

Deviance, problematisation and solidarity as attributes of sustainable place-making

Abid Mehmood¹  · Terry Marsden¹Received: 29 November 2020 / Accepted: 9 February 2021
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Abstract

This paper aims to progress a conceptual and analytical view to the appreciation and connectivity of spaces, places and nature in reconceptualising and progressing sustainability transitions. We look at the interrelationships between the distinct approaches of deviant mainstreaming of socially innovative practices, problematisation through innovative translation, and anchoring sustainable translations through solidarity assemblages. These three dimensions allow us to develop a neo-Callonist perspective for sustainable place-making and translation in sustainability science. We refer to some empirical experiences to appreciate these interrelationships that contribute to new realities and create new spaces and places of innovation.

Keywords Social innovation · Solidarity assemblages · Transdisciplinarity · Deviance

1 Introduction: the transformative role of sustainable place-making

Sustainability research in its transdisciplinary contextualisation transcends complex science-society relationships towards long-term wellbeing, changing the attitudes and behaviours, and improving institutional structures through participatory processes [1, 2]. This paper sets out on a conceptual exploration based on our empirical experiences and understandings from a range of recent interdisciplinary and empirical endeavours. These have provided a base for shared knowledge and sense of belonging within the rigid disciplinary and regulatory (and often place-less) regimes that have remained inadequate in giving due consideration to the environmental, economic, social, cultural and political interconnections [3, 4]. New forms of social action, learning, organisation, intervention, narration and innovation therefore are the point of departure for us [5, 6]. By appreciating, grounding and positioning of citizen-led transformative practices, these forms offer novel prospects for co-production of knowledge and democratic decision making through social innovations [7].

Social innovation in its spatially embedded transdisciplinary aspects provides conceptual insights to the creation of new opportunities, deviation from the trodden paths and stimulation of change mechanisms. It is therefore both an evolutionary as well as a revolutionary concept in which sustainability persists as an active element of any social and environmental action and practice of social innovation [8]. Social innovations emerge when policy and governance apparatus turn out to be ineffective in satisfying basic social, political, economic and environmental needs of people [9]. The small step change attitude allows social innovators to become 'deviant' in the sense of providing a long-term view to grassroots initiatives that can lead to wider acceptability of socially innovative actions, subcultures and strategies in a place-based context. Place, itself an amalgam of socio-natural relations (a social construct but materially existing), remains central to the mainstreaming efforts of such deviants as it allows upscaling the successful actions [10, 11].

✉ Abid Mehmood, MehmoodA1@cardiff.ac.uk | ¹Sustainable Places Research Institute, School of Social Sciences, Cardiff University, Cardiff, UK.



In a non-deterministic and open-ended way, social innovation and participative action can help redefine practices as well as places for collaborative transitioning of culture, society and nature in interactive networks. As Clark [12] has argued, nature as a physical and uncontrollable entity tends to increasingly 'hit-back'; as we have recently witnessed with forest fires, floods and pandemics; as such this recognition is providing a much more fertile ground for socially innovative practices to be co-created; and more opportunity for 'deviant' forms of place-making to be developed [7]. Among its various (and often contested) conceptualisations, place can be characterised in terms of territoriality and spatio-temporal constructions, and as a locale of social, cultural, political, historically dynamic, or even sensory processes. In the context of sustainable placemaking, Marsden and Farioli [3] have called for a post-normal approach to transdisciplinary sustainability science as an assemblage of sustainable place-based processes and practices. A sustainability scientific view of placemaking thus brings up a spatiotemporal dimension of place to consider the socio-natural relations based negotiations, contestations, and joint problematisations of needs and necessities [13].

Michel Callon's earlier work in actor-network theory and on the processes of sustainable translations in the form of non-sequential and often parallel relationships between *problematisation*, *enrolment*, *interessement*, and *mobilisation* offers a productive framework. Concerned with natural science's challenge of diminution of resources, he starts with *problematisation* as human (actor) and non-human (actant) oriented change through translation—how problems are constructed, who constructs the problems, and why problems are constructed at all. He moves on to question the *enrolment* of actors for a collective purpose and how do these networks enrol actors as participants both from in and outside of place. Subsequently, the *interessement* refers to how lead actors and their networks are consolidated. *Mobilisation* relates to how, why and what networks are organised and activated, how these networks are anchored and legitimatised for the common benefit. An important aspect of these (socio-ecological) networks is to remain nested within the larger systems and endorse sustainable transformations and promote sustainable place making practices. This allows integrity of the network remaining distinct and deviant from the existing norms yet engaging with the actants. We extend the conceptualisations of sustainable translations to the literature on solidarity assemblages and anchorage to counter the hegemonic norms. Once people are motivated, they become deviant from normative power structures and regimes to locate change and develop new perspectives on change for the wider benefit of the community and society. Based on these notions, we develop a conceptual framework in this paper that is based on interrelationships between three distinct approaches i.e., deviant mainstreaming of socially innovative practices; problematisation through innovative translation; and anchoring sustainable translations through solidarity assemblages. This framework leads us to develop what we term as a neo-Callonist perspective for sustainable place-making and translation in sustainability science.

To elaborate the above framework, we begin by discussing spatially embedded and place-specific aspects of social innovation (Sect. 2). In Sect. 3 we endeavour a reconceptualization of people–place relationships by means of three dynamic but interrelated components of sustainable and regenerative place-making; these are: a) *deviant mainstreaming* as interrelationships between deviant actors for alternative action, b) *problematisation* in the neo-Callonist sense of enlistment and enrolment of new alliances and networks to undermine dominant discourses, and c) *anchoring and consolidating sustainable translations* of such actions by building organisational capacity and nested assemblages of solidarity. In conclusion, we identify diverse but integrated avenues of collaborative dynamics between people and places through skills building, sensing and sharing the place-based knowledges, and governance of symbiotic relationships between people and places.

2 Emplacing social innovation—an integrated area development view

Historically, social innovation emerged as deviant behaviour to challenge the social, economic and religious orders. The concept has evolved over two-centuries from the pejorative context of socialism in the nineteenth century to the bottom-up initiatives for social reforms in the twentieth century [14], before the recent revival in public policy for addressing social, economic and environmental needs. Place-based contextualisation of social innovation can be traced back to the 1990s in the research on the causes and consequences of social exclusion in communities and neighbourhoods. The purpose was to identify and promote novel collaborations to assist the 'disintegrated areas' by means of recognising local disadvantages, encouraging new aspirations and restoring community relations to promote sustainable social, economic, political, cultural and environmental development [15].

The focus was both on the time and space dimensions of socially innovative actions and initiatives. As a result of the work, Integrated Area Development (IAD) was proposed as a model to develop an understanding of the role of key actors in bottom-up initiatives, the spatial extent of their participation, and the formulation of a collective sense of

purpose to achieve common place-based objectives [16]. Social innovation in IAD was viewed both in the process and practice dimensions of local development. As a process, social innovation referred to the democratic and socio-political empowerment as well as the role it plays in improving social relations. As a practice, social innovation was an ambitious way of satisfying basic human needs [17].

From a model of community based local development action IAD has transformed into an action research framework that is both trans-disciplinary and inter-disciplinary [8]. A transdisciplinary view refers to the collaborations between the communities of research and the communities of practice. Hence, a better translation of the issues at hand can be achieved by clearly problematizing the range of actions and choices, comparing them and then integrating into a larger analytical framework for local development. Alongside this, an interdisciplinary view provides the opportunity to consider a strategic and long-term attitude towards place and space dialectics [18], theorizing innovative forms of transdisciplinary collaborations, policy linkages and appropriating the most suitable methodologies for research and action to establish and maintain the combination between different scientific fields of study and disciplines within the respective place-based settings.

Referring to the place-space characterisation of social innovation it can be argued that local historical traditions, artistic practices, local cultures and institutional norms can be fostered through innovative policy and action and connected with different spatial scales [10]. An IAD view respects the value of institutional development based on a multifaceted perspective of innovation dynamics for social, economic, political, cultural and environmental development and wellbeing. It also favours empowering different sectors through socio-cultural reproduction, promoting low (or non-) profit but sustainable economic activities (e.g. artisanship) and protecting the cultural and natural assets [19].

Social innovation generates opportunities for deviance by accentuating new social relations and spatial organization that could lead to novel initiatives. This can be achieved by empowering the communities and promoting multi-level development agendas that support place-based cooperation between various actors and agents (public, private, civil society) and develop new place-based strategies. This could also happen through spontaneous actions to overcome problems of deprivation and exclusion. Place-based social innovations thus interactively strengthen and integrate different socio-natural aspects such as social needs associated with green spaces, reorganising nature as a stimulant to improve social relations, and reshaping public spaces to accommodate a variety of functions and endorse social networking [10]. Social innovation therefore offers an opportunity for mainstreaming deviance by providing better connectivity between people (communities, societies) and places (nature) [21].

3 (Re)Conceptualising dynamic relationships between places and people

3.1 Mainstreaming deviance

Deviance for our purpose in this paper refers to the attitudes and behaviours that tend to diverge from the generally accepted societal norms and expectations of the time. A Durkheimian view considers deviance as a route for social change that may lead to the establishment of new norms [21]. In the Foucauldian sense deviance refers to an act of resistance against repression or coercion. This deviance over time could be transformed into a new normal [22]. For Callon, deviance could also emerge from dissonance over the existent arrangements that might be failing the peoples' needs, and in turn, may lead to the development of heterogeneous and strategic networks [23]. Following the heuristic analogy of Arnstein's ladder, mainstreaming of deviance can take place as a process (or stages) of citizens' participation and engagement encouraging innovations in a diversity of social, economic, cultural, political and institutional settings. These stages begin from the earlier feelings of abstention or nonparticipation, through to information, consultation and placation, up to the building of partnerships, delegation and control with collaborative responsibilities [24]. The mainstreaming process should in no terms be considered as linear as there may always be feedbacks and loops. Also, not all situations of deviance would be ideal since there can be possibilities and incidences of trust deficit, poor governance, lack of support or capacity, vested interests and shortage of skills or resources etc.

Deviance does not necessarily have to be repulsive in nature for the transdisciplinary sustainability research and policymaking. In many cases, policy and institutional structures can find opportunities to progressively adapt policies and strategies with an integrated development view [16, 25, 26]. Community actions can also combine with public sector participation to disrupt the prevailing social orders through such initiatives as street level bureaucracy and transform spaces and places of interaction and governance [27]. This however does not preclude the possibility of specific agendas of the social actors. Transformation of social relations and consolidation of dispersed agendas and initiatives can best

occur through collective action that transcends local spheres to overcome localism trap through spatially articulated places of interactions in a relational sense [28].

In a place-based context, mainstreaming deviance helps with wider and active participation of citizens in transformative actions [7, 20]. Rural Alliances, an ERDF Interreg IVB programme managed to develop and connect over 70 networks and alliances across several Western European states [29]. The initiative explicitly linked, in many cases for the first time, community and civil society actors with local community leaders and small businesses. These alliances were collections of deviants. In Talgarth (Wales) what we might term 'ecological entrepreneurs' came together to develop local hydro energy, milling and sustainable grazing schemes which were considered largely 'outside of the box' with regard to either local economic or sustainability policy [30]. Key deviants therefore brought and enrolled a range of actors to establish funding and community share schemes. Similarly, the 'Discover Llangorse and Bwlch' group, as part of Rural Alliances in Brecon Beacons National Park (Wales), took the initiative to build a new sense and identity of place in the twin Welsh towns by engaging local communities and businesses in adopting practices that promote local culture, heritage, agri-food and healthy living. Actors and networks as deviant mainstreamers do not necessarily have to be already embedded in place to bring about change. As in the case of small Portuguese towns, some young entrepreneurs are returning to their ancestral villages whereas local groups have been formed, to regenerate rural cultures, traditions, crafts and small economies [6].

As an evolutionary process, mainstreaming deviance in various perspectives allows considering the aspects of reform and revolution into collective action besides creating and maintaining a (regenerative) development trajectory. In Lochum (Netherlands), local and former mayors and other municipality leaders have been leading the way in re-defining the residents' notions of their local community around such areas as waste management and water resources. This serves as an example of empowering deviants to lead and take the initial risks in developing local community initiatives [29]. Time banking, community land-shares and decision-making about profits that come from community energy and local hydro-power schemes are a reflection of shared goals and principles, and indeed a recognition of the need to be financially deviant, by creating new social institutions which can create and then re-invest profits back into the local communities. Regulatory deviance is also an important factor in many of the alliances since local actors have to 'get around' established systems of planning and environmental regulation, they have to translate their frustrations with government officials who are less accustomed to dealing with the small and local infrastructural needs. These deviants, however, cannot act alone, they need to translate their deviance in ways which generate innovative translations and place-based problematisations of entering the real world of the more distributed social and economic systems.

3.2 Problematisation—Towards a theory of sustainable translation

In both generalised forms of place-making and especially in the development of 'alternative' community sustainability initiatives, associated—for instance with community energy, community share schemes, or community land and agri-food initiatives—research experience demonstrates the utility of an adapted theory of actor-oriented change, and as Callon calls: translation [31]. In short, actors, or more generally actants (including non-human, and especially ecological elements such as land, wind, waters, production practices, plants and animals) have to come together in new assemblages and networks. This involves an adapted Callonian framework in sustainable placemaking. Callon's work focussed upon the relations between scientists, experts and fishermen of scallops in St Brieuc Bay, and stressed the need to incorporate social and natural elements. His main objective was to stress the symmetrical widening of scientific framings to a natural science problem (scallop stocks) such that it included wider 'networks of translation'. However, Callon did not see the link with these processes to the grounded development of what we might call 'sustainable-place making projects' as these have significantly proliferated in the past two decades since Callon's initial interventions. With hindsight whilst Callon's actor-network framework was very innovative at time in integrating the social with the socialisation and scientification of the natural, it did not predict the re-territorialisation of human and natural actions in what Latour now calls a new politics of terrestrialization [32]. In this context social actions become re-embedded in place-based natures. And these are increasingly vulnerable to the forces of globalisation, inequality and more recently, climate change [16, 32].

It is nevertheless fruitful to re-apply and re-adapt a neo-Callonian framework to the sustainable place making approaches, such that it generates some common processes of actor and network actions and practices which seem to be needed in these project initiatives. Now, more than in the 1980s in Callon's earlier work the very naturalised social recognition of scarcity and ecological vulnerability and unsustainability become an active and driving force for further social actions [33]. Take for example the ways in which French Breton Fisherman attempted to blockade their fishing grounds against British fishermen in 2017–8.

We can recognise the point that (sustainability) actors do not exist outside the relationships in which they are enmeshed, and that their identity runs in parallel with these relationships [34, 35]. Actors can act deviantly and creatively though, as we expanded upon above, but they are dynamically bound together in networks which are made up not just of the actors themselves, but also of (often dwindling and or vulnerable natural and artefactual entities and assemblages in which they are embedded and territorialised [23, 36, 37]. In sustainable place-making initiatives 'deviant' new networks have thus evolved as non-static but highly dynamic and contingent entities, which continue to assemble and re-assemble other actors and actants in new ways. This is a departure from the established actor-network theory in that new 'deviant' assemblages have to be formed which disrupt the usual arrangement of actors, actants and material practices.

Instructive in this process, however, are some of Callon's key and adapted translational processes. These include what we might term Enrolment. Initially, actors have to be actively enrolled into a new, rearranged network with a collective purpose. Some actors take the lead and intent (strategically) to develop and enrol others. New enrolled actors and actants then start to define themselves and their interests in the context of the relationships with others, in the course of particular social and sustainability struggles. The actors and their identities are thus not, therefore, pre-given, but come to be defined as they actively weave, and are woven into place-based networks. This is an inherent social and place-based process of active enrolment. But in the case of sustainable place making, it has to be strategically linked, by social actors, to a quest, and indeed a question of problematisation. That is that (Callon's) adapted process of enrolment—getting to the point of stipulating a set of relationships and functions that operationalise the network with agreed aims and objectives—can only be achieved if there is prior and active agreement on the sustainability and place-associated 'problem' to be resolved or indeed solved. Now problematisation is in itself a social and place-based process of becoming. It may be new and innovative, it may be deviant, but it has to be in the long run a shared feature which can be agreed. Here we refer to the examples from SUSPLACE¹ research, which relate to the increasing recognition of conventional and fossil fuel-based systems of production, circulation and consumption. Indeed, more fundamentally these examples stem from a new basic human-nature effect and struggle to deviate from existing, costly and wasteful systems of feeding, heating, housing and sheltering ourselves on a planet with increasingly scarce and expensive resources [38]. These relate then to the large environmental and nexus challenges of sustainable energy, food, transport and housing, but these aggregated concepts have to be locally and spatially translated and problematised in active place-based networks for real actions to occur. Moreover, they may have to coincide or contradict prevailing systems approaches which are being implemented at a non-spatial but more sectoral scale.

Problematisation then also links to Callon's concept of Intersement. This is the stage at which the lead (often deviant) actors seek to consolidate their network by persuading other enrolled actors that their position in the network is the correct one. In Callon's scallop case, for instance, the scientists attempted to construct a network comprising the scallops, the fishermen and their own colleagues in order to attain their goal. In the process, these leaders seek to define the identities and interests of those whom they wish to enlist as their allies, while also attempting to insert themselves into the competing sets of relationships that exist among other actors. Intersement, therefore, consolidates the actor network, or in our case the sustainable place-making network through the continued problematisation and expanded enrolment and enlistment of allies and alliances, and thereby, simultaneously undermining competing or dominant associations and alliances. We are currently seeing this process clearly unfold in the community food and energy arena [39], with proliferations of food justice movements in cities and towns in the North, and the rise of solidarity movements in the South [17, 40].

The processes of Problematisation, Enrolment and Intersement are not necessarily sequential processes in sustainable place-making. They are assimilated and accreted processes which often have to operate simultaneously and in parallel with each other. This can give the impression of a distinct form of chaos and deviance to those who espouse traditional (say Weberian) notions of institutional order and functionality. Through chaos and deviance can also come a fourth key ingredient, that of Mobilisation. This indeed extends our understanding of the network itself. It refers to the actual method and place-based practices that the representations of interest made by the lead actors are fixed. How they are also understood throughout the network and accepted as legitimate by those who are ostensibly being represented. Representation is thus an issue in all network relationships. Networks are thus composed of representatives. Their strength and degree of successful mobilisation depends not only on the relationships between the representatives but also on constructing the legitimacy of their representations. Their claims must be adhered to by those they claim to represent, or the network may (and often does) fall apart. This then completes the building *processes of what Callon calls*

¹ <https://www.sustainableplaceshaping.net/>.

translation, and what we may adapt to sustainable translation. This introduces rather than ignores the methodological need to incorporate power relations at the heart of this cumulative and evolutionary process of sustainable translation. For as Callon ([31], p. 224) argues “understanding what sociologists generally call power relationships means describing the ways in which actors are defined, associated and simultaneously obliged to remain faithful to their alliances. The repertoire of translation [...] permits an exploration of how a few obtain the right to express and to represent the many silent actors of the social and natural world they have mobilised”. The adapted sustainable translation approach here indicates how we might indeed ‘get inside’ the active construction of sustainable place making, by following the actors as they formulate and pursue their interests and representations. Places thus become the feeding grounds for sustainable translation processes, and we can show on collection of examples relating to the solidarity movements below.

3.3 Anchoring sustainable translations: towards transformations through solidarity assemblages

The adapted neo-Callonistic framework suggested and outlined above extends and adapts Callon’s framing by incorporating networked but often deviant sustainable place making social practices and actions. It still, however, maintains its strength of approach for methodologically handling the internal and evolutionary elements of the processes of sustainable translation. Evidence suggests now, with recent researches both in Europe and Latin America [41, 42] that this approach also needs to be supplemented by asking questions about the very consolidations of these translations, their potentiality to bring about transformative change, and the mechanisms by which these translations actively contend and contest with more dominant systems of production and allocation. To begin to answer these more ambitious questions with regard to sustainable place making, we can propose that by integrating the now significant empirical literatures in the fields of alternative food movements we can explore in more detail how the processes of sustainable translations are consolidated, how they contend with the dominant regime, and how they become ‘anchored in time and place’ in ways which empower their durability and powers to transform arena in ways which lead to more sustainable practices being embedded.

Following recent researches both in Brazil [41, 42] and in Europe [43] we have begun to apply both Avelino and Wittmayer’s notions of re-enforce, innovative and transformative power [44], and combine this with recent expansions in transitions theory which brings fourth the powerful concept of Anchorage where they explore the development of potential transformative niches (to use transition theory language) with new forms of anchorage, based upon combinations of cognitive, innovative and economic values.

We have witnessed in both regions agri-food sustainable translations which have become anchored through a variety of means and approaches, such that they build the organisational capacity to challenge dominant agri-food regimes. We see this with cases in traditional wheat varieties and bread making in Italy [43], regionally based green procurement networks in South West France), quality grass fed meat production in South Wales; and in a widespread way in agro-ecological movements in Rio Grande do Sul. The rise of the ‘Solidarity economy’ in Brazil as well as in many parts of Southern Europe, developing innovative connections between producers and consumers, creating new and more legitimate knowledge networks which contend the dominant systems, and in empowering shorter chains to produce and supply new ‘nested markets’ [42], clearly demonstrate both the dynamic process of anchorage. This is assisted in many cases by new state policies and cooperative institutional frameworks which are supported by various state agencies. Here new forms of ‘common pool resources’ are created and bounded in place and time, and nested market developments evolve amidst dominant food commodity systems- such as the Soya industrial system which has colonised much of Rio Grande do Sul.

Nested markets (like for example ECOVIDA organic assemblage) propose a distinctive heterodox view of market developments which anchor producers and consumers in new spaces and places of sustainable translation following the IAD view. These can co-exist with other (more conventional) markets and struggle with these for space and legitimacy [42]. Thus anchorage, in a Polanyian sense creates a diversity of market relations. For instance, in the solidarity networks developing in Pelotis, in South Rio Grande do Sul, we see ecological producers growing products for new consumer-based food hubs in the city, and for the schools, as well as for a range of different retail outlets; this creates new social interfaces which then re-enforce and shape the markets and the new eco-economic networks. The social creates the economic that then creates the ecological space to anchor these heterodox markets and practices. They also rely upon new knowledges developed by EMBRAPA (the Brazilian agricultural extension agency) field stations and solidarity academics at Pelotis University. A new networked sustainable translation process is formed in the Callonistic sense, and it is anchored in ways which create emancipatory rather than just re-enforce power relations.

They are also recreating place and space as both in concrete and relational contexts. In the former they are creating digital infrastructures, such as the joint software applications to join up weekly demands from consumer with a variety of ecological suppliers. Regarding the latter, new relations of exchange have been created between urban consumers and rural producers. Both have had to change and adapt to these new sets of relations, such that a real translation has occurred and is ongoing.

How far these socially innovative anchored and nested networks constitute the bases for real transformations to occur is a critical question for the empirical research [43]. Nested markets are indeed proliferating as a significant part of the agri-food mix in Brazil and especially in the South. In Europe too, we see the proliferation of these new agri-food assemblages, arising as they are out of the crisis tendencies and unsustainability of conventional systems and the growth of food insecurities [45]. Nevertheless, however much these assemblages become anchored we have to recognise more broadly that such sustainable translations have to continuously struggle for survival, not least in protecting their embedded place based nested markets and unique organisational structures. We need therefore to extend further our conceptualisations of sustainable translations (as in the section above) and anchorage, but also considering the active process of Boundary Integrity and Maintenance. That is, such solidarity assemblages and their nested market constructions have to create a spatial and institutional defence mechanism which protects their practices from either appropriation or destruction by the regulatory and economic mechanisms contained in the conventional system. This is nowhere better expressed than in Brazil, where the conventional systems are very vibrant, hold considerable state power and public financial support, and are geared to penetrate alternative production and consumption practices. This is indeed as much a spatial battleground as it is one of knowledges, technologies and market regulation [41].

This is also reflected in the empirical analysis by scholars such as Schneider and colleagues ([42], p. 17) when they argue:

“The main question to be examined in future works is related to the reasons why these markets, which are based upon informal interpersonal relationships, continue to exist (and in some contexts to expand). In view of the growing influence of large supermarkets and retail chains and the requirements for increasingly formalised processes of trade and exchange, why markets still based upon interpersonal relationships (still) endure remains an open question. On what governance mechanisms and values, norms, and social values have they based their continuing existence and growth? ... It is noteworthy that nested markets do not operate in isolation, but co-exist and are continuously in connection with broader agri-food markets, in terms of competition, regulation, or even appropriation.”

We can partly answer Schneider et al. existential question by recognising the significance of constructing boundaries of integrity around their very translations. Our researches in Rio Grande do Sul indicate that these boundaries are often threatened and undermined by the techniques of conventional practices and regulations. For instance, agro-ecological networks are physically and spatially threatened and undermined by the potential cross-contamination of transgenic plants and organisms which exist, in many cases in spatial contiguity with their farms and networks. Similarly, large-scale agri-tourism can attempt to destroy the authentic offer of local agro-ecological/agri-tourism businesses. Pesticide cross contamination means that the wind becomes a threatening actant, when agro-ecological farms, and traditional plant-breeding networks and hubs are often surrounded by genomic and pesticide farming systems associated with soya and maize production. We have witnessed in the Paso Fundi region, for instance, the struggle to create multifunctional and value-added meat and cheese farms and networks, completely outwit the too tight government regulatory food hygiene and quality regulations designed for the conventional and bulk commodity sectors. We also see how former landless workers' farming communities struggle to develop effective quality milk and dairy processing systems. And how the more subtle self-regulating ecological accreditation and certification systems embedded in many nested markets struggle against more formalised systems of quality regulation [41].

This suggests that to prosper, and indeed to become transforming forces more generally, these sustainable translations, often spear-headed as they are by their expanding and deepening nested market developments, and indeed the enrolment and problematisation of expanding groups of urban consumers need to both create expandable boundaries of integrity around their socially innovative activities and practices such that they can continue to maintain their novelty and distinctive sustainable offer. This indeed brings us back, full circle conceptually, to the active components outlined above in the processes of sustainable translation: problematisation, enrolment, interestment and, mobilisation. All of these socio-spatial processes have to both create the social conditions for the nested and assemblage development, at the same time as actively boundary keeping from the conventional systems. Anchoring thus also implies the need for as much assistance as possible, as we see particularly in Rossi et al. [43] traditional wheat seeds networks and sustainable bread production in Northern Italy; and indeed, in regional green procurement and organic school feeding programmes

in South-West France, for new collectivised boundaries to be created around quality regulations and adapted scientific and technological approaches. Here new scientific and institutional actors need to be enrolled in these networks so as to give social authority and scientific legitimacy to their practices. At the same time, through careful enrolment and intersement, key actors need to be continually mobilised.

Sustainable place making, not least in the agri-food and agri-food/energy/tourism nexus, is inherently socio-spatial. All of the conceptual parameters adapted here through the light of recent empirical experiences are both at the same time emerging out of social and ecological places and actively re-shaping them in the context, usually of highly contested regulatory and market conditions which are actively opposing these developments. This is the socio-spatial 'battlefield' in which sustainable translations have to survive (and prosper) in.

This suggests that deviant sustainable translations and the pursuance of the conceptual parameters we have outlined here need to be both internally and externally focussed. They empirically need to examine and support the fine-grained processes which lead to their mobilisation. But at the same time, as Fernandez [46] reminds us, we also have to have cognisance of the wider and contested spatial and political landscapes in which these assemblages, solidarity movements and networks reside and are embedded. So, we need to consider the wider politics of spatiality when considering and studying sustainable place-making and their attendant translational properties. In addition, if we are to posit that these may hold the properties which could lead them to become deviant and transformative (and more spatially embedded and expanded) phenomena, we need to recognise and search for ways of linking up the rich and anchored tapestries and archipelagos these translations are re-creating and re-spatialising.

In order to do this, they will need to continuously and seriously counter the spatially colonising and privately enclosing processes inherent in the more conventional, carbonised and monopolistic systems of food, energy and related resource systems. If they are truly ways of creating more common-pool resource governance systems in and through space, then the processes of translation will need to be continually widened and attributed more authority and legitimacy. This battlefield between privatised and corporately controlled 'enclosure' versus the re-emergence of common-pool resource systems goes to the heart of why we must problematise and progress the politics and sociology of sustainable translations from an integrated place-based view.

4 Conclusion—appreciating the sustainable placemaking relationships

This paper has attempted to elaborate some of the key transformational aspects of interrelationships and how these allow a reimagined and reinterpreted focus on sustainable placemaking. Social innovation provides a viable frame in explaining bilateral processes of making, shaping and keeping of communities and places through the integrative role of deviant mainstreamers and innovative translation of problematisation processes, and anchoring these translations into sustainable placemaking through solidarity assemblages. Deviance, sustainable translation and anchoring thus become key and active dimensions in understanding how sustainability becomes a driving force of social action and practice in place-making and re-making. The ambitions for integrated area development and transformations provide pathways for socially innovative practices that are both transformative and inclusive. Using a critical assessment and contextualisation of rigid regulatory and governance mechanisms we refer to sustainable translations and anchorage as initiators of boundary integrity and maintenance of place.

These newly adapted and revised neo-Callonistic understandings, as discussed above, offer emancipatory rather than re-enforcive perspectives on the relevance of social and actor- networks and power relations. Solidarity assemblages and their nested constructions emerging from such perspectives provide spatial and institutional mechanisms to protect social relations and practices from the disruptions inherent to the conventional policies and practices. *Anchoring* in this respect has been implied as the need for scientific and institutional actors to be enrolled in the solidarity assemblages and networks so as to give social authority and legitimacy—over both time and space—to their practices. At the same time, through careful enrolment and intersement, key actors are continually mobilised. These socio-spatial processes create the social conditions for the assemblage development, while also providing active boundary- keeping from the conventional routines. It can be therefore argued that actors and alliances as deviants and social innovators play a vital role in transforming places. In a similar fashion, we also suggest the case for places -in a variety of contexts and meanings such as places of opportunity, places of innovation as well as places of constraints- also play an important role in shaping attitudes, cultures, practices and policies.

This paper has thus attempted to begin to apply and re-adapt many of Callon's innovative actor-network theorisations to the question of sustainable-placemaking. In so doing it has tried to extend these now mainstream sociological

approaches and to go deeper into the very construction and reconstruction of situated social natures. These social natures—incorporating the physical, ecological distinctiveness of ‘places’—are constantly being made and re-made through the very socially organising processes we delineate here: *including innovation, deviance, enrolment, interressment and anchoring*.

Such processes, we argue, have to be place-specific if they are to succeed. They do not and cannot be created ‘on the head of a pin’—rather, they ‘breed off’ the very unique social and ecological ‘situations’ in which they occur. In short, and extending Callon, their very fluidity has to be anchored. They also require the active building of socially motivating (and mobilising) innovative actions, operating in and through new and adapted social networks. This can significantly extend ‘Callonist’ approaches by: (i) accepting the critical significance of the very physicality of place and nature in progressing sustainable social ‘achievements’; (ii) recognising that such sustainable achievements in and through places are, in turn then central to wider sustainable transformations; and (iii) recognising that sustainable ‘actor-networks’ have to be embedded within and between wider contested networks and often more rigidly organised governance and ideological structures. In this sense, and indeed building on Callon, we need to recognise that active sustainable actor-networks have to be located within both their own internally organised logics, but also be situated into the wider contested networks which they also intersect, and in many cases have to compete with. These are some of the critical reasons why social and political deviance and innovation play such an important part of the lifeblood of real sustainable transformations.

Wider transitions towards sustainability are inherently based upon the development of webs of social innovation in and through places. This is what we mean by sustainable place-making. Place is neither a *tabula rasa* upon which people (as puppets) act out their lifeworlds, nor is it just a physically determined and bounded space constrained by its natural advantages or disadvantages. It is indeed part-and-parcel of both; and as such it relies upon social innovations, mobilising social networks and the stimulation of different types of deviance and anchoring, so as to enact social actions with the process of continuous redefinition of both its specific and ‘rooted’ social and natural worlds. This suggests a rich research agenda for transdisciplinary sustainability scientists, not least because we need to see holistically (as indeed Callon recognised) how these socio-natural assemblages are dynamically and contingently formed, reformed, and in the end, *possibly* made more sustainable over time and space.

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References

1. Wiek A, Farioli F, Fukushi K, Yarime M. Sustainability science: bridging the gap between science and society. *Sustain Sci*. 2012;7(1):1–4.
2. Lux A, Schäfer M, Bergmann M, Jahn T, Marg O, Nagy E, Ranseik A-C, Theiler L. Societal effects of transdisciplinary sustainability research—How can they be strengthened during the research process? *Environ Sci Policy*. 2019;101:183–91.
3. Marsden TK, Farioli F. Natural powers: From the bio-economy to the eco-economy and sustainable place-making. *Sustain Sci*. 2015;10(2):331–44. <https://doi.org/10.1007/s11625-014-0287-z>.
4. Axinte LF, Mehmood A, Marsden T, Roep D. Regenerative city-regions: a new conceptual framework. *Reg Stud Reg Sci*. 2019;6(1):117–29. <https://doi.org/10.1080/21681376.2019.1584542>.
5. Moriggi A. Exploring enabling resources for place-based social entrepreneurship: a participatory study of Green Care practices in Finland. *Sustain Sci*. 2020;15(2):437–53.
6. Rebelo C, Mehmood A, Marsden TK. Co-created visual narratives and inclusive place branding: a socially responsible approach to residents’ participation and engagement. *Sustain Sci*. 2020;15(2):423–35. <https://doi.org/10.1007/s11625-019-00760-2>.
7. Mehmood A, Marsden TK, Taherzadeh A, Axinte LF, Rebelo C. Transformative roles of people and places: learning, experiencing, and regenerative action through social innovation. *Sustain Sci*. 2020;15(2):455–66. <https://doi.org/10.1007/s11625-019-00740-6>.
8. Moulart F, Mehmood A. Towards a social innovation (SI) based epistemology in local development analysis: lessons from twenty years of EU research. *Eur Plan Stud*. 2020;28(3):434–53. <https://doi.org/10.1080/09654313.2019.1639401>.

9. Mehmood A. Institutional forms of social innovation. *IJISD*. 2016;10(3):300–11.
10. Moulart F, Mehmood A. Spaces of social innovation. In: Pike A, Rodríguez Pose A, Tomaney J, editors. *Handbook of local and regional development*. London: Routledge; 2011. p. 212–25.
11. Pradel-Miquel M, Cano-Hila AB, García M, editors. *Social innovation and urban governance: citizenship civil society and social movements*. Cheltenham: Edward Elgar; 2020.
12. Clark N. *InHuman nature: sociable life on a dynamic planet*. London: Sage; 2011.
13. Schäfer M, Kröger M. Joint problem framing in sustainable land use research: experience with constellation analysis as a method for inter-and transdisciplinary knowledge integration. *Land Use Policy*. 2016;57:526–39.
14. Godin B (2012) *Social Innovation: Utopias of Innovation from c. 1830 to the Present*. Project on the Intellectual History of Innovation Working Paper, (11). http://www.csiic.ca/PDF/SocialInnovation_2012.pdf. Accessed 14 Apr 2020.
15. Paidakaki, A., Moulart, F., Leinfelder, H., & Van den Broeck, P. (2020), Can pro-equity hybrid governance shape an egalitarian city? Lessons from post-Katrina New Orleans. *Territory, Politics, Governance*. <https://doi.org/10.1080/21622671.2020.1773919>.
16. Moulart F. *Globalization and integrated area development in european cities*. Oxford: Oxford University Press; 2000.
17. Moulart, F., Mehmood, A., MacCallum, D., & Leubolt, B. (2017). *Social innovation as a trigger for transformations-the role of research*. Publications Office of the European Union. <https://doi.org/10.2777/68949>. https://ec.europa.eu/research/social-sciences/pdf/policy_reviews/social_innovation_trigger_for_transformations.pdf.
18. Massey D. *Space, place and gender*. Hoboken: John Wiley & Sons; 2013.
19. Mehmood A. Nature governance: a multimodal view. In: Marsden T, editor. *The SAGE handbook of nature*, vol. 1. London: SAGE; 2018. p. 126–42.
20. Arthur L, et al. Reflections on the form and content of Participatory Action Research and implications for social innovation research. In: Moulart F, et al., editors. *The international handbook on social innovation: collective action, social learning and transdisciplinary research*. Northampton : Edward Elgar; 2013. p. 332–40.
21. Thorlindsson T, Bernburg JG. Durkheim's theory of social order and deviance: a multi-level test. *Eur Sociol Rev*. 2004;20(4):271–85.
22. Kurzweil E. Michel Foucault: Ending the era of man. *Theor Soc*. 1977;4(3):395–420.
23. Callon M. Techno-economic networks and irreversibility. *Sociol Rev*. 1990;38(1 suppl):132–61.
24. Arnstein SR. A ladder of citizen participation. *JAIP*. 1969;35(4):216–24.
25. Bristow G. Structure, strategy and space: issues of progressing integrated rural development in Wales. *Eur Urban Reg Stud*. 2000;7(1):19–33.
26. Davies H. The well-being of future generations (Wales) act 2015: duties or aspirations? *Environ Law Rev*. 2016;18(1):41–56.
27. Franklin A, Kovách I, Csurgó B. Governing social innovation: exploring the role of 'discretionary practice' in the negotiation of shared spaces of community food growing. *Sociol Rural*. 2017;57(4):439–58.
28. García M, Ezaguirre S, Pradel M. Social innovation and creativity in cities: a socially inclusive governance approach in two peripheral spaces of Barcelona. *City Cult Soc* . 2015;6(4):93–100.
29. Rural Alliances (2015) Working papers, case examples and project reports, ERDF, Interreg IVB NWE Programme, <https://www.beacons-mpa.gov.uk/communities/tourism/rural-alliances/>. Accessed 14 Apr 2020.
30. Marsden TK, Smith E. Ecological Entrepreneurship: sustainable development in local communities through quality food production and local branding. *Geoforum*. 2005;36(4):440–51. <https://doi.org/10.1016/j.geoforum.2004.07.008>.
31. Callon M. Some elements of the sociology of translation: domestication of the scallops and the fishermen of St Brieux Bay. In: Law J, editor. *Power, action and belief: a new sociology of knowledge?* London: Routledge; 1986. p. 196–229.
32. Latour B. *Facing Gaia: eight lectures on the new climatic regime*. Cambridge: Polity Press; 2017.
33. Mehmood A, Parra C, et al. Social innovation in an unsustainable world. In: Moulart F, et al., editors. *The international handbook on social innovation: collective action, social learning and transdisciplinary research*. Cheltenham: Edward Elgar; 2013. p. 53–66.
34. Torrairie A. *Production de la societe*. Paris: Seuil; 1974.
35. Hindess B. *Choice, rationality and social theory*. London: Unwin Hyman; 1988.
36. Callon M. Techno-economic networks and irreversibility. In: Law J, editor. *Sociology of monsters: essays on power, technology and domination*. London: Routledge; 1991. p. 132–65.
37. Latour B. The impact of science studies on political philosophy. *Sci Technol Human Values*. 1991;16(1):3–19.
38. Thoreau HD. *Walden, or walk in the woods*. Boston: Ticknor and Fields; 1854.
39. Marsden TK. *Agri-food and rural development: sustainable place-making*. London: Bloomsbury; 2017.
40. North P, Scott Cato M, editors. *Towards just and sustainable economies: the social and solidarity economy north and south*. Bristol: Policy Press; 2017.
41. Pauli R, Marsden TK (2018) Contested paradigms: the bioeconomy and the eco-economy in agri-food in the Rio Grande do Sul (RS) Brazil, Working paper, Sustainable Places Research Institute, Cardiff University.
42. Schneider S, Salvate N, Abel C. Nested Markets, food networks and new pathways for rural development in Brazil. *Agriculture*. 2017;6(4):61.
43. Rossi A, Bui S, Marsden TK. Reconfiguring power relations in agri-food systems. *J Rural Stud*. 2019;68:147–58. <https://doi.org/10.1016/j.jrurstud.2019.01.002>.
44. Wittmayer JM, Avelino F, van Steenbergen F, Loorbach D. Actor roles in transition: Insights from sociological perspectives. *Environ Innov Soc Trans*. 2017;24:45–56.
45. Marsden TK, Hebinck P, Mathijs E. Re-building food systems: embedding assemblages, infrastructures and reflexive governance for food systems transformations in Europe. *J Food Secur*. 2019;10(6):1301–9.
46. Fernandes BM. The formation and territorialisation of the MST in Brazil. In: Carter M, editor. *Challenging inequality: the landless rural workers movement and agrarian reform in Brazil*. Durham: Duke University Press; 2015.