

# **Ships passing in the night?: re-thinking the relationship between entrepreneurial agency and purposive transitions**

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*'[T]he building blocks for organizations come to be littered around the social landscape; it takes only a little entrepreneurial energy to assemble them into a structure.'* Meyer and Rowan (1977: 345)

*'Any transition requires new institutions and new forms of alignment, which take time and effort. They are not controlled from a central point but the result of distributed agency and entrepreneurship.'* (Bergh and Kemp 2006: 20)

**Note: this is an extended abstract: a full paper will be made available following the KSI conference, incorporating feedback from participants and more detailed findings.**

In this paper, we examine the ways in which the phenomenon of entrepreneurial agency has been represented in the transitions literature with particular reference to purposive sustainability transitions. The aim of the paper is to encourage critical reflection on the relationship between transitions and entrepreneurship research. We present provisional findings from a content analysis conducted on sample publications, covering historical transitional and contemporary purposive transitions. We find that while entrepreneurial agency is clearly evident in both conceptual and empirical works, there are a number of limitations regarding: i) the role of context in relation to the dynamics of entrepreneurial agency; ii) differences in the *types* of entrepreneurs engaged in socio-technical transitions and the ways in which they *interact* with other key actors; iii) the predominantly individualistic interpretation accorded to entrepreneurship in the literature. We also review recent developments in entrepreneurship research, including work on: entrepreneurial opportunity, dynamic capabilities, networks and institutions, and indicate how these ideas might be integrated into transitions research, with reference to two sample studies. In the concluding remarks, we suggest ways in which a closer engagement with entrepreneurial agency might contribute to future transitions research and policy-making.

## **1 Introduction**

Why should transitions scholars be re-focusing their attention on entrepreneurial agency? The porous and multi-disciplinary character of the transitions field means that there is always scope for another discipline or sub-discipline to stake its claim for an enhanced profile. The argument for drawing greater attention to entrepreneurship is prompted by the following three observations. First, that there is evidence of a groundswell of entrepreneurial activity, spanning industry sectors and organisational types, in which environmental sustainability is presented as a discrete market (and/or social) opportunity and as an explicit strategic goal (e.g. Hawken 1993, Dean and McMullen 2007). Second, that public policies in developed and developing countries are increasingly making reference to entrepreneurial actors as active participants in the design and delivery of sustainability initiatives<sup>2</sup>. Third, that while the

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<sup>1</sup> This paper is a work in progress and the authors welcome comments from KSI attendees and others (contact details are at the end of the paper). Please do not quote from this version without consulting the authors.

<sup>2</sup> We will expand upon this point in the full paper, with examples of public policy initiatives that assert a role for entrepreneurial actors of various kinds. The antecedents of this development lie outside the scope of the present

transitions literature has always pointed to a distinctive role for entrepreneurial agency, it appears to be somewhat under-represented in terms of research activity and published work<sup>3</sup>. As researchers whose interests span entrepreneurship, innovation and sustainability, we are left with a sense that the transitions field would benefit from a period of critical reflection on the ways that entrepreneurial phenomena are interpreted, particularly in relation to their constitutive role in purposive sustainability transitions. These observations can be viewed as part of a broader critique, which has been applied to transitions management and governance in recent years. For example, in this paper we echo the call for greater attention to be paid to the context of regime transformation (Smith *et al.* 2005: 1498), and to what Smith and Stirling (2008: 14) have described as, ‘the [intractable] question of agency and power in (and over) incumbent socio-technical regimes.’ Our hope is that, in placing the spotlight on entrepreneurship research, this paper can connect to the conference theme, ‘Understanding Transitions’, including its two related strands: (i) understanding the power of incumbent actors and niche pioneers; (ii) critiquing and deepening the theoretical underpinnings of tools and frameworks for the analysis of transitions.

The remainder of the paper is organised as follows: in Section 2 we report the initial findings from an (on-going) content analysis, which draws on both historical and purposive transitions literature; the primary focus of this analysis is a critical review of recent representations of entrepreneurial phenomena; in Section 3 we highlight some recent developments in the entrepreneurship field, and consider how they might feed into transitions studies; Section 4 comprises our concluding remarks where we repeat our call for further debate and indicate the potential implications for research and policy.

## **2 Entrepreneurial agency and the transitions literature**

### **2.1 Entrepreneurial agency and the transitions literature**

This section explores current representations of entrepreneurial agency in the transitions literature. We begin by providing justification for our bounding the literature by dividing it into two broad groups (historical and future-oriented studies). We then outline our approach to conducting a preliminary and exploratory qualitative content analysis of the literature in order to identify how entrepreneurial agency is represented across a number of dimensions. These dimensions in the two groups of literature are discussed in turn with use of examples. We conclude by indicating several aspects of entrepreneurial agency that could be explored in more detail.

#### **2.1 Bounding the literature**

The transitions literature can be understood as being made up of three interrelated strands: the multi-level perspective (MLP), strategic niche management (SNM) and transition management (TM). While it is not in the scope of this paper to provide an introduction to

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paper, but a short-hand explanation would point to the historical context and the pervasive influence of the ‘enterprise culture’ as a political project that has re-shaped the activities of academics, policy-makers and practitioners (Casson *et al.*, 2006, pp. 28-29; 629-647; Audretsch & Thurik, 2000).

<sup>3</sup> We recognise that one obstacle to inclusion may be the status of entrepreneurship research within the social sciences, including its uneasy relationship with core disciplines such as economics. For example, while Bergh and Kemp’s (2006) incisive review of economics and its sub-disciplines acknowledges the importance of entrepreneurship in transitions (ibid: 20), entrepreneurship research does not figure as a potential contributor to transitions.

these strands (in light of our readers' familiarity with the literature), we take as our point of departure that the literature can be more specifically distinguished into historical (MLP) and emerging transition/future-oriented studies (SNM/TM), with the former having influenced the conceptual development of the latter. Early SNM efforts were primarily directed towards investigating: niche-internal processes; the importance of generating variation and trialling these alternatives in real-world experimentation projects; and the identification of those circumstances under which such technological niches could emerge. The MLP was developed through a series of historical (non-normative) transitions to incorporate considerations regarding the role that external factors play in transition processes, arguing that transitions from one socio-technical system to another are based on the interplay and alignment of processes at three levels of analysis (i.e. niche, regime, landscape). More recent SNM studies have incorporated insights from the MLP, repositioning the objective of SNM so as, 'to float with the co-evolution processes and modulate them' (Hoogma *et al.* 2005: 223) and to seek to create, 'a little bit of irreversibility in the right direction' (Kemp and Rotmans 2004: 163). Similarly, TM studies – advancing, 'a new governance model for interactions between market, state, and civil society...[that] helps to pursue policies for system innovation.' (Rotmans and Kemp 2008: 1010) draw upon lessons from MLP investigations into co-evolutionary transition dynamics and pathways in order to explore the potential for initiating transitions towards sustainability by means of a participatory and gradual method of management and steering characterized by adjusting, influencing and adapting.

## 2.2 Content analysis of the literature

Having bounded the transitions literature by dividing it into historical and future-oriented studies, we selected a number of the most well-known, highly cited and/or relevant journal papers in the field. As 'a systematic, replicable technique for compressing many words of text into fewer content categories' (Stemler 2001), a preliminary qualitative content analysis was then applied to the articles. The analysis conducted a search for words beginning with the prefix 'entre-' to enable us to identify relevant words in the literature (i.e. 'entrepreneur', 'entrepreneurial', 'entrepreneurship'). The key search terms were then extracted along with the immediate surrounding text (sentence / paragraph) in order to retain the context in which the terms are used. The resulting data from this search process was then entered into a tabular format, so that common dimensions surrounding the use of the keywords in both sets of literature were allowed to emerge through analysis and our own interpretation (Table 1).

## 2.2 Entrepreneurial agency in historical transitions

Historical studies of transitions have a very specific view of entrepreneurial agency, building on Schumpeter's entrepreneur or Hughes' system builder (e.g. Geels 2004: 907). In other words, entrepreneurial agency, performed through individual visionary or heroic entrepreneurs with strong personalities, is the point source for the creative destruction of incumbent socio-technical regimes through the breakthrough and wider diffusion of radical novelties and innovations into the regime (Geels 2006a: 1072). As such, the locus of entrepreneurial agency is external to an incumbent regime, as indicated in the example of the transition from cesspools to sewer systems in the Netherlands over the period 1840-1930 (Geels 2006a).

Entrepreneurial agency is thus constrained by path dependence and lock-in in a dominant regime (Unruh 2000, 2002). Pressures exerted upon the regime from the landscape and destabilization from within the regime both contribute to the opening-up of windows of opportunity for radical novelties developed by opportunity- and profit-seeking entrepreneurs. Such entrepreneurial characteristics are evident in the emergence of professional ship-owners

who responded to an increased demand for ships and associated price hike in freight prices as a consequence of the French Wars from 1789-1815 (Geels 2002: 1284).

The innovations that result from entrepreneurial efforts are technological and designed for appropriation by, and embeddedness within, the market economy. Even in a situation where radical alternatives were more beneficial to the public good, their development was driven by the anticipation of monetary gain. For example, in the transition in water supply and personal hygiene in the Netherlands (1850-1930):

different social groups had different objectives and motivations regarding piped water. For private entrepreneurs, the main objective was to make money. They would construct piped waterworks if there were sufficient demand from people with buying power (Geels, 2005a: 382).

However, in addition to the emergence of a favourable systemic context for their innovations, entrepreneurs are heavily dependent upon the creation of (cultural) visions that legitimize protected spaces for the development of such innovations. In the case of the transition from propeller to turbojet aviation, this cultural vision and its legitimization is clear as:

Aircraft in the 1920s and 1930s enjoyed great popular support, because they were seen as means to a better world, the winged gospel...as long as these visions last, they attract resources and entrepreneurs for the development of new technologies (Geels, 2005b: 694)

Such legitimation thus creates niche-level contexts that attract the financial investments that are crucial to support the ramping-up of innovations from prototype to reality. In this sense, entrepreneurs must be able to perceive and rapidly respond to emerging culturally legitimate (socio-technical) visions through simultaneously building their own ego-centric actor-networks and developing and trialling their innovations in such a way as to pose a credible (technological and) economic threat to incumbent technologies. These critical success factors are however not always met, as in the case of one entrepreneur in the aforementioned transition from cesspools to sewers:

The entrepreneurial engineer Liernur developed and promoted a pneumatic system, which consisted of toilets, funnels, and underground connecting pipes that ended in a collection reservoir...The project was technically successful, but costs were higher than expected (Geels 2006: 1076).

### 2.3 Entrepreneurial agency in future-oriented transitions

The more future-oriented strand of the transitions literature also adopts an individualistic perspective on entrepreneurial agency and its performance through entrepreneurs whom, as individual product champions or system builders, are characterised as:

... people of imagination and persistence who perceived early on the opportunities offered by a new technology, who conceived the new technology as the constitutive part of a new system, and who managed the transition process towards a new system (Kemp, Rip and Schot 2001, 273–4; quoted in Caniëls and Romijn, 2008: 252).

The individual and personal characteristics of entrepreneurs are specified in further detail:

outwardly oriented, open, adventurous, tolerant of uncertainty, flexible, and able to facilitate others rather than to control them, in order to create an environment conducive to trial and error. They must also be able to reflect on, and evaluate their own contribution in a constructive manner in order to be able to adapt in response to changes along the way. In other words, they need to have a capacity for learning (Caniëls and Romijn, 2008: 252).

However, a more proactive and wider dimension is added to entrepreneurs in their being seen as change agents:

[who]. . . are needed to make the connection between societal developments at landscape level, putting pressure on the dominant regime, and the room for manoeuvre at the local level. Their capacity is to envision windows of opportunity, express expectations and enrol alliances (Roep *et al.*, 2003: 212; quoted in Caniëls and Romijn, 2008: 252)

In addition to seeing entrepreneurs moving beyond the opportunity and profit-seeking individual, there is also recognition of the multiplex functional of entrepreneurial agency that moves beyond the development of innovations to include policy (Caniëls and Romijn, 2008: 252; Kemp *et al.* 1998: 188), management and finance (Kemp *et al.* 1998: 183). This is reflected in a slightly broader conceptualisation of barriers that hinder the wider diffusion of entrepreneurial efforts into the mainstream - such as “low legitimacy, lack of political clout, limited resources or insufficient competencies” (Schot & Geels, 2008, 533).

In conjunction with this more differentiated interpretation of the breadth and scope of entrepreneurial agency and its performance vis-à-vis the MLP studies, there is also an acknowledgement that this form of agency may move upwards and outwards from an individual to collective level of analysis, particularly where complex multi-stakeholder engagement and participation in niche-based experiments is required (Caniëls & Romijn, 2008, 258). In particular:

entrepreneurs are most successful in bringing about change when actions are directed at facilitating multiple system functions; this is actually what makes *cumulative causation possible* (Schot and Geels 2008: 533 – emphasis in original).

More specifically, the importance of legitimacy in linking entrepreneurial agency and innovations to wider (cultural and normative) visions still holds in more contemporary situations. Yet in contrast to the historical transition studies, entrepreneurs are now expected to actively participate in this process of legitimation whereby “‘packs of entrepreneurs” from different innovation journeys may collectively engage in institutional entrepreneurship...[to] generate positive external economies...and thus lead to a powerful “bottom-up” process of institutional alignment and growth’ (Schot and Geels 2008: 532).

In terms of providing direction to facilitate cumulative causation processes for transitions via the performance of collective institutional entrepreneurial agency, it is suggested that what is most important is the provision of, ‘consistent and stable policy frameworks...because entrepreneurs need (at least some) stability to make cost/benefit calculations of strategic

investments’ (Schot and Geels 2008: 531). In this way, entrepreneurs may be understood to have the additional role of being expected to respond to policy initiatives and frameworks in the capacity as ‘problem solvers’.

Table 1: Representations of entrepreneurial agency in the transitions literature

| <b>Entrepreneurs / Entrepreneurship / Entrepreneurial Agency</b> | <b>Historical Transitions</b>   | <b>Emerging / Prospective Transitions</b>  |
|--|---|--|
| Conceptual Location  | Niche – represents competition external to incumbent regime   | Niche – represents competition external to incumbent regime  |
| Role of  | Point source of radical novelty / creative destruction  | Point source of radical novelty / creative destruction; one of several functions of a system   |
| Motivation   | Opportunity / Profit Seeking  | Opportunity / Profit Seeking   |
| Characteristics of   | Product Champion and/or System Builder; Visionary and/or Hero   | Product Champion and/or System Builder; Key strength may be in one of several areas (innovation; finance; policy; management); Problem Solver responding to needs identified by policy |
| Individual or collective   | Individual  | Individual but potentially also collective (network or ‘pack’)   |
| & Legitimacy   | Respond to legitimation of (cultural) visions linking up to new technologies which create protected spaces that attract financial resources | Required to build up legitimacy for the diffusion of niche-level innovations by creating pressure on the incumbent regime, creating windows of opportunity                             |
| Conditions for Success   | Cost / access to finance / posing credible economic threat to incumbent regime  | Sourcing and mobilisation of sufficient and relevant resources + niche creation & regime context facilitated/controlled by policy  |
| Sectoral Association   | Private   | Private / Public(?)  |

## 2.4 Summary of the findings

The previous sub-sections provided an overview of the findings of our preliminary qualitative content analysis of the interpretation of entrepreneurial agency in the historical and future-oriented strands of the transitions literature, which are summarised in Table 1. We see that the MLP literature holds a very singular view of entrepreneurial agency as being highly individualistic *a la* Schumpeter (Mk I), profit-driven, market-focused and responding to legitimizing (cultural) visions (Swedberg 2000). The SNM/TM literature has built upon and broadened this interpretation, seeing entrepreneurial agency as being more multiplex in terms of expected roles and responsibilities, capabilities and (institutional) collectivity. Based on our analysis, which reveals a welcome shift towards a more nuanced interpretation of entrepreneurial agency, we identify some tentative areas for further exploration:

- First, and at a broad level, how might the extant interpretations of entrepreneurial agency in the future-oriented literature be further strengthened and extended by insights from entrepreneurship research? (Section 3)
- More specifically, while several critiques of transitions have emphasised the significance of specific contexts (e.g. Smith *et al.* 2005), how can we begin to pay greater attention to the role of context in relation to the dynamics of entrepreneurial agency, including the ways in which it is facilitated, constrained and shaped by context-specific infrastructures?
- Relatedly, we argue that greater attention needs to be paid to differences in the *types* of entrepreneurs engaged in socio-technical transitions and to the ways in which they *interact* with other key actors. For example, many studies tend to emphasise commercial entrepreneurs to the exclusion of ‘social’ and ‘civic’ entrepreneurship. This ignores their existence both historically (e.g. co-operative movements, Peabody housing; ragged schools, municipal cemeteries etc.); their explosive growth contemporarily, and the increasingly hazy divisions between them (e.g. cross-sector partnerships, public service delivery by social enterprises, CSR initiatives by private enterprises etc.).
- While the futures-oriented literature points towards more collective, network-based and institutional entrepreneurship, attention nevertheless continues to be based upon the more individualistic interpretation adopted in historical studies of transitions.

Given these aspects of entrepreneurial agency that we feel merit further exploration within the transitions literature, we now turn our attention to highlighting relevant insights from the entrepreneurship literature and consider the implication of these for transitions research.

### **3 Related developments in the entrepreneurship literature**

#### **3.1 Developments in mainstream entrepreneurship research?**

This section reviews some recent developments in the field of entrepreneurship, and considers their implications for transitions research. There has been a long-standing debate within this multi-disciplinary field regarding the definition of key terms, the scope of its enquiry and its methodological preferences (e.g. Low and Macmillan 1988, Davidsson *et al.* 2001). There is also some intellectual insecurity in a field is often stereotyped by critics as being an insufficiently critical handmaiden of laissez-faire capitalism<sup>4</sup>. As in other fields, these debates can sometimes leave people talking at cross-purposes, reinforcing prejudices and encouraging a retreat into disciplinary silos. However, over the last three decades, in parallel with the growth of the ‘enterprise culture’, many social scientists have engaged in a more critical reflection on the nature of entrepreneurial phenomena, and on the methodologies employed in entrepreneurship research (e.g. Bygrave 1989, Casson 2007, Neergard and Ulhøi 2007). This has given rise to much greater diversity, in the form of multi- and inter-disciplinary contributions. In this initial version of the paper, we isolate four emerging themes that appear to have a particular resonance for transitions research:

- A strong re-focusing of the field around the questions relating to strategic direction and the pursuit of opportunity (Swedberg, 2000; Stevenson and Jarillo, 1990; Venkataraman, 1997), which has resurfaced earlier insights into the highly differentiated nature of entrepreneurial services (Penrose [1959] 1995: 35-36).
- A modified conceptualisation of entrepreneurial agency, based on the pursuit of productive opportunity via a reconfiguration of organisational capabilities (Venkataraman 1997, Kor *et al.* 2007, Foss *et al.* 2008), and also building on the Penrosian legacy.

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<sup>4</sup> This point will be further developed in the full paper. See also footnote 2 (above).

- Multi-level studies, spanning individual, team, firm and network levels of analysis (Davidsson and Wiklund 2001). Examples include Best's (2001) analysis of the dynamics of entrepreneurial firms and regional clusters, Jones's (2001) comparative study of divergent strategies of technology- and content-driven entrepreneurs in the early years of the US film industry, and Blundel's (2006) comparative study of two competing innovation networks in small boat building.
- Recent work on institutional entrepreneurship, reflexivity and on the relationship between policy-makers and incumbent actors, particularly with regard to changes in regulatory environments and governance mechanisms (e.g. Mutch 2007).

### 3.2 Implications for transitions research: some examples

The scope for a more productive dialogue between entrepreneurship and transitions research is illustrated in a number of studies at the margins of the field. We will provide illustrative examples in the full paper, building on the following summaries:

- **Garud, R. and Karnøe, P. (2003) – A comparative study of wind turbine innovation in Denmark and the United States:** the researchers identified two contrasting models of technology entrepreneurship, 'bricolage' and 'breakthrough', building on earlier work on distributed and embedded agency. The analysis addressed the following puzzle: 'how is it possible for one group of actors deploying modest resources to prevail over another deploying far superior resources?' (*ibid.*: 278)
- **Agterbosch and Breukers (2008) - a comparative study of onshore wind power implementation in the Netherlands and North Rhine-Westphalia:** the researchers showed how initial policy differences influenced subsequent entrepreneurship patterns<sup>5</sup>. As the authors note, 'While in the Netherlands, the dominance of [incumbent energy companies] impeded the implementation capacities of other entrepreneurs, in NRW a diversity of entrepreneurs was encouraged from early onwards.' (*ibid.*: 645)

## 4 Concluding remarks

### 4.1 Time to engage with entrepreneurial agency?

We began this paper with the following observations: (i) that the world is witnessing a groundswell of entrepreneurial activity that is oriented towards environmental sustainability; (ii) that public policy-making is increasingly recognising a role for entrepreneurial actors of various kinds in the design and delivery of sustainability initiatives; (iii) that while the transitions literature has always pointed to a distinctive role for entrepreneurial agency, it appears to remain under-represented in terms of research activity and published work. Based on our initial findings from a content analysis of the transitions literature, we conclude that there are positive indications that the representation of entrepreneurial agency in transition processes is broadening out from the individualistic model characterised in historical studies to a more multiplex, nuanced representation in the future-oriented literature. However, our analysis also points to the need for going further in explicitly engaging with the contribution that entrepreneurship can make to transitions towards sustainability. In parallel with the content analysis, we have also reviewed recent developments in the entrepreneurship literature, and indicated how a closer engagement with these ideas could enhance our

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<sup>5</sup> Policies discriminating against private entrepreneurs in the Netherlands were revised in the second half of the 1990s. This change was followed by more rapid implementation, but at a lower rate than that being achieved in North Rhine-Westphalia. From around 1999, NRW overtook the Netherlands in terms of cumulative installed capacity (Agterbosch and Breukers 2008: 637, 645).

understanding of entrepreneurial phenomena and their role in socio-technical transitions. In the closing paragraphs, we consider the implications of our argument for transitions research and policy.

## 4.2 Implications for research

Our contention, therefore, is that despite considerable advances in its understanding of agency, and of the activities of particular kinds of entrepreneurial actors, transitions research would benefit from a more detailed engagement with entrepreneurial agency. From a research perspective, such an engagement would contribute to a more coherent and integrated understanding of entrepreneurial phenomena and their relationship with important aspects of the socio-technical transitions field, including the multi-level perspective. For example, with regard to strategic niche management (SNM), a more nuanced interpretation of entrepreneurial agency might help in addressing the ‘niche paradox’, and in probing the unfolding dynamics of multi-regime interactions (Kemp et al. 1998, Smith 2007)<sup>6</sup>. This understanding would also provide for better-informed policy-making, in terms of the design and implementation of purposive transitions strategies (Section 4.3). In order to pursue this closer relationship, transitions researchers could draw on a number of promising developments in the entrepreneurship field. For this initial version of the paper, we have referred to work in the areas of entrepreneurial opportunity, dynamic capabilities, entrepreneurial networks, institutional entrepreneurship and enterprise policy. We have also highlighted two recent studies from closely-related literatures that indicate how such an engagement might be achieved, and what it could contribute to our understanding of socio-technical transitions<sup>7</sup>.

## 4.3 Implications for policy

Policy-makers engaged in purposive sustainability transitions need to undertake a more detailed, and arguably a more realistic, review of their relationship with entrepreneurial actors. This should include an assessment of the entrepreneurship ‘infrastructure’ (Van de Ven 1993), of the kinds of entrepreneurial services available, of how they might be combined in pursuit of policy objectives. We recognise that implications will vary depending on the nature and scale of the transition, the geographic scope of the policy arena, and a variety of other factors (e.g. socio-cultural norms, political institutions). To illustrate this in a more concrete way, we will imagine a sustainability transition in the agricultural and food sectors, which is being implemented at a regional level. The following points are indicative rather than exhaustive, and are not presented in any particular order. However, we suggest that similar (and more thoroughly worked-out) considerations would apply to other contexts:

- **Assessing the situated and embedded nature of entrepreneurial agency and its antecedents:** for example, is the region characterised by particular models of enterprise, such as independent family farms, producer co-operatives or large agri-food corporations?; to what extent might such regional specificities be overcome through distributed agency (e.g. by facilitating inter-regional educational or marketing networks)?

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<sup>6</sup> The conceptual niche management (CNM) approach (Hegger *et al.* 2007, Monaghan 2009) has the capacity to incorporate a more entrepreneurial, agency-based perspective; this might enable researchers to examine the challenges faced by niche actors engaged in advocating, developing and implementing more sustainable practices.

<sup>7</sup> Our selection of papers is meant to be illustrative rather than exhaustive. While the three profiled studies seem particularly insightful, we are certainly aware of other researchers whose work would also fall into this category; we intend to produce a more comprehensive listing in a future version of this paper.

- **Evaluating the capabilities of particular types of entrepreneurial (and social movement) actor:** making judgements about these potential collaborators is a far from trivial task, particularly in the case of nascent commercial and social entrepreneurs (e.g. how do you assess the scalability, replicability and long-term impact of an emerging community-based horticultural enterprise?).
- **Considering alternative configurations of entrepreneurial (and social movement) actors:** for example, is a 'bottom-up' initiative by an informal network of community-based organisations and small private enterprises likely to be more productive than a 'top-down' initiative led by a large agri-food corporation?; what entrepreneurial dynamics are likely to be unleashed by each of these configurations, not simply over the short-term, but in relation to medium- and longer-term sustainability goals?
- **Countering 'resistant' and 'hostile' forms of entrepreneurial agency:** some entrepreneurial (and social movement) actors may become active in resisting a purposive transition, while others might exploit commercial opportunities that are environmentally unsustainable (e.g. opposing the changes in land use required for a more localised agricultural production system; creating markets for food products that require more carbon-intensive production and distribution systems).

In order to address each of these considerations, policy-makers would be informed by their direct interactions with the actors involved. However, while such contacts are clearly valuable, it is unlikely that they can provide the knowledge required to address several of the issues identified above. Well-focused research studies, combining relevant transitions and entrepreneurship knowledge, would provide a necessary complement, contributing to better informed policy choices and implementations.

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