its governance (Biggs et al., 2010). According to Mangabeira Unger (2015), social innovation is stimulated by society, and creates awareness of the challenges provoking change in society. Social innovation is especially important because "the established ways in which society provides for its own revision never exhaust the ways in which it can be changed" (Mangabeira Unger, 2015, p.233). Thus, social innovation can be seen as an adaptive response of the system, e.g. a reaction to a crisis or conflict, or as a dynamic that fosters adaptive governance by provoking changes in the system.

### 2.2. Transformative social innovation

We introduce social innovation, not just as an interesting concept to advance the theory of adaptive governance of SES, but also as a practice that encourages the governance system and regional planning to adapt (Baker and Mehmood, 2015). Drawing on Moulaert et al. (2013) and Mangabeira Unger (2015), social innovation can be defined as the creation, renewal or transformation of social relations in the development of new ways of working together to achieve societal goals. How social innovation addresses community interests necessarily involves socio-political mobilization, which will normally lead to empowerment of rural communities (Bock, 2012, 2016; Moulaert et al., 2013; Neumeier, 2012). When social innovation seeks to address more than just immediate pressing needs, and actively searches for new sustainability pathways, it will likely transcend geographical scales and political levels, and be instrumental in societal transformation (Mangabeira Unger, 2015). Thus, social innovation has the potential to be transformative, i.e. to profoundly affect the governance system by changing socio-political roles and routines, beliefs, knowledge, power flows and resources (McGowan and Westley, 2015; Moulaert et al., 2005; Parés et al., 2017), and by encouraging the system to adapt and bounce forward (Davoudi, 2012).

Social innovation is generally regarded as a normative concept and practice, in that it is meant to improve society (Moulaert et al., 2017). Social innovation is about the satisfaction of social needs and the achievement of common desires and aspirations. It comprises the processes and arrangements needed to identify, assess and address these interests, and to empower groups in society (Castro-Arce et al., 2019). Social innovation refers to the actions, participatory processes and outcomes that provoke changes in social relations, collective empowerment, political arrangements and/or governance processes, and lead to improvements in the social system (Moulaert et al., 2013). Therefore, in the literature there is a panoply of applications – from the development of new ideas, products and services, to improvements in actions and processes, the adoption of new social practices, opening-up for creative spaces, novel and renewed institutional arrangements, more democratic forms of participation, and more – all of which seek a more equitable, fair, efficient, effective and sustainable society.

For most scholars, social innovation must have broad transformative impact (Avelino et al., 2017; Novy, 2017; Parés et al., 2017; Westley et al., 2017). The significant economic, social, environmental and technological challenges societies around the world face cannot be addressed by disconnected local initiatives. But when local-level initiatives become interwoven across geographical scales and political levels, social innovation can work towards systemic change (Parés et al., 2017). Drawing on Avelino et al. (2019) and Parés et al. (2017), *transformative* social innovation is social innovation that leads to changes in agendas, institutions and agency, profoundly influencing basic routines, beliefs, power relations and/or resources. Transformative social innovation contributes and aspires to broad, comprehensive social-ecological change, including: better socio-economic outcomes (Novy, 2017), more sustainable livelihoods and lifestyles (Mehmood and Parra, 2013), and greater resilience (Imperiale and Vanclay, 2016; Westley et al., 2017). To achieve these overarching outcomes, social innovation initiatives must have the ability to scale-up to become part of a multi-level governance system (Avelino et al., 2019; Novy, 2017).

By connecting socio-political levels and spatial scales with wider structures, bottom-up social innovation has the potential to contribute innovations that will lead to transformation and improvements in the regional governance system. In linking bottom-up initiatives with those at higher spatial levels, transformative social innovation enables bottom-linked systems of governance (Pradel Miquel et al., 2013), opening up possibilities for more inclusive, diverse and adaptive governance systems (Castro-Arce et al., 2019).

### 2.3. Bottom-linked governance and bridging institutions

Bottom-linked systems of governance provide a middle ground that emerges when social innovation deals with the tensions and mismatches between levels, scales and sectors. Bottom-linked governance occurs in the interactions between bottom-up and top-down. Bottom-linked governance can be seen as both an outcome of social innovation, and as a socially-innovative space of action. Bottom-linked governance is an outcome when it is stimulated by the reconfiguration of social relations that occur through social innovation. This reconfiguration materialises when individuals or groups of people experiment with roles, functions and tasks in order to seek satisfaction of their unmet needs (Spijker and Parra, 2018). Social innovation also emerges when actors at varying political levels, spatial scales and action arenas

interact in new networks and collaborate in new ways. Bottom-linked governance becomes a space of action because it facilitates ongoing innovation in how things are done, leading to more flexible, collaborative, inclusive and adaptive governance systems. The structure of governance systems has an influence on the capacity of different actors to develop socially innovative practices (Pradel Miquel et al., 2013). Innovative governance systems that connect bottom-up with top-down regional concerns are more likely to develop collaborative and flexible initiatives oriented towards regional sustainability (Westley et al., 2017).

Not all social innovation initiatives have the ability to trigger bottom-linked systems of governance (Pradel Miquel et al., 2013). Bottom-linked governance can be fostered when social innovation builds bridges amongst social groups, political arenas, geographical scales and industry sectors. Bridging abilities are essential to foster adaptive governance systems (Cooper and Wheeler, 2015), and are inherent in the concept of bridging organizations. Bridging organizations are formal organizations that use collaborative mechanisms to bring diverse actors together (Crona and Parker, 2012; Kowalski and Jenkins, 2015). Bridging organizations have been much discussed in the literature on SES governance and sustainability (Berkes, 2009; Brown, 1991; Folke et al., 2005; Hahn et al., 2006). However, except for Biggs et al. (2010), the links between bridging organizations, social innovation and transformation in SES have not been addressed. Because bridging organizations are regarded as formal organizations, we prefer the term, bridging institutions, so that informal organizations are also included. Drawing on Ostrom (2005), we define institutions as a broad concept that encompasses all the formal and informal arrangements people use to organise and govern their interactions amongst themselves, their interactions with the environment, and the mechanisms for creating and changing these arrangements.

Due to their varied functions, bridging institutions have the potential to influence other institutions, governance systems, and the degree of empowerment of social groups. A bridging institution can also influence the way crises are perceived, problems are assessed, and collective visions are constructed. According to Brown (1991), a bridging institution "can be a conduit of ideas and innovations, a source of information, a broker of resources, a negotiator of deals, a conceptualiser of strategies, [and] a mediator of conflicts" (1991, p.812).

Two major consequences arise from bridging institutions: overcoming the barriers to collaboration; and facilitating reduction of the costs while increasing the benefits of collaboration (Berkes, 2009; Brown, 1991; Folke et al., 2005; Hahn et al., 2006). The first consequence comes from the various roles bridging institutions can play, including being a: channel for inter-institutional collaboration; interlocutor in horizontal and vertical communication; facilitator in building shared visions; mediator for the resolution of conflict; promoter of multi-level networks; and agent in the co-production and transfer of knowledge. The second consequence (reduced cost and increased benefits of collaboration) derives from these bridging functions, because they strengthen social capital, foster the empowerment of actors, stimulate accountability, and the building of trust between actors.

## 3. Methodology

Our analytical framework, which we explain fully below, was developed across successive brainstorming sessions in which the authors reflected on the meaning of social innovation and how it plays out in practice. Using our individual experiences with bottom-up initiatives, and by engaging with the theoretical and applied literature, our framework was iteratively developed over time. Our ideas have been presented at various conferences and seminars, and the framework has been adaptively developed in response to comments received and our own reflections.

We initially tested the framework with several cases of social innovation with which we have worked (in Australia and Costa Rica). For the purposes of illustrating the framework and for efficiency, in this paper we use only one exemplar, a social innovation initiative from Costa Rica, the Association for the Development of the North Zone (ADEZN). This initiative was purposively selected as our exemplar because it was a successful, rural, self-organised, bottom-up initiative that has flourished for over 17 years. ADEZN is an independent regional development agency based in the rural northern part of Costa Rica (the Huetar-North region). ADEZN considers itself to be a territorial development experiment with a mission to promote sustainable regional socio-economic development and wellbeing.

To verify that ADEZN was truly a social innovation, we applied the criteria elaborated by Moulaert et al. (2005, 2013), namely, that to be a social innovation, an initiative must: (a) act towards the satisfaction of human needs that are not currently satisfied; (b) provoke changes in governance to enable this satisfaction, and to increase the level of participation of all actors; and (c) foster empowerment by enhancing socio-political capability and access to resources. In our opinion, ADEZN fully met these criteria (see section 6.2.1 for further elaboration).

The original research on ADEZN was a qualitative case study. Data were obtained during field visits in 2014 (July–August) and 2015 (July–November), and by ongoing monitoring of online sources. As a practitioner and scholar in the field of spatial planning in Costa Rica, the lead author had considerable knowledge of regional development initiatives and professional contacts providing her with unrestricted access to the case. Consistent with a typical case study, data included in-depth interviews (47 in total), participant observation of its various activities, analysis of relevant documents and online sources, and field observation of ADEZN projects and the local environment. The lead author interviewed people within ADEZN (e.g. executives, board members, associates), community members in locations where projects were implemented, local government and local public agency personnel, (former) ministers and public servants from central government, and other key people.

The principles of ethical social research were observed (Vanclay et al., 2013) and informed consent was obtained for all interviews. All interviews were recorded, and extensive notes were taken in situ. The interviews were conducted in Spanish, and all data was retained in Spanish. Atlas.ti was used to assist in the management of data. Various extracts were selected for inclusion in the paper, being translated by the authors. In the translation, an attempt was made to ensure the original meaning was transferred into English, rather than simply providing a direct literal translation.

The interviewees were asked about: the characteristics of the context at the time ADEZN commenced and changes over time; its general profile (aims, goals, governance, resources, strategies, organisational structure and activities); the rationale for belonging to ADEZN; the value of the networks ADEZN created; the effectiveness of its multi-level dynamics; its impact on rural development; and other impacts. All activities of ADEZN were examined in some detail, including projects that were completed, in progress, or planned. Failures as well as successes were considered.

## 4. An analytical framework for transformative social innovation

Drawing on our literature review and by reflecting on our empirical research, we designed an analytical framework that explains how transformative social innovation occurs (see Fig. 1). Local interests and context situations are both triggers of social innovation. We argue that social innovation enables bottom-linked governance, and that these two mechanisms are both needed for bottom-up actions to scale-up to achieve transformation at higher levels. Regional transformation is realised in the territory by transformations in the governance system and by transformations in relevant actors. As a result of the transformation, these actors will exhibit changes in their knowledge, attitudes, skills and aspirations (KASA change, see Vanclay, 2015).
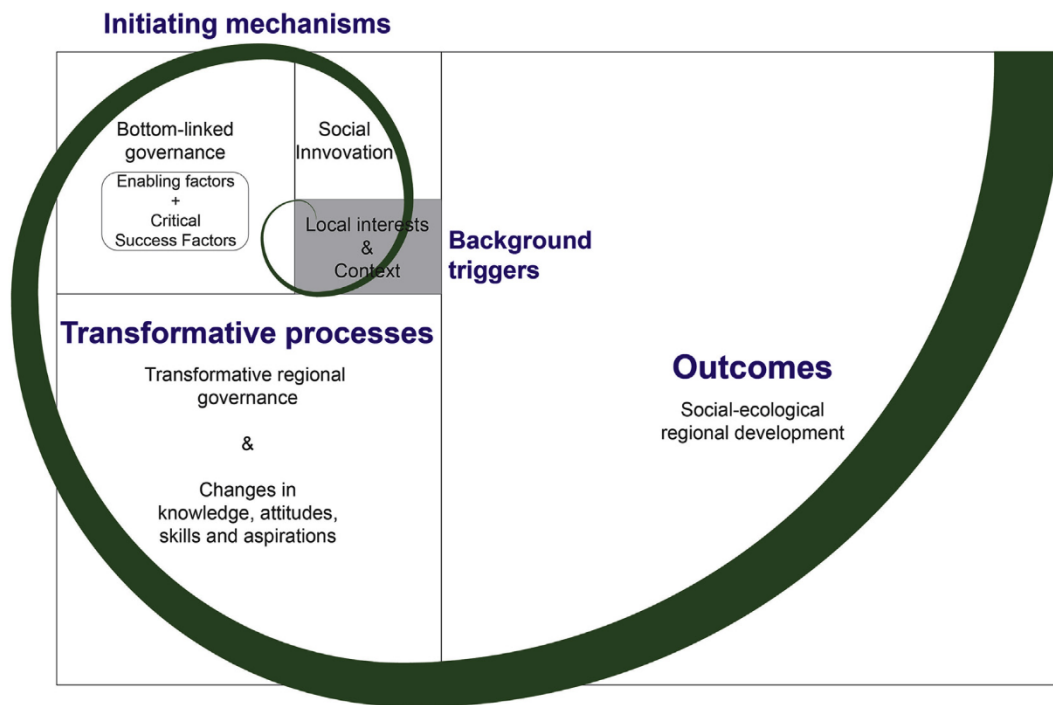
**Fig. 1. Analytical framework for transformative social innovation**. (Source: author. Image inspired by Murray et al., 2010).

The ultimate goal or outcome of planning is to achieve social-ecological development. This is an ideal state, with high levels of sustainability, resilience and community wellbeing. We argue that, under the right conditions – i.e. enabling factors (including bridging roles) and critical success factors (described below) – social innovation together with bottom-linked governance will result in transformational processes leading to social-ecological development.

### 4.1. Bridging roles as enabling factors of bottom-linked governance

Transformative social innovation is enacted through bottom-linked governance. Social innovation initiatives must have the ability to build bridges and create links between the bottom-up and the top-down. There are several roles that can be played to enable bridge-building. By analysing the key papers on bridging institutions in sustainable development (Berkes, 2009; Brown, 1991; Folke et al., 2005; Hahn et al., 2006), we identified the five roles that must be undertaken by actors participating in social innovation initiatives if transformation is to occur.

1. *Network enabler*: transformative social innovation initiatives develop networks and/or connect existing networks. Fostering the collaboration of actors through networks is fundamental to all dynamics taking place in and around bridging institutions. Problems can be better tackled when actors with interests in regional development collaborate and exchange with each other at vertical and horizontal levels. Collaboration through networks creates awareness of and empathy for the needs and opportunities of all actors.
2. *Knowledge broker*: transformative social innovation initiatives provide a forum for knowledge sharing, knowledge creation and knowledge translation. As bridging institutions, transformative social innovation initiatives assist in exchanging local knowledge, science, and technical expertise. These institutions, together with interested actors, co-create information. Bridging institutions are especially effective in dealing with knowledge issues, particularly where local knowledge is based on cosmologies, epistemologies or worldviews that are different from mainstream science, technocratic policy, or hegemonic political discourses.

3. *Resource broker*: transformative social innovation initiatives serve as arenas for negotiation and decision-making. Actors from different industry sectors and political levels express their interests, but can also contribute resources for tackling particular problems. Bridging institutions facilitate collaboration between actors resulting in win-win outcomes. These institutions create opportunities, not in self-interest, but in the interests of all the actors in the networks and for the benefit of the region. By connecting actors, identifying and addressing their interests, and harnessing resources, bridging institutions provide an important service to all parties, for example in reducing transaction costs (not only in monetary, but also in political and social terms), and in raising awareness of the importance of collaboration for the satisfaction of needs.
4. *Transparency and conflict resolution agent*: transformative social innovation initiatives promote participation and collaboration around common agendas. How these initiatives are organised is critical for their ability to manage their relations with other actors, within networks, and for the way agendas are built and pushed forward. When the rules of the bridging institutions are clear and transparent to the participating actors, and shared openly with other actors in the governance system, trust is built. In gaining the trust of all parties, the bridging institutions provide a space for conflict resolution, facilitating the flow of knowledge and resources. Resolving conflict is essential for all social innovations, because they have considerable potential to create conflict due to the fact that these conflicts tend to revolve around the allocation of resources.
5. *Shared vision champion*: transformative social innovation initiatives enact a process to create a shared vision of sustainable regional development. The actors involved have their own visions, missions and agendas, but in collaborating, they come to a shared vision. Sharing resources and creating knowledge influence the actors to co-create a vision in which their aspirations and needs are not only represented but are also addressed.

### 4.2. Critical success factors to achieve transformative regional development

Drawing on the literature (García et al., 2015; Jessop et al., 2013; Olsson and Galaz, 2012; Spijker and Parra, 2018), it is possible to

identify four critical success factors which are needed to ensure that, when bottom-linked governance is enacted, it will lead to transformative social-ecological regional development.

1. *Acknowledge that the interests of local communities (needs, desires, aspirations), and the social-ecological context (conflicts, crises, opportunities and challenges) will change over time.* When local initiatives take hold, and there is a governance arrangement that is flexible, communities will push for the satisfaction of their needs and the materialization of their desires. This may lead to this being achieved, but also to a change in their concerns. Transformative social innovation is an iterative process that reveals opportunities to change, while inspiring and initiating change.

2. *Acknowledge that only by scaling-up and/or rolling-out at multiple levels will local action deliver better sustainability outcomes.* Innovative initiatives at the local level are interesting, but to truly contribute to sustainability and to be transformative, they have to operate at wider levels. When local knowledge is mobilised to tackle local challenges and is accompanied by resources from formal institutions, it can lead to wider and multilevel outcomes.

3. *Acknowledge that formal institutions are necessary to enable and sustain transformation.* Through the support of formal institutions, social innovation initiatives can gain the resources needed to continue innovating. Formal institutions, especially those with proactive characteristics (e.g. open-mindedness, flexibility, willingness to take risks, and trust in community engagement), are key to developing policies and regulations to guide enhanced regional development and future social innovation.

4. *Acknowledge the need for sharing power and decision making in the governance system.* To achieve transformation in the system, social innovation actions need to navigate across political levels, geographical scales and industry sectors. Sharing knowledge and decision-making, and distributing tasks and resources, promotes co-operation, conflict resolution, and the empowerment of all actors. To establish an ongoing process of transformative social innovation, the actors in bottom-up initiatives need to be empowered, requiring endorsement from the state.

## 5. Background information about the Huetar-North region of Costa Rica and ADEZN

Huetar-North is a rural region on the border with Nicaragua, 9,800 km$^2$, and with 327,000 inhabitants, representing 19% of the area and only 7% of the population of Costa Rica. The region cuts across eight municipalities. Within its boundaries there are seven natural protected areas and one Indigenous reserve. The main economic activities are agriculture, dairying, cattle grazing and fishing.

In Costa Rica, there are only two levels of government: national and municipal. However, so-called 'regions' were created in 1978 to assist national planning. Despite being intended to facilitate planning, there was a degree of identification with and cohesion within most regions. This happened for two reasons. First, the regions tended to demarcate areas with similar characteristics. Second, it had been perceived that the needs of rural areas were being neglected and the creation of regions was believed to be a mechanism to address rural issues (Brugger, 1982). These two reasons spawned a wide range of social movements, local organizations and cooperatives seeking to improve local development, especially in the Huetar-North region, eventually providing many examples of social innovation initiatives.

## 6. Applying our analytical framework to ADEZN

### 6.1. The background triggers for social innovation

In 2000, many local entrepreneurs felt that there were only limited opportunities to develop their businesses. The local branch of the Costa Rica Technical University (TEC) voiced concern about the lack of attention from the central and local government about the underdevelopment of the region. This triggered the San Carlos Chamber of Commerce (SCCC) to advocate developing an industrial park to attract foreign investment. It called on regional actors to discuss the idea, and brought together the TEC, private sector, local governments and local agencies of the national government. These local actors then established a new group with representatives from all sectors.

This initiative decided to bring their concerns to the national government, together with the idea for an industrial park. Its representatives arranged meetings with ministers, the National Chamber of Commerce, the Chamber of Industries, and managers of other industrial parks in Costa Rica. The outcomes of these meetings were disappointing because the key stakeholders made them realise that there was no competitive advantage for foreign capital to invest in the region. Furthermore, the stakeholders identified flawed logic in the idea, suggesting that efforts would be better directed towards enhancing existing regional activities: agroindustry and tourism. The stakeholders also highlighted local deficiencies: inadequate public infrastructure; a low level of formal education; the absence of English language skills; limited opportunities for leisure; and the lack of opportunity to add value to agro-products. Nevertheless, they were surprised that such a heterogeneous group of local actors came together, not just with a concern, but with a proposition.

### 6.2. Initiating mechanisms: social innovation and bottom-linked governance

#### 6.2.1. Social innovation

Despite the negative opinion of the proposal by the stakeholders, the emerging social innovation initiative still felt they had a pressing need to do something for rural development. Additional local meetings were held to analyse possible development scenarios and alternative projects. Each time, more and more people joined, to listen, to offer their time and resources, and to contribute to building a regional vision. The process was facilitated by the TEC Rector and SCCC President. Staff from the local agencies of national government were key players who linked the needs and concerns of the various actors with existing development programs and available resources.

The combination of public, private, community and academy actors in participatory spaces of the initiative promoted a cohesive environment with a common aspiration: the enhancement of their region. These elements – the combination of actors, a cohesive environment and common aspiration – facilitated the sharing and improvement of individual knowledge and capabilities of all actors. These three elements were important ingredients in the social innovation initiative. ADEZN was born in 2001 as a not-for-profit organisation. Two years later, ADEZN was declared 'a public utility in the interests of the State' giving it the right to receive funding from public and private sources, and to use public property and public servants for the purposes of regional sustainable development (Asamblea Legislativa, 2003).

On its website, ADEZN (http://www.adezn.org) defines itself as an independent regional development agency that seeks to improve the quality of life of people in the Huetar-North region by facilitating collaboration to achieve sustainable productivity, and to improve the territorial conditions to increase the competitiveness of local businesses. Since its inception in 2001, ADEZN has worked on around 40 projects, such as building new public infrastructure, developing new tourism products, enhancing local government capacity, value-adding to agriculture, and work-ready schemes in educational institutions.

ADEZN considered that two infrastructure projects were its flagships: the Tablillas customs post and border crossing; and the national road from Chilamate to Vuelta de Kooper. ADEZN identified that these projects were critical for the development of the Huetar-North region. Both projects facilitated communication, collaboration and exchange between regions in Costa Rica and with Nicaragua (see Fig. 2). ADEZN championed these projects, lobbied for them, and facilitated the
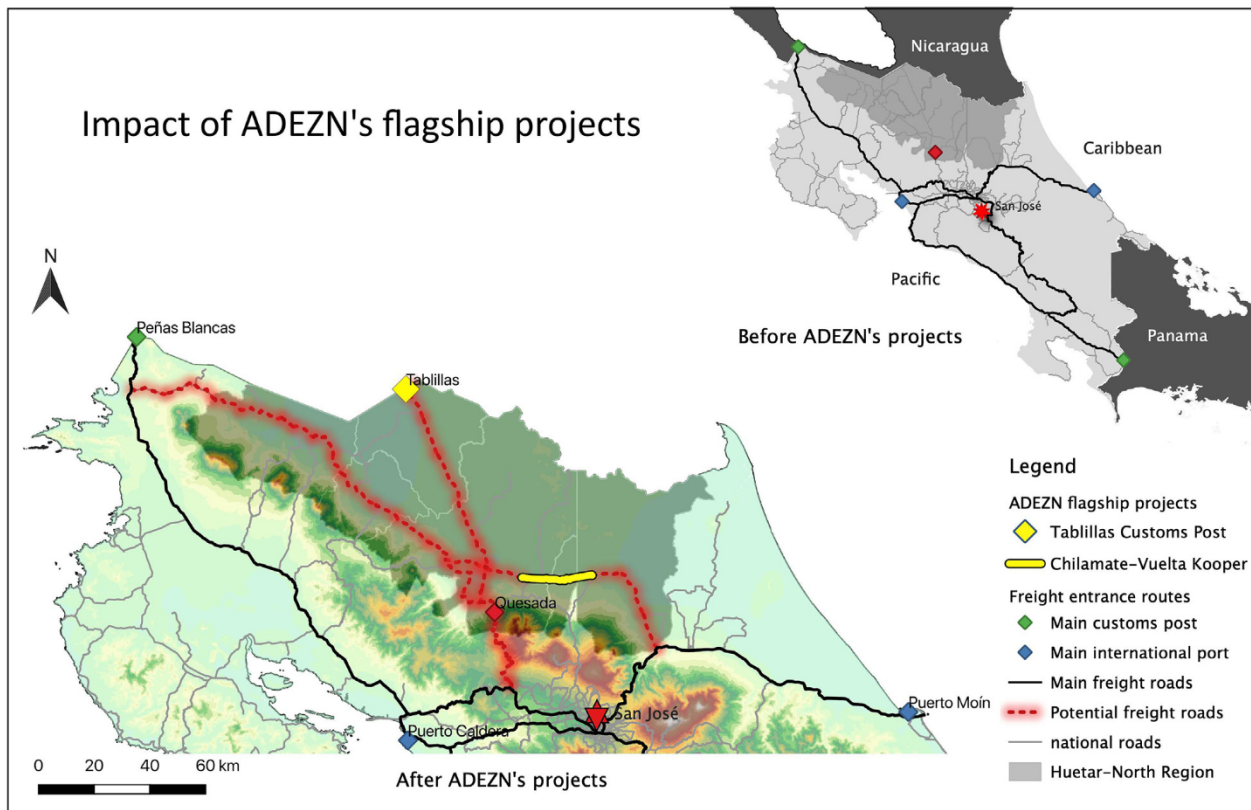
**Fig. 2.** Location of ADEZN flagship projects and their impact on the movement of goods within the rural region, the country and international context. (Source: author based on geographical information data available at Registro Nacional, 2019 (http://www.snitcr.go.cr/), supplemented with the analysis from LANAMME, 2015).

networks of actors necessary for the projects to be successful.

The Tablillas customs post and a border crossing (to Nicaragua) was endorsed by the government in the mid 1990s, however political will to implement it was lacking. It was only through ADEZN's actions, from 2013, that it was realised and completed in 2015. The project involved a border crossing, the building of a customs post, and an 8 km national road from the town of Los Chiles to the border. As this was only the second border crossing between Costa Rica and Nicaragua, it was an important project with local, national and transborder significance.

The national road from Chilamate to Vuelta de Kooper was a 27 km road that opened in 2017. It was built to significantly shorten the distance and time taken for freight to be transported from the Caribbean seaport, Moín, to Nicaragua. Although the road had been planned since 2005, it lacked sufficient political support. ADEZN strongly campaigned for the project given that the road enhanced the movement of goods between the three northern regions of Costa Rica (Guanacaste, Huetar-North, and Huetar-Atlantic), bypassing the capital city area. Taking 7 years to construct, it cost USD 74 million.

We consider that ADEZN is a good example of social innovation. Various criteria about how to identify social innovation have been developed (e.g. Murray et al., 2010; Neumeier, 2017) and could be used to test whether an initiative qualifies as a social innovation. We applied the criteria elaborated by Moulaert et al. (2005, 2013) – as further tested by Castro-Arce et al. (2019) – namely, that to be a social innovation, an initiative must foster: satisfaction of needs; changes in socio-political arrangements; and empowerment. We consider that ADEZN fulfilled these criteria in that it: (a) acted towards the satisfaction of local interests and needs that had not been properly addressed by the national or local governments; (b) provoked changes in regional governance by providing a new and unique participatory space in which varied actors from bottom-up and top-down contributed ideas and resources; and (c) fostered empowerment of actors by promoting

shared decision-making and the enhancement of knowledge.

### 6.2.2. Bottom-linked governance

ADEZN created a space for decision-making about the rural region, not by changing the formal structures of government, but in the way planning was practiced. The resultant bottom-linked governance in the Huetar-North region can be seen as both an outcome of social innovation, and as a socially-innovative space of action (Pradel Miquel et al., 2013; Spijker and Parra, 2018). As an outcome, bottom-linked governance was provoked by the reconfiguration of the social relations and political arenas due to the dynamic, interconnected networks developed by ADEZN. It transformed a very traditional top-down governance structure, into an environment in which the private sector, academy and community could participate with government. It also encouraged local governments to think and act beyond their municipal boundaries by cooperating with each other and other political levels for greater impact. As a socially-innovative space of action, ADEZN boosted collaboration between sectors, scales and levels, which is key to achieving regional goals. As highlighted by our interviewees, ADEZN fostered additional initiatives, including: a Regional Council for Water and Environment; a Council for Industry and Productivity; a Culture Council; and an Education Council.

### 6.3. Conditions for the success of bottom-linked governance

Given that ADEZN has been successful in most of its projects, it might be expected that they adequately addressed the conditions identified earlier, i.e. the enabling factors and critical success factors of bottom-linked governance. However, although our interviews gave the impression that these conditions were met, this was often done inadvertently rather than deliberately, as we discuss below.

### 6.3.1. Bridging roles as enabling factors of bottom-linked governance

*6.3.1.1. Network enabler.* ADEZN enabled networks in three ways. First, it had an internal structure that consisted of thematic groups and projects. Each thematic group and project team comprised actors coming from the private sector, community, public sector, and academy. Each project was also a network in that the project team had an organic, flexible structure that incorporated actors from the appropriate sectors and levels, as well as anyone who wanted to participate. Second, the process of developing each project revealed the interconnectedness between the project and community, and with other projects and actors. Because they had intertwined interests, actors in each project team developed new and/or enhanced relations with other actors, supporting the satisfaction of the interests of others. In this way, ADEZN become a support network for the enhancement of the whole region, with impacts at national and transboundary levels. Third, in developing the various projects, limitations (e.g. jurisdictional issues, financial means, adequate personnel, procurement procedures, etc) became evident. ADEZN and the project networks supported the public sector by connecting-up the formal institutions and in developing new local networks, putting several public institutions into dialog with each other. As an external actor, ADEZN provided the public institutions with a safe space they could use to share knowledge and resources.

*6.3.1.2. Knowledge broker.* ADEZN had the capacity to encourage the vertical sharing of information between the bottom-up and top-down, but also horizontally across sectors. Through ADEZN's various discussion platforms, the local communities were able to share their needs, desires and aspirations, as well as concerns and doubts. ADEZN often voiced these concerns and interests at higher levels. Because of this, the organizations generally took action to address these issues. Within the project networks, actors communicated with others from different sectors, sharing their aspirations, needs and concerns about the projects, the region, or their own capabilities and resources. Through these vertical and horizontal processes, information and knowledge were transferred from one community to another, and from one actor to another. When limitations in capacity were detected, ADEZN invested in improving social and institutional capacities and in encouraging the diverse abilities of actors. This knowledge pool, built on sharing and translating, also helped to develop the continuous improvement of ADEZN's processes and organisational structure, thus creating knowledge that benefited all actors. ADEZN's actions modified the conditions in which the interests arose, and facilitated transformations to achieve better outcomes.

*6.3.1.3. Resource broker.* Most projects ADEZN pushed were executed using public funds. ADEZN closely supervised each project, helping to detect when and where resources were needed, anticipating problems, and being efficient in decision-making. Formal institutions benefited because they allocated public funds more efficiently. ADEZN endorsed projects that had community support, linking local interests to the national and regional development plans. For the private sector, there were benefits from each project, both direct and indirect. For example, in Chilamate-Vuelta Kooper road project, the leader was an entrepreneur who owned hardware stores across northern Costa Rica. He needed this road to expand his business and to transport goods more efficiently. In Tablillas Customs Post, the leader was a forestry investor with land over the border in Nicaragua, and needed to export lumber through Costa Rica. With ADEZN stimulating public projects, the resources needed for every action necessary to realise the project may not be available. This is where ADEZN played a key role in enhancing wider networks to identify and provide resources. Examples of these contributions include: voluntarily contributing to feasibility reports, environmental impact assessments, and other technical studies; providing experts for planning workshops; and designating personnel or office resources to support the process. By combining the contributions from the various sectors and political levels, ADEZN promoted win-win-win situations in which resources and benefits were managed more efficiently.

*6.3.1.4. Transparency and conflict resolution agent.* Over time, ADEZN organised accountability processes that enabled scrutiny by all actors. It put in place three key principles: exclusion of political parties; no involvement in the management of the projects; and disclosure of the members of project groups and of any vested interests they may have. However, it was expected that the project leader would be a *doliente* (mourner), meaning that they were expected to have a direct personal economic interest in the project and thus would suffer or mourn if the project would not succeed (as highlighted before in the resource broker analysis). This ensured that they would strive hard for its success, and be the project's champion. Having this commitment to success meant that project leaders and ADEZN identified innovative ways to address project issues that eventuated. For example, when landowners were dissatisfied with the compensation amounts for expropriated land, which threatened the success of the two flagship projects, ADEZN engaged an independent valuer to adjudicate. These principles and socially-innovative actions fostered trust. The work that ADEZN did in keeping track, lobbying, finding funds and solving conflicts was very useful for all actors. It might have been expected that ADEZN would have a mechanism for resolving internal conflict. However, according to our interviewees, there was no formal mechanism, partly because they had never encountered a situation which warranted it. When quizzed about this, one of the executives said that this was because ADEZN had adequate means to ensure that conflict was dispelled before it arose, particularly because there were ample deliberative spaces for issues to be discussed, which led to a strongly-shared common vision, and that they spent a lot coffee time together and with all the various actors.

*6.3.1.5. Shared vision champion.* As a bridging social innovation, ADEZN not only bridges actors, knowledges and resources, but also aspirations. ADEZN was born from the concerns of individuals about the underdevelopment of their region. While advancing their own interests, the participants built a common shared vision for their future, and the future of future generations. Over the years, ADEZN had been increasingly attracting actors with strong aspirations to forge their ideal of the region. The dynamic nature of ADEZN allowed for projects from different action arenas and sectors to be supported, such as: regional development curricula and work-ready schemes in educational institutions; public-private partnerships; the supply of agricultural by-products; improvement in governance processes and decision-making; landuse planning; the planning of infrastructure; and the management of natural resources.

### 6.3.2. Critical success factors of bottom-linked governance

*Acknowledge that the interests of local communities and the social-ecological context are likely to change over time.* As a social innovation initiative, ADEZN was triggered by specific interests at the time. However, the success of projects inspired individuals, communities, and other actors to conceive of new ideas, with changing interests, priorities, and projects over time. Social innovation changed the governance system, therefore the actions and strategies pursued by ADEZN needed to be revisited in order to continue to be effective, as revealed by one interviewee:

> "We now understand that ADEZN's mission is a long-term process. In the beginning, we thought it was just a short-term action … There was some jealousy towards ADEZN from some entities, so we had to slow down, talk among the associates, make decisions about what needs we have and what goals to pursue, and re-introduce ourselves to higher political levels. This is how we came to realize that regional development is a long-term process. Today, we are proposing projects that we [as individuals] may never see finished, like an

airport or railroad, but are there because of changes in the context and priorities". (interview 2015-08-25 with a long-term member of ADEZN)

*Acknowledge that only by scaling-up and/or rolling-out at multiple levels will local action deliver better sustainability outcomes.* The two flagship projects of ADEZN were pre-existing government projects that didn't have enough political commitment when they were originally proposed. Due to the actions of ADEZN, both projects were placed back on the national agenda. This was possible due to the capacity of ADEZN to scale-up their interests and proposed projects.

"The centrality of the political/administrative structure of the country meant that our primary audience was the central government. We need to be heard at that level. At the local level, we have to influence particular actors. Our other audience, at the regional level, is the academy. They can reach the whole region. At the local level, our audience is not the neighbourhood development associations, but the leaders of the communities and businesses, and the public sector middle managers from the government local agencies. This is the only way to make our work reverberate and create impact at the national level." (interview on 2015-08-31 with a long-term member of ADEZN).

For local social innovation actions to be rolled-out and supported by national agencies requires acceptance that local actors may know better, trust in local organizations, and willingness to experiment.

"There were some sections [within the public sector] afraid of the experimentation with local public-private partnerships, but others thought of it as a spearhead for regional development. [One of ADEZN's executives] came in at the right moment, it was like music to the ears. There was will from the Ministry to develop public policy towards poverty reduction aligned with improvements in regional competitiveness. So, I supported ADEZN and asked [the ADEZN executive] to help with other initiatives in Limón and Guanacaste, so they could create something similar to ADEZN" (interview on 2015-10-26 with a former Minister)

*Acknowledge the necessity of having formal institutions that enable and sustain transformation.* All actors involved in bottom-linked governance need to recognise and support the role of public institutions in achieving sustainable regional development. Resources from the central and local governments are essential when developing projects of wider regional impact.

"The local initiatives propose what they want in term of their needs, but usually they do not know how to achieve them. We provide technical knowledge to define with them the roadmap. Social initiatives emerge, but planning the territory is the responsibility of the State. Local innovation is not a complete solution in itself, as these initiatives are only localised efforts. Together, we need to place them within the strategies of the nation and region, if we want to produce real outcomes" (Interview on 2015-10-01 with a department coordinator from the Ministry of Foreign Commerce)

*Acknowledge the need for a governance system in which power and decision-making is shared.* In a bottom-linked governance system, the actors come together to collaborate for the benefit of all. The success of these collaborations depends on a delicate balance between the distribution of power and decision-making. The success of transformative social innovation is dependent on the level of trust among actors, and their ability to address difficulties.

"We don't want politicians to be part of ADEZN because they will take over and direct it towards their interests, and ADEZN will last only while it is useful to them. The local actors need to be kept in the management of ADEZN. On the other hand, if ADEZN becomes public, then the Ministry of Finance will control everything, and we will lose flexibility and participation. Local actors need to be

empowered. We need to have a say, and be able to act in the interests of our regional development. But, we have to be careful with the private sector, and prevent that strong entrepreneurs, with lots of money, take control, as this will not be in the benefit of the local communities. There needs to be a balance in the sharing of power" (Interview on 2015-08-07 with a long-term member of ADEZN)

## 7. Transformative processes and regional outcomes: drawing lessons from the case

Although it is too much to claim that Costa Rica, or the relatively under-developed Huetar-North region, have achieved an ideal state of social-ecological regional development, it is clear that ADEZN has contributed to transformative processes, especially to transformative regional governance and changes in the knowledge, attitudes, skills and aspirations (KASA change) of the actors. Transformative regional governance is considered to be an effective and participatory regional governance that leads to profound change in system functioning and the state of the system (Chaffin et al., 2016). Transformative regional governance includes adaptive governance, and changes in planning practice. Because assessing the contribution of social innovation to the overarching regional social-ecological outcomes (sustainability, resilience and societal wellbeing) may be difficult, identifying changes in governance and planning practice, and in KASA change, can provide evidence of the success of transformative social innovation (Vanclay, 2015).

### 7.1. Changes in knowledge, attitudes, skills and aspirations (KASA change)

As a result of ADEZN, knowledge has increased in various ways at all levels, sectors and actors in the governance system, especially: knowledge about the region and how development occurs; knowledge about participation, participatory processes, and the actors involved; knowledge about assets and resources, and how to mobilise them; knowledge about political domains, roles, functions, and how to influence them; and knowledge about elite capture, rent seeking, and how to control it.

In general, the attitudes of ADEZN participants became more positive and more confident over time. They become more committed to collaborative projects and they learned to trust themselves and others more. They felt empowered. Success exuded from them, attracting attention, and more people wanted to become actively involved.

As a result of its expanding networks, the level and type of skills within ADEZN increased. People in the networks and project teams also learnt new skills and developed confidence. Skills in advocacy and political negotiation grew. For example, ADEZN's two executives become very effective in cooperating and, because they came from (and were paid by) different institutions, they learned how to effectively counterbalance their interests.

The aspirations of all actors changed as they became more confident and realised that they could successfully achieve things. They shifted in thinking that an industrial park would boost their rural region, to becoming the agents of that boost themselves. The increase in knowledge and the success of ADEZN inspired greater aspirations, personal and collective, for a more sustainable rural region.

### 7.2. Transformative regional governance and planning practice

ADEZN was a good example of how social innovation has the potential to be transformative. Since its origins in 2001, ADEZN developed as a rural social innovation initiative with bridging abilities. Although the primary motivation of ADEZN was to improve local wellbeing, it was clear from the beginning that acting for sustainable regional development involves changing hegemonic socio-political structures, therefore profound change was needed. Social innovation stimulated

bottom-linked governance that was enabled by bridging roles, and was able to be transformative through recognition by all actors of the factors critical for its success. The bridging roles contributed to the emergence and maintenance of a linked middle-ground where various actors, interests and aspirations converged. ADEZN had influence on other institutions, both formal and informal, on the governance of the region, and on the degree of empowerment of each actor. Recognition of continuous change, the capacity of local organizations, the interdependencies between public and private, and the need for shared decision-making helped the actors transcend the local sphere and provoke transformation at regional and national scales.

ADEZN's actions had an impact on the practice of rural community planning. Transformative social innovation reconfigures social relationships and empowers actors. This was proved by ADEZN, as a self-organised and bottom-linked initiative. The varied actors who participated in the initiative discussed possible development scenarios and projects that lead them to achieve their common vision. In doing so, ADEZN put sectors and political levels that were not typically involved with each other, into dialog and collaboration. As highlighted before, without changing the formal planning structures, ADEZN provided a space in which public institutions collaborated with local communities, entrepreneurs and the academy. Rural planners – i.e. servants from government local agencies responsible for rural development – were key actors, as they were able to connect existing wider development programs and available resources with the needs and concerns of local communities.

The success of a transformative social innovation is dependent on the level of trust among the actors, and their ability to address difficulties. Cronyism and elite capture (political or regulatory capture) is a valid concern in rural contexts. The framework addresses this concern both in the characteristics of the bridging roles and the need for recognition of the importance of the active collaboration between the State, communities and other parties, such as the academy and the private sector. The actions of ADEZN, the way they were organised, and their acknowledgement of the critical factors, which was revealed by some interviewees, illustrated a very clear path for other social innovation initiatives. Part of the success of ADEZN was that their members and the participants in general need to be transparent regarding the interests each have in the region, and in the projects they endorse. ADEZN also had clear rules about no participation of politicians, and that the projects need to have community support and positive community impact.

The transformations fostered by ADEZN contributed towards more adaptive regional development. The governance dynamics stimulated by ADEZN actively involved various actors, embraced diversity in interests, values and perspectives, and served as a space for conflict resolution and the building of trust. Through the actions of ADEZN, the rural region benefitted from combining knowledge and experience.

## 8. Conclusion

The ultimate goal of planning and regional governance processes is to achieve social-ecological development. High level, overarching outcomes, such as sustainability, resilience and societal well-being, are expected. To reach these lofty outcomes, transformation in the governance system and in people is needed. Transformative regional governance involves changes in rules, planning practice, and governance structures. Social innovation creates, renews and transforms social relations in the development of new ways of working together to achieve societal goals. Therefore, social innovation has the potential to foster regional transformation that contributes to social-ecological development. But not all social innovation initiatives are transformative. Our research showed that transformative social innovation is developed through bottom-linked governance mechanisms. Social innovation is triggered by local interests, and by the context in a particular time and place. As our social innovation exemplar, ADEZN, demonstrated, when

social innovation addresses more than just immediate pressing issues, and actively searches for new sustainability pathways, it will transcend and be instrumental in societal transformation.

Our framework for transformative social innovation proved to be effective for analysing initiatives of social innovation and, as a result, for understanding and revealing how social innovation contributes to system change. We argued that regions, particularly rural regions, need to be understood as social-ecological systems, and therefore their governance should aspire to become adaptive, enabling more inclusive and effective planning. Not just linking bottom-up and top-down, but creating a space for collaboration is essential if planning practice is to address major sustainability challenges. Social innovation enables such a space by developing bottom-linked governance.

We established that bottom-linked governance is enabled by the five key bridging roles: network enabler, knowledge broker, resource broker, transparency and conflict resolution agent, and shared vision champion. The bridging roles all have to be played by social innovation initiatives if they are to effectively achieve the desired outcomes. These bridging roles provide social innovation initiatives with the ability to scale-up, become part of a multi-level governance system and, more importantly, to profoundly affect regional development. We also revealed that, in order to be successful in transforming regional development, bottom-linked governance must address four critical success factors: that the interests of local communities and the social-ecological context will change over time; that only by scaling-up and rolling-out at multiple levels will local action deliver better sustainability outcomes; that formal institutions are necessary to enable and sustain transformation; and that there has to be a sharing of power and decision making in the governance system. Only by acknowledging these factors will social innovation transcend and contribute to transformation that achieves social-ecological regional development.

For illustrative purposes, we applied our framework to ADEZN, an independent rural development agency in the Huetar-North region of Costa Rica. We used their story to discuss each part of the framework. The story of ADEZN showed how a local social innovation can become transformative by engaging with actors and agents at different political levels, geographical scales and industry sectors, and by developing a bottom-linked governance system. Our analysis showed that ADEZN had contributed to an improved and adaptive regional governance system, and that there had been KASA change in many actors, i.e. the process of change in people's knowledge, attitudes, skills and aspirations. However, despite ADEZN adequately addressing the enabling factors and critical success factors, this was done inadvertently, a typical feature of a self-organised initiative.

Our analytical framework offers insights to researchers of social innovation, rural community planning and regional sustainable development. Our framework is intended to be used with other social innovation initiatives in different geographical contexts to enable understanding of the particular processes that make each initiative successful or why they are not successful. Some key questions might be: Do successful examples of transformative social innovation comply with all factors in the framework? What can be learnt from the differences between cases? Are there differences between a self-organised initiative (e.g. ADEZN) and one that is more formally structured (e.g. ones participating in LEADER/CLLD programs)? Is bottom-linked governance a mechanism through which planning practice will become more transdisciplinary?

Finally, we consider our framework to be a roadmap for planning practitioners, policy makers and social innovation initiatives to guide their efforts and resources in fostering transformative social innovation. We recommend that these stakeholders consider the factors we identified – the five bridging roles and the four critical success factors – and act in response to them. When social innovation initiatives develop bottom-linked governance and acknowledge these factors they will have the potential to be transformative and to successfully contribute to sustainable rural development.

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