Value creation and change in social structures; the role of entrepreneurial innovation from an emergence perspective

Paper presented to RENT conference, EM Lyon, France, November 2012. Entrepreneurship and Creation of Wealth for Economies, Organisations and People

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Abstract

Aim:
Our aim is to develop a more complete understanding of how processes that entrepreneurs perform interact with wider society and the causal effects of society on entrepreneurial behaviour and vice versa. We aim to show how entrepreneurial agency is put into effect in relation to the disruption of social structure and social change. This has implications for innovation and entrepreneurship policy and practice, and for entrepreneurship theory. We also investigate the role of 'value' in these processes.

Contribution to the literature
Our central argument is that emergent forms (or 'emergents') may be short lived (ephemeral) but have causal power on the performance of the actors in the system of inter-relationships in the innovation ecosystem. The emphasis on inter-related social processes and ontological stratification provides theoretical development of extant entrepreneurship theory on new venture creation (by explaining process), effectuation (by linking individualism and holism) and opportunity recognition (by deconstructing opportunity into anticipation, ontology and process).

Methodology
The paper takes an 'emergence' perspective as a way to understand entrepreneurial processes that give rise to innovation. The anticipation of value and the inter-relationship with social and organisational structures are fundamental to this perspective. A longitudinal analysis of a case study of the development of a new business model within an entrepreneurial firm is described. The case is followed through seven phases in which the relationship between process and emergent ontological status is shown to have destabilising and stabilising effects which produce emergent properties.

Results and Implications
One methodological contribution is framing how to conceptualise the empirical evidence. Emergents have causal effects on the anticipations of value inherent in their particular system of innovation. This causality is manifest as the attraction of resource in the firm; the stabilisation of the emergent constitutes strategy in the enterprise. A key role of the entrepreneurs in our case study was the creation and maintenance of evolving ontological materiality, as meaningful to themselves and to those with whom they interacted. In simple terms, they made things meaningful to people who mattered.

1. Introduction

It may be taken for granted that successful entrepreneurship creates or appropriates value, more usually both, otherwise how could it be maintained? The distinctions between these creation and appropriation and the connections between them are, arguably, fundamental to the role and reputation of entrepreneurship. Our contribution to this within the current paper is to identify that 'value' and in particular the 'anticipation of value', in whatever form, is necessary for entrepreneurial innovation. The paper is agnostic with regards to what value is or should be. In this paper 'value' is the expected benefit of sufficient stakeholders to produce stability in an emergent set of practices.

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The second aspect of the conference theme is the implied widening nature of the effects of entrepreneurship, i.e. not just to owners and firms, but to wider communities. Models of employment, multipliers and taxes are well established. What are more difficult to model and understand are the systemic effects of entrepreneurship. We consider the question from the perspective of the processes by which entrepreneurship changes social structure, how (change in) social structure emerges through the performance of entrepreneurship. This, in effect is addressing how the anticipation of value is transformed into sustainable value through the transformation of structure at multiple scales.

While this paper does not produce complete answers to these major questions, it does provide a methodological framework for investigating the questions and this framework is a contribution to the field. Our objective is to develop a more complete understanding of how processes that entrepreneurs perform interact with wider society and the causal effects of society on entrepreneurial behaviour and vice versa. We investigate the social processes involved in entrepreneurial innovation; the creation of novelty. We take the view that 'relationships' and 'processes' are interactive and dynamic phenomena and that through these is interplay between the entrepreneur and the social structure in which they are embedded. Our perspective is that novelty emerges from this interplay. To penetrate the conceptual detail of this interplay we adopt a methodology that recognises complexity, open systems and a dualistic relationship between 'agent' and 'structure'. Thus, we focus specifically on the emergence of novelty, i.e. on emergence as a process and on emergent ontological properties as an outcome of such a process. This follows Margaret Archer's critical realist approach (Archer 2002) and in particular, utilises R Keith Sawyer's (2005) work on emergence in social science.

The areas of entrepreneurship theory to which our study contributes are those concerned with process and the way that new firms come about. Emergence is not simply a description of the synchronic advent of something that might arrive through 'new combinations'. Emergence is a process of creating material power. We address the questions of why and how combinations have been made in particular ways. This allows us to deconstruct the key entrepreneurship concept of 'opportunity' as being emergent ontological properties embedded in specific social processes. We also contribute by considering social dynamics that take place alongside the cognitive reasoning and decision making stance of the entrepreneur addressed by effectuation theory. We thus demonstrate that a social process approach inherent in the emergence perspective has the potential to add to entrepreneurship theory.

The paper proceeds as follows. First we discuss theory on social emergence leading to a conceptual framework that links process with a stratified approach to ontology, thus enabling the dynamics of interplay between the two to be explored. We then demonstrate how extant work in entrepreneurship uses notions of emergence and the relevance of this. From this reasoning, we elaborate an analytical framework that links theories on social emergence with extant research on entrepreneurial process. We then present the analysis of a longitudinal case study of the development of a new venture using the framework as method, and underpinned by a critical realist methodology associated with emergence. The implications of this analysis and directions of further research are discussed.

2. Social Emergence

In simplest terms social emergence offers an explanation of social existence as arising historically and processually, i.e. that what exists is formed from dynamic generative relationships between what pre-existed it but acts independently or autonomously from its pre-cursors. More generally, the approach is consistent with finding an epistemological position between holism (structures are greater than the sum of their parts) and individualism (the sum of the parts) as explaining social existence. The field of entrepreneurship tends towards the latter; that individual actions change society and hence the field focuses on individual or firm level analysis.

Goldstein (1999) defines emergence, within the context of complex systems, as "the arising of novel and coherent structures, patterns and properties during the process of self-organization in complex systems" (p49). Drawing on a range of complexity science literature he proposes that emergent phenomena have the common properties of: radical novelty (unpredictable nor deducible from lower or micro-level components); being coherent (appearing as integrated wholes with some sense of identity of over time); a macro level (in contrast with the micro-level locus of their components); dynamical (evolving over time) and ostensive (able to be recognised). Goldstein draws attention to the long historical path of attempts to conceptualise emergent phenomena, including Aristotle's 'whole before the parts' solution to Zeno's paradox about the infinite divisibility of time. He also links it to Lewes (1875, Vol II, p368-9), "distinction between *resultant* and *emergent* chemical compounds coming about from a chemical reaction, wherein emergent compounds cannot be reduced either to the sum of or the differences between its components".

Lewes sense of an ontological stratification and hence autonomy or independence of the emergent from its micro-level components, is consistent with the 'useful hallmarks of emergent phenomena' suggested by Bedau (1997, p376)

> Emergent phenomena are somehow constituted and generated from underlying processes
> Emergent phenomena are somehow autonomous from underlying processes

The apparent inconsistency of these two statements is resolved by Bedau by reference to a system of macro-states having macro properties being comprised of micro-states with micro-properties. In this sense the macro-state consists of the micro-dynamic of structural properties constituted wholly out of its micro-states, plus external conditions. When such a system is 'open' to other external effects (which is normal in social systems), it is non-deterministic. This form of emergence, Bedau calls 'weak emergence' in that emergent properties are not autonomous or independent from their constituents, but can act autonomously on their constituents. What this leads to is that "Any emergent phenomenon would have a completely materialistic explanation" (Bedau 1997, p397). As will be seen, the materialistic nature of the products of entrepreneurial processes appears to be important in explaining the emergence and effects of material innovation, whether as the artefacts or novel patterns of behaviour. In the methodology developed in this paper, we take macro- and micro- states and properties to be particular to the case as instances of generalised strata.

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While this paper does not pursue the notion of self-organization or complex systems, our approach is certainly informed by the field of complexity and with the entrepreneur as having some level of autonomous power but within a macro-level structure. The power of entrepreneurial agency to effect changes in the macro-structure relative to the power that such structure exerts on entrepreneurial autonomy is a central issue.

The relationship between the individual (agent) and social structure is one focus of social theory. Giddens' (1984) structuration theory proposed a duality of structure wherein social structures enables social action while at the same time social action creates and maintains structures and so inhibits agential behaviour. We follow Margaret Archer's (2002) critique of Giddens that duality leaves agent and structure as analytically non-separable. We use Archer's idea of analytical dualism and interplay between the two while still maintaining the key ideas of structure and of analytical dichotomies such as agency-structure and micro-macro. Structuration theorists emphasise interpenetration, the inseparability between the individual and society, "emergentists" emphasize interplay.

Distinctions between these two approaches to agency/structure in relation to entrepreneurship and opportunity have been discussed by Sarason et al (2006; 2010) and Mole and Mole (2010). Sarason et al's account acknowledges various concepts from Gidden's sociological work such as agency, recursion, reflexivity, interpenetration and legitimisation. Their approach takes a reflexive ontological stance because the gaze is on the symbolic power of signification structures. Sarason et al conceive the 'nexus' between the entrepreneur and the 'opportunity' as a duality. Mole and Moles' critique of this reflect Archer, as stated above, and also they challenge the interpretive epistemology assumed by Sarason et al. The debate marks a difference between a structurationist approach (Cf. Giddens) and a critical realist approach drawn from Bhaskar (1975) and developed with reference to emergence by amongst others Archer (1995), Lawson (1997; 2012), Sawyer (2005), Stones (2005) and Elder-Vass (2007). We follow a critical realist approach that embraces ontological stratification and we experiment with this ontological approach in our analysis to separate analytically agent from structure. An agent/social structure analytical discourse (or meta-theory as Mole and Mole put it) is salient to the study of entrepreneurship because in one way or another it takes account of the inter-relationship between the entrepreneur and social structure, rather than externalising social structure as exogenous variables.

Both Archer and Giddens (amongst others) stress the significance of reflexivity. Giddens identifies that reflexivity provides an explanation of changing social practices "The reflexivity of modern social life consists in the fact that social practices are constantly examined and reformed in the light of incoming information about those very practices, thus constantly altering their character" (Giddens 1990, p38). Archer considers reflexivity to be "the regular exercise of the mental ability, shared by all people, to consider themselves in relation to their (social) contexts and vice versa", the subjective power of which "mediate the role that objective structural or cultural powers play in the influencing social action and thus indispensable to explaining social outcome" (Archer 2007, p4).

Our methodological approach is influenced by these concepts and in particular by the expression and development of Archer and other significant sources in Sawyer's (2005)

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work. Sawyer suggests that an emergentist approach to society requires a focus on multiple levels of analysis – individuals, interactions and groups – and a dynamic focus on how social phenomena emerge from communication processes (i.e. symbolic interaction) among individual members. The significance of emergent order at multiple levels is set in the context of a wider problem in social science, the micro-macro divide, that is, "our capacity to explain the relationship between the constitutive elements of social systems (people) and the emergent phenomena resulting from their interaction (i.e. organisations etc.)" (Goldspink and Kay 2004, p597).

Multi-level analysis is significant to the study of entrepreneurial innovation for at least two reasons. Firstly, to help understand connections between the range of influences on innovation and second to understand how innovation may have disruptive effects on wider structures such as markets and industries. Thornton proposes multi-level models (DiPrete and Forristal 1994) as one of several approaches to better understanding entrepreneurship as a 'class'; rather than a set of sub-disciplines (Thornton 1999); in our sense, a class that produces structural emergence. She suggests that multi-level modelling addresses the need to "incorporate population heterogeneity, time nonstationarity, and varying degrees of interdependence among members of the population in the same modelling framework", p40. By considering stratification of levels and inter-connections between these levels, we contribute to this approach by our work.

Analytical 'levels' can be constructed in many ways, depending on the theoretical perspective taken. Within the entrepreneurship literature multiple levels are implicitly constructed through the range of disciplinary domains, such as psychology (the individual), micro-economics (venture creation / the firm), systems (networks and groupings of firms), anthropology (evolution of populations of firms), sociology (embeddedness of firms in social context), as well as macro-economic (industry level) and cultural analyses (Fuller and Moran 2000; Fuller and Moran 2001). Analytically, one could ask if the ontology of a network of firms, which is constituted by firms and relationships between them, has different properties and dynamics than any individual firm. Similarly, does the firm, constituted by individuals and groups and their relationships, have different ontological properties, from these individual constituents and have influence on its constituents. That is, does the firm as a 'macro-state', supervene on its micro-state constituents (Bedau 1997)? We consider that these layers are analytically distinct but inter-related. When entrepreneurship research focuses only on the individual, or on the firm, then other levels and structures which may be constituents of an explanation of what is produced by entrepreneurial agency are flattened into a singular analytical 'external' to which the entrepreneur or firm relates. This flattening reduces the theoretical possibilities for explaining the nature of entrepreneurship.

The particular 'social structures' that concern us here relate to innovation and the processes by which entrepreneurship and innovation occur and becomes manifest as an economic good through the emergence of novelty and the realisation of value. The premise is that innovation involves interactions between people in which meaning and outcomes are constructed by the actors within the social context of their organisations, industry norms, conceptual frameworks, routine behaviours and other structural influences. The deliberate stress on interplay is to theorise that what is present between actors has causal effect on those actors. The ontology (taken as extant meaning) of the microstates and between microstates has causal influence. We therefore conceptualise entrepreneurship as a *dualistic*

process, (qua Archer) which produces emergence precisely because of the performance of entrepreneurship is embedded in society and is an interaction with society.

Sawyer calls his approach to elaborating top-down (supervenient) and bottom-up (subvenient) influences on emergence the "Emergence Paradigm", which attempts to "explain the causal forces that originate in an emergent *[noun]* that was created by the participants" (Sawyer 2005, p213). Emergence Paradigm research focuses on the micro-interactional mechanisms by which shared social phenomena emerge and how those emergents constrain those mechanisms. Sawyer's conception is that emergent properties (emergents) are unstable and only some become stabilised, such that they persist, while others disappear, i.e. emergents are ephemeral. The more stable emergents act as mediator between micro-structures and macro-structures. The mediation arises from a degree of "inter-subjective sharing [of the symbolic phenomena] among some (more or less stable) group of individuals". As Sawyer points out (p216) the introduction of a mediator (the emergent) is consistent with Giddens' (1984) situated social practise, Collins' (1981) repetitive patterns of behaviour and Lawler, Ridgeway and Markovsky description of micro-structures (Lawler, Ridgeway et al. 1992, p272). Zott and Huy (2007) provide compelling evidence of the appropriation of symbols and use of 'symbolic management' by entrepreneurs.

With a focus on mediation by symbolic phenomena our gaze is taken to the ontological status of ephemeral emergent properties which 'emerge' from the interactions between actors in particular structural contexts. The location of Sawyer's Emergence Paradigm is in the realm between 'stable structures' and 'the individual' in a model that stratifies interaction, ephemeral emergents and stable emergents as illustrated in Figure 1.

Insert Figure 1 about here

The above discussion provides a methodological framework for understanding the problem of how entrepreneurial activity changes society (innovation) from a social process perspective. We have claimed that it is necessary to assume ontological stratification and that understanding interplay between layers, which may be conceptualised as micro-states within the particularities of a specific case, helps to explain the emergence of new structures, i.e. innovation. Specifically, we introduce Sawyer's concept of the ephemeral emergent; which are produced by the interplay between microstates and which can be material within social processes. The materiality of their presence arises from having ontological status, i.e. they mean something to the actors and that meaning has causal influence on the existing microstates.

This leaves a number of questions open to development, including:

- What processes are involved, i.e. in an entrepreneurial context what processes create and stabilise emergents?
- Through these processes, what is produced (what emerges) that has ontological status
- In what ways does the emergent supervene on the micro-states producing it
- When and why do the outcomes of these processes have power to disrupt, i.e. the emergent properties subvene on structure?

These analytical questions are formed within the methodology adopted here in an attempt to better understand how entrepreneurship produces novelty or innovation.

3. Linkages between emergence and entrepreneurship

The notion of emergence is not foreign to the entrepreneurship literature. In the following section we describe three main areas in which it has been addressed, firstly, the empirical question of when a new venture exists, secondly the relationship with the key idea of opportunity (recognition etc.) and thirdly the link with effectuation theory. We then follow the direction raised by work in these three areas and show that the emergence approach adds further conceptual detail to these bodies of work.

One significant narrative in the entrepreneurship literature relates to the emergence of the firm, perceiving organizational emergence as a process of "how organizations make themselves 'known'" (Gartner 1993, p234). Katz and Gartner (1988) proposed that four properties were necessary for the survival of a firm in the short term; intentionality, resources, boundary and exchange. This framework has been supported empirically by Brush et al (Brush, Manolova et al. 2008) , albeit with extensions related to 'less tangible activities and outcomes', such as social capital, organisational legitimacy and 'enhanced organizational knowledge' (p564). The approach is further developed (Manolova, Edelman et al. 2012) to identify patterns of the temporal emergence of new ventures. The implication of these later findings is that intangible social aspects are important for the sustainability of the firm. The general properties appear generic to all new ventures. This useful empirical work would be enhanced by a generalized theory of the role of such properties and how they come into being. Through our analysis we argue that the intangible aspects perform a stabilisation role that allows the firm to continue existing. We would suggest that resources are not emergent properties, but the particular combinations of resources and their applications are emergent, and influence further development. Thus identification and descriptions of these combinations and when they are sustained is empirically useful. We consider that in addition, a consideration of emergence helps explain why and how they have been combined in a particular way i.e. is concerned with process.

A core concept of process in the Entrepreneurship literature is 'opportunity'. Many studies have explored how opportunities emerge, discussing whether opportunities are 'out there' (Davidsson and Honig 2003) or whether they are enacted as individuals make sense of information and their actions, thus retrospectively 'discovering' and 'recognising' opportunities (Gartner 1993; Fletcher 2004; Fletcher 2006; Cornelissen and Clarke 2007). Other studies concentrate on the processes, i.e. series of actions, by which opportunities are discovered, evaluated and exploited e.g., (Shane and Venkataraman 2000; Eckhardt and Shane 2003), as central to the process of venture creation.

Opportunity recognition or discovery can be characterised as processes prior (anterior) to the emergence of a new venture. Hence the process relates to pre-existing ontological micro and macro states. The evaluation of an opportunity may be considered as a phase of stabilisation (e.g. to act or not to act). The exploitation of an opportunity requires the creation or production of a stabilised pattern of activity, different from what pre-exited it, and arguably therefore 'emergent'. Given the singular and temporary characteristics of 'opportunity' we argue that 'an opportunity' is unlikely to be a structural phenomenon. Rather it arises through particular cognitive perceptions and interpretations of structure,

and through social enacting of sense-making and constructed meanings, i.e. following Weick (1995). That is, a new venture is conceived through what people understand about their environment in relation to their mental model of an enterprise and created through what is said and done by people in order to bring the 'model' into practice.

Opportunity recognition, discovery and exploitation may be used as concepts to frame the interplay between actors and structures. However, this frame is instrumentally descriptive, leaving unanswered the nature of the social processes involved in that interplay. We suggest that an opportunity, in cognitive, social interaction and physical terms can be conceptualised as comprising multiple emergent properties from which the process of entrepreneurship produces coherence. 'Opportunity' can thus be deconstructed into emergent ontological properties embedded in entrepreneurial process. This idea brings us to Sarasvathy's approach.

Sarasvathy's approach and the theory of effectuation (Sarasvathy 2001) is another key construction of emergence within the entrepreneurship literature. Her empirically based critique of the assumed use of causal reasoning by entrepreneurs led to the proposal that they use "effectual reasoning". This describes a sense of creating or controlling futures through a reasoning involving trying and testing. It is resonant of Papert's (Harel and Papert 1991) constructionist interpretation of Levi-Strauss' bricolage, (1966) i.e. being guided by problem solving as it proceeds rather than staying with a pre-established plan, or innovating through resourcefulness and improvisation (Garud and Karnoe 2003). This approach theorises a process of emergence by asserting intention (Bird 1988) and a particular entrepreneurial stance, which is asking "What can I do with the means available to me?", and taking action from that reasoning, i.e., it describes agency. The process and timing of actions, the particular uses of resources and the actual outcomes are all unpredictable.

The process described by Sarasvathy involves cognition by the actors, a set of 'means', (largely human and social capital), which are stratified between individual, firm and economy, and inter-actions between actors (alliances). The process includes low cost heuristic forms of experiment designed to create options while keeping risk at affordable levels. Sarasvathy draws attention to Rosen's work "Life Itself" (1991) in a discussion about causation (Sarasvathy 2001, p257). Although Sarasvathy does not explicitly refer to it, Rosen's theorisation of 'life' and his conception of an Effector within an anticipatory system has considerable resonance with effectuation, i.e. that a set of effectors operate either within the system or on the environmental inputs to the system to bring about a desired state of the system, which Sarasvathy terms 'human aspiration' (see also below). Thus, through its use of stratification, anticipation, agency and interaction, effectuation as process is consistent with an Emergence perspective. The authors' studies of entrepreneurial emergence are concerned with the social dynamics that take place in that process and sit alongside the cognitive reasoning and decision making stance of the entrepreneur addressed by effectuation theory.

With respect to empirical work associated with the processes of new venture creation, Lichtenstein (2006; 2007), Brush (Brush, Manolova et al. 2008), Sarasvathy (2001) Zott (2007) amongst others have made significant inroads into identifying some surprising temporal relationships between activities leading to stability and broadened the scope of what resources are brought into play to sustain and stabilise the venture. Lichtenstein et al (2007) argue that there has been too much emphasis on what emerges and when, rather

than on the process of organising for emergence. These authors moot (p. 238-40) that organisational emergence should instead be examined *"at a more general level by examining patterns of new venture creation activities, rather than focusing on specific organising activities themselves"*. They suggest that interdependent patterns of wide-ranging entrepreneurial activities, rather than individual acts such as creating business plans, are significant in initiating processes of emergence towards novelty. Our work is consistent with this perspective by developing a conceptual model to explain patterns of new creation activities.

The question of how entrepreneurial actions can be theoretically linked to social structure was recognised by Phan (2004), who widened the phenomenon of emergence to include not only the discovery and exploitation of new opportunities and the creation of new firms, but also the creation of new industries. He calls for multilevel theory building on questions of emergence, which has to "pay attention to the interactions among cognition, organization, and industry levels of analyses […]." (Phan 2004p. 619). Further, although as Fuller and Moran (2001) suggest, new ventures emerge through multiple hierarchical structural levels of social actors, there has also been a tendency in extant literature to reify entrepreneurship as the activities of individuals (entrepreneurs) within the process. Even where a broader 'system-wide' view is taken, as in Lichtenstein et al (2007), the scope is limited, still largely centring on the individual, when the innovative effects of entrepreneurship have impact at multiple levels of analysis. Sarasvathy et al. (2003) use stratification to suggest that effectuation produces changes to markets. They suggest that studying opportunities from this perspective might add knowledge on how value in society is created, thus drawing attention to an outcome of entrepreneurial activities. We consider that further attention to the ontological status of value as emergent property is necessary as it is neglected in narrowly focusing the emergence debate on venture creation, though largely outside the scope of this particular paper.

We suggest that considering the social processes in entrepreneurship and the outcomes of these may provide further explanation of the empirical evidence of the processes found at the level of the firm or entrepreneur. We also suggest that this social process perspective helps to inter-connect evidence from single levels of social strata which, we argue, are influential on reasoning, actions and the sustained outcomes of entrepreneurship. We thus indicate that a social process approach inherent in the emergence perspective has the potential to add to the body of knowledge in the entrepreneurship literature.

4. Analytical framework

We develop below an analytical framework based on the critical realist informed emergentist (ontological) methodology; with the entrepreneurial project as a focal point of the context. The term 'methodology' is used hereto mean "puzzle solving devices [that] require us to make assumptions of what the world is and what stands for knowledge" (Sayer 1992, p92). Elder Vass (2007, p26) explains that Archer's temporal account of the interaction between structure and action "[constitutes] a methodology for analysing the interaction between the two, always in the context of other causal factors". We construct this methodology in order to identify how to conceptualise the empirical evidence - what to

notice and what it means. We conclude that a number of processes are relevant to observe, along with the ontological status of symbols inherent in those processes.

Archer's work leads us to consider agency, structure, reflexivity and ontological status. Entrepreneurship is a strong example of agency, but the question is how this agency inter-relates to structure. Reflexivity is a socio-psychological process largely concerned with the construction of identity. Ontological status relates mainly to what the salience and meaning of things in the particular context, whether as ideas, conversations, artefacts or resources. From this we propose to notice the reflexive identity of the actors and the (entrepreneurial) project and the changes in ontological status of artefacts and routines that make up the micro-state of the project. Entrepreneurial identity has been shown to be material in the formation and directions of the careers of entrepreneurs and the paths of their enterprises e.g. (Fletcher 2003; Warren 2004; Down 2006). Our perspective includes the personal identity of the individual entrepreneur and the actors engaged in the venture and the identity of the venture itself formed through the shared meanings of the actors engaged upon it and hence directive of actions and goals etc. This could be further elaborated by reference work in the field of Institutional Logics, but to do so is outside the scope of this particular paper. Institutional Logics is constructionist in principle and for this analysis we take a more realist position, albeit one that accepts the social construction of knowledge and epistemological relativism.

We take structure to refer to macro properties with supervenient power and to particular routine practices of the micro-states of the entrepreneurial project. The latter we refer to as the Organising Domain (Lichtenstein 2000, p128) which refers to social structure that "guide[s] organizational activity and also prescribe[s] limits to the system's capacity to get the work done". We would include in this description routine daily practices, business models, trading exchanges, taken for granted ways of doing things, and the inherent trust and legitimacy that accompanies such processes. This approach to understanding the social processes in organisations also relates to the field of Institutional Logics as symbolic ways of ordering reality, and includes practices as well as belief systems. Practices are both symbolic and practical. Processes of organising domains are social processes and domains assert structural power, e.g. as dominant logics (Prahalad and Bettis 1986).

Sawyer's work leads us to consider interplay, structure, inter-relationships between individuals, and ephemerality / persistence or instability / stability. We therefore need to take account of processes that produce stability or instability and that give rise to novelty. We take for granted that entrepreneurial intention is present in entrepreneurial contexts, and so the question is how intentions are performed to produce and stabilise ephemeral emergents. We chose to use the expression 'experiments' to describe such enacting, (see below). In addition, we need to consider which processes produce instability and which produce stability and what the relationship is between these and the emergence of ephemeral micro-states. It is this type stabilising and destabilising interaction that we accord with the idea of interplay.

Experiments involve interplay of ideas and actions. Experimentation is a process of marginal de-structuring or destabilising, wherein the materiality of artefacts, cognitions of actors, interdependency between actors and other relationships may be altered and may be causal upon the outcome. Experimentation develops new relational forms and is resonant with

entrepreneurship practice (Baum 2003). A wide range of types of experiments are found in entrepreneurial behaviour, including thought experiments, constructive dialogue, trial and error, dialectical challenges, short term projects, prototyping and market testing to name but a few.,. Entrepreneurial experiments often involve relationship with other actors and with sources of knowledge and relationships with and between artefacts (Cf. Schumpeterian New Combinations). Experimentation is a purposeful and pro-active process, though its outcomes are unpredictable.

This account of experimentation is consistent with Sarasvathy (2001) as discussed above. Her description of low-risk approaches which can be stopped if they are not working is an example of an experiment. Implicit in the significance of experiments is that 'reasoning', whether 'effectual' or 'causal' or inductive (Cornelissen and Clarke 2007) is interrelated with the effects on that reasoning of actions taken, i.e. is reflexive. The methodology presented in this paper asserts that cause is inherent in the interplay, and what emerges from interplay. A focus on (effectual) reasoning implies methodological individualism, whereas our methodology and the notion of interplay acknowledge methodological holism, which seeks, *inter alia,* to understand environmental influences on decisions.

So far in our account of entrepreneurial process we have not addressed the question of what guides the extent to which practices are drawn towards de-stabilising or stabilising micro-states, assuming such acts are intentional. If intention is prima facie part of entrepreneurship practice, then what process arises from intention? We propose the concept of anticipation to link reflexivity with intentionality. As Moran and Ghoshal (1996, p42) put it, "the party (or parties) with the opportunity or means to execute the prospective resource deployment must also perceive, expect or otherwise hope for some value creating potential from the deployment".

The anticipatory capacity of the actors and is closely associated with the process of reflexivity, which to paraphrase Giddens, is the constant examination and reforming of social practices in the light of information. Rosen (1985), theorised that natural, living, self-reproducing systems are anticipatory. "Each system contains an internal predictive model of itself and of its environment, which allows it to change state at an instant in accord with the model's predictions pertaining to a later instant" (p341). While not wishing to enter a debate about how anticipation works or whether it is necessary to life (Brooks 1991), these ideas seem to add up to a capacity for foresight (Fuller and Warren 2006), but do not in any sense suggest that natural or social systems are endowed with the capacity for accurate prediction, merely that they naturally predict or anticipate relative to their current state. If 'opportunity' is anterior to a new venture then recognition of opportunity (or threat) is likely to involve anticipation. Anticipation requires intention (Katz and Gartner 1988), but also involves reflexivity, i.e. the effects of some perceived future state on current intentions and activity. Anticipation is inextricably linked with the overall sensitivity to conditions, i.e. the entrepreneur's (or team's) awareness of changes in the environment <u>and</u> their propensity to act on that awareness. The entrepreneur's anticipatory response would include their interpretation of the conditions to which they are sensitive, their power and legitimacy to act within their environment, their propensity to act and their ways of sensing the need to act.

In summary the above theorisation enables the development of a methodology. The problem being addressed is to identify the processes of emergence, emergent properties and the stabilising of these assumed ephemeral phenomena. This dynamic activity is located between 'agency'; (intentionality and action of autonomous individuals) and 'structure' (the contextual influences on individual intentionality and actions).

Analytically our questions relate to ways in which the inter-relationships between a number of social processes produces ephemeral emergent properties and stabilises (some of) these. The particular social general processes we focus on are experimentation, reflexivity, anticipation and organising.

Empirically our gaze is directed to experiments and the appearance and persistence of meaningful symbols, whether as language, dialogue, practices or artefacts.

We also observe the empirical manifestations of the social processes, i.e.
- The nature of the experimental projects and the degree of resource, commitment and interplay with other micro-states
- The articulation of identity of the actors, projects and enterprise
- The Organising Domain, such as routine practices and dominant logics
- The articulation as to what the actors are sensitive to within their environment and what, if anything, they appear to anticipate.

Ontologically, we consider the particular value or meaning of emergent properties to the actors and more explicitly the material power of these properties to affect the micro-states that produce them and the role and effect of anticipation in relation to these properties.

The case study we describe in the next section is a longitudinal study that has been observed through the methodology described above. The methodological framework used to guide the original research, developed by Fuller, Warren et al (2006; 2008), is an earlier version of the above methodology, notated as The EROS Model. EROS is an acronym for four inter-linked processes and their related ontologies; Experimental behaviour, Reflexive construction of identity, the construction of Organising domains and Sensitivity to conditions; altogether acting as a mechanism by which novelty emerges in entrepreneurial contexts. As the above discussion illustrates the methodology has developed to take account of structural inter-relationships, emergent properties and anticipation. Our analysis reflects this wider methodological perspective on entrepreneurial emergence.

5. AAC: the case of a new business venture

Background

Flight Directors, the firm at the heart of this study was established by two founders in 1984 to provide brokerage services in the air travel industry. The airline industry provides the context for this case; while it is international and truly global, it has a degree of uniformity imposed by safety and security considerations. The industry is highly regulated in terms of who can participate and how – through what systems, both technological and regulatory bodies. This systemic uniformity is underpinned by the need for interoperability between countries and airlines, a state that has been achieved to differing extents through successive rounds of deregulation at the supra-national level. This was an important part of

institutional structure in which the particular case develops. This industry context was fast-moving and an excellent example of the need to strategize and anticipate on a contingent and agile basis. Flight Directors is remarkable in that it has (at time of writing) survived for 23 years, having employed up to 100 people prior to 9/11, in an industry which has been through huge political, economic, social and technical change on a global scale.

This study examines the conception, implementation and development of "Alternative Airlines.com" (AAC), a new venture within Flight Directors business portfolio, part of the ongoing development of a firm that has proved itself sustainable over time. The new venture was introduced into the context of the two core operations:

- General Sales Agency (GSA) business – the business model is fee based representation in the UK of a number of non-UK airlines
- Call Centre (CARES) business, which is a commission-based telephone ticket sales operation acting as an overspill resource for larger airlines or retailer for smaller ones.

In both cases, the business model is based on contractual relationships with airlines to handle customer relationships and involves high levels of technological dependency. These form part of the existing supervenient organizational context or structure into which the new venture emerges.

The new venture (AAC) was launched in July 2007 as an internet-based flight booking system designed to provide for customers wishing to book regional and domestic flights in countries and from carriers that would not normally be readily available from large online booking agencies such as Expedia or Ebookers. The idea for the new business appears to have been seeded in 2004. In principle AAC had the potential to disrupt the activities of the larger operations, by offering complete whole-journey management and through-ticketing (although later, the focus was realigned to the niche regional airline specialisation, not through-bookings).

Online ticketing is a commercial field that is distinctive yet highly enmeshed with the structural, technical context of the travel industry's regulatory environment, the airlines themselves and the complexities of web capture of customers in a highly competitive environment. This meant that a new venture could only be undertaken with a major commitment in the firm to harnessing the necessary expertise and resource, i.e. a major structural change. Using the 'entrepreneurial emergence' perspective we investigate how this new venture emerged and became stable.

Research Design and Data Collection

A qualitative, exploratory longitudinal case study approach has been employed (Yin 1984) using multiple methods. During the most intensive phase of establishing AAC (building the IT infrastructure and developing the customer base), three sets of semi-structured interviews were carried out (at 6-9 week intervals) at the firm's premises from June 2007 to October 2007 with individual respondents. Interviewees included Paul, the CEO and co-founder of the company, other members of the senior management team, including John, responsible for technology strategy, Mel, the Operations Manager and other staff directly involved with

AAC. Research collaboration with Paul has continued since then to the present day through emails, interviews and informal meetings. Documents associated the project, such as 'The Altimeter' (see below) were also analysed.

The interviews took a different form depending on the role of each interviewee, different in each case. The most significant evidence of the overall project came from the two co-founders. Paul was the CEO responsible for vision, strategy and marketing overall. John's role was to evaluate and implement the technological systems at the heart of the company's ability to perform and survive in an industry which was increasingly dominated by dedicated travel industry systems that were deeply intertwined with advanced web analytics.

The conception and development of AAC was deeply embedded in this intricate context and decisions taken had impact across the whole business; AAC was not a simple standalone project that could be picked up or put down on an *ad hoc* basis, as might be done in in a stage-gate model approach (Cooper 1985). Part of the early research was to unpick this intricacy through careful questioning to ascertain the trajectory of the new venture. Introductory questions focused on establishing an historical timeline for developments in the company. The 'timeline' image shown in Figure 3 was developed collaboratively in the interview settings between the researchers and the participants, to garner different perceptions of what was historically important as the venture was conceived and developed.

Insert Figure 3 about here

Using the timeline model as a hermeneutic enabler (Espejo and Harnden 1989, p394) a consensus emerged (confirmed by John and Paul) during the interviews that the development of the venture could be characterised as having taken place over 4 different time periods or phases. This ready consensus was useful in establishing, through further questioning, the business activities that took place over different times. Once the key events and issues had been explored, it was possible to probe deeper in relation to the research questions outlined in the previous section. Post-hoc analysis suggested that seven phases were analytically useful within the four time periods. The 'architecture' illustration shown in Figure 4 proved to be a useful artefact that happened to be on display in the interview room during part of this study. Like the timeline diagram, it was used as an enabler to explain the relationship between different technological components and the developing business model. Another significant set of artefacts was 'The Altimeter', a newsletter that existed for a short period during the project (see below).

Insert Figure 4 about here

Analysis

The history of the venture can be traced to 2004 and from then until mid-2006 commitment to the venture gradually increased. It entered a pilot phase until January 2007 at which point it went into a resource commitment phase. In Q2 2007 the venture was being built up (build phase) with a market launch phase in July 2007. From August 2007 onwards, the venture was formed and trading and although subject to continued re-assessment and organisation, was stabilised as an extant venture up to the time of writing this article (2012).

Pre-launch phase, Dec 2004 – June 2006

The actual genesis of the idea and the nature of the business model at that time are seen differently by John, Paul and Mel. Paul told us of an event on 9th December 2004 when he and John were in a Moscow hotel lobby waiting (in vain) for a client to turn up and 'got talking' between themselves, which is where the concept of AAC began. From that point, AAC was a 'twinkle' of an idea for Paul. Perhaps not surprisingly, John had little or no recollection of this discussion and placed his 'key event' in the story as a visit to a conference the next year. Mel, who had operational responsibility for the existing business was largely outside the discussion at the concept stage, though discussions about online services became more dominant in the organisation. In 2004, the business was telephone-based and that was at the core of its operational identity. Despite their different perspectives, during this early period, there is a sense of something new, something growing, and that something with a distinctive presence that may well at some point become part of the firm.

The trigger point for reorganising business practices around this potential new business model comes when John visits a conference in Philadelphia in 2005 and realises that if the firm is to continue to compete it must engage with the internet business community in new ways. Thus the internet project begins to grow by attracting internal resources, particularly John's time investigating system architectures and regulatory requirements, which represented a major investment for the business,

The project identity at that point was the modernisation of the General Sales Agency (GSA) business, i.e. a move from telephone service to web-based services along with greater capability. A student intern was employed to assist John is the technical developments. They set up micro-sites to promote each of their client airlines. This relatively low risk experiment was recognised by the team as forming a basis for further growth through a direct bookings business while at the same time being consistent with the identity of the business in two ways: as being a GSA business and also in doing "what works" as a result from these experiments. "Doing what works" was an oft repeated phrase in the interviews.

Reflecting on the process of emergence thus far, we can identify the following:

The identity of the business and the self-identity of the two leaders were powerful influences on the emergence of this strategy. Paul's entrepreneurial identity, based on his early career, was (and is) being 'something innovative in the airline industry' and basing a business on attractive niches and John's identity was of technical innovation within the industry.

The experiment they undertook was relatively low risk in that it fitted with the current business but both could anticipate the increased value to the business of being able to make direct bookings via the adoption of industry level technology and approved registration. The experimentation at this stage was at two levels. Firstly, it was a thought experiment within the firm, with tension in the dialogue between the AAC idea and lower risk web-based GSA. Secondly it was a technical project with external partners, creating a technology structure that is new to the internal structure of the firm.

At this stage the dominant organising domain was the GSA business with the leaders adopting what for them was a normal strategy of 'doing what works'. The web presence of the GSA business in 2005 onwards generated telephone enquiries for sales to be dealt with via the firm's existing processes.

Their sensitivity to conditions and the anticipations associated with that were heightened from John's experience at the 2005 conference after which he refers to a new "sense of urgency" and was concerned about "missing the bandwagon", i.e., the anticipation of loss as much as gain.

It can be seen that the supervening structure of the current business and the technological and regulatory structure of the industry significantly constrained and shaped the nature of what emerged. Although the business looked ahead, it could not just 'act'. It was shaped – both constrained and enabled - by the regulatory requirement and the technical infrastructure.

The material emergent properties at this stage were the 'idea' of AAC as a way of creating greater value by the business, at least in the mind of Paul, the commitment of John's time to the internet project and the on-going discussions about the move by the company to become a web based business or miss the bandwagon.

The processes of experimenting with these new ideas, the reflexivity of the owners in relation to their own roles and the anticipation of a changing industry structure with them in it (or not) had a destabilising effect on the existing business, created by reduced resources and a shift in organising domain to the development of the micro-sites for clients. At the same time, the strong self-identities of the owners maintained an overall stabilising effect on the broader identity of the business. The overall effect is a destabilising of the overall business identity at the level of 'what we do and how we do it', rather than 'who we are as a business'.

GSA direct bookings launch phase September 2006

Early in 2006, John began serious discussions with online booking systems providers. GSA presence continued to grow on the web in the form of passive micro-sites. The decision to use a GDS (dedicated travel industry Geographical Distribution System) as part of the DSA modernisation was critical as it provided the technological capability to book and sell tickets for multiple airlines. As the new venture effectively made Flight Directors a travel agency, IATA (International Air Transport Agency) approval was required and this was achieved in July 2006. The IATA approval and the GDS technology brought the capability to fulfil bookings for hundreds of other airlines in IATA, not just the GSA base. The first online booking was on 29 September through GSA, prior the launch of AAC as a separate entity in January 2007.

At this point, the web-based GSA business could be counted as a successful experiment, or perhaps more accurately a stable emergent, i.e. had become part of the structure of the overall business and well-fitted within their customer structure and the wider industry structure. This development for the business was an innovation, but a relatively non-disruptive incremental innovation. It was consistent with the historical path of the business

and of the business leaders, albeit that it had taken considerable managerial and financial investment to achieve.

In this phase we see the supervenience of industry structure and existing business relationships inter-acting with subvenient experimental micro-states that were created within the firm.

The development of AAC: Emergence phase (from Q4, 2006)

With the technological and licensing structure in place, the company moved ahead on the bigger innovation: the envisaged through-booking online web site or Portal for direct use by travellers, i.e. the consumer market. Moving from business to business (B2B) to business to consumer (B2C) is a very significant change. The B2C business model was based on onward bookings to regional airports, which other online booking agents did not cover, driving sales of through-bookings on the main routes as part of the whole journey, i.e. the reverse of the more normal model of booking a main route via industry leaders such as Ebookers or Expedia and then adding regional flights as a separate transaction. At this point therefore AAC is in competition with industry leaders, albeit with a specialist niche focus.

During this phase the processes that had created instability pre-emergence were used to modify and stabilise the organising domain of the emerging venture as it moved from ephemeral to stable. In the emergence phase, the identity of the new venture is fixed in the short term through narration both internally and externally – this is what we are going to do. The sensitivity of the founders was the 'fit' into the industry, how big might the business become, and how competitors might respond? The explicit focus in this period is therefore on the 'Organising Domain' of the new venture and the interplay between this and the rest of the business. The materiality of the added functionality of being able to make direct bookings, combined with the firm's existing networks and capabilities, produced a structural change. During this emergence phase, inter-relationships with the external aspects of the business were considerably reduced, which meant that the supervening power of the market was not imposed. The emergent venture was, in an organizational sense, ephemeral. It was present, but its continued existence was not assured. The following 6 months (Jan-June 2007) saw a focus on stabilising the form of this emergent property by exposing it to the external market and by incrementally increasing its fitness in a way analogous to annealing.

In the discussions of the timeline between the researchers and the management team, it seemed that once the venture had become emergent, then the development was in three distinct phases; Commitment, Build and Market Launch.

Commitment phase (Q1 2007)

The AAC Portal went live in January 2007 with over 100 airlines signed up to take bookings from it. The first online booking was 3rd January 2007. From this point the company committed increased cash resources in the anticipation of a successful return. It should be noted that the business was not cash-rich and it was effectively betting the business on the project, which was no longer an experiment. The dominant narratives reflected the business model. Monthly sales figures were produced for the whole team and monthly financial statements produced for the whole business as well as the new venture. Sensitivity was

directed explicitly towards obtaining information about the fitness of the model to the external environment, for example through Web analytics, and the inter-relationship relative to the anticipated model of the business.

By mid-March 2007, four additional marketing and web staff were recruited, making a team of seven in total. The activity focus was on the detailed functionality of the website, increasing the number of participating airlines and developing web search management techniques (Search Engine Optimisation etc.). At the level of the firm, the material aspects were the location and presence of this team, diluting of other areas of work and, of course, negative cash-flow. The emergent venture was also material to the existing parent firm (Alternative Airlines.com), from a stratified emergence perspective it had subvenient effects on the supervening structure.

Build phase (Q2 2007)

The Build Phase started around the end of March 2007. The new venture's Organising Domain was becoming fixed – in the short term – and the emphasis was on consolidating and strengthening that core, extending the customer and stakeholder base. A key focus became the way the identity was shaped. Paul produced a sense-giving device which was an internal newsletter called the Altimeter. In this he set out the business vision for the project team and the relationship of the project with the rest of the 'Flight Directors' company. Fortnightly updates of this amplified the concept, progress and successes, as well as difficulties. The main texts written by Paul contained words such as 'amazing', 'superstar', 'fantastic' 'growth' as well as lots of upward trending graphs with 'potential future expansion trajectories'. Inset in the text were operational comments from the John and Sarah the marketing executive. The overall effect of this activity was to create a stable sense of identity and logic for the project. Paul saw this as sense-making for the new team, to create a vision and a shared sense of purpose, as an act of leadership.

The Altimeter foregrounded the materiality of the project, from the leaders' perspective. Alongside the Altimeter, amongst the team the everyday discussions and practices were about the development of the business model. Thus the organising domain and the identity were becoming consistent with each other. The team's sensitivities were directed to operational effectiveness. Experimentation still took place but on a very small scale, using trial and error approaches to improving the fitness of the model, i.e. analogous with a process of annealing (Carley and Svoboda 1996). The dominant anticipation was the implementation of a successful business model and the overall materiality was the set of activities coherently consistent with this process.

Market launch phase (June/July 2007)

The market launch phase is the point at which the emergent venture was expected to leave its incubation state and become self-supporting. In particular, the strategic direction from Paul reduced considerably once the 'model' was resourced and in place. John, the more technically oriented business partner became the de-facto operational leader of the venture. Any further developments of the venture were expected to be 'market driven' i.e. adapting to market demand as any other business venture. The guiding 'Altimeter' document was symbolically discontinued at this point by Paul as a sign that the venture had to stand alone – it had left the incubator. However, in reality this emergent venture did not yet exist as a viable business, but it did exist as internally consistent identity, organising logic and positive anticipations. These aspects were material to the everyday practices of the team and the

business. Observationally, by this point the venture also exemplified the characteristics proposed by Katz and Gartner (1988); intentionality, resources, boundary and exchange, and by (Brush, Manolova et al. 2008); 'less tangible activities and outcomes', though arguably these were present by the launch of the online GSA and it is the shift in identity and logics that characterise the new venture.

Reality or re-organisation phase (July 2007 to 2012)

The respondents referred to July 2007 onwards as the "re-organisation phase", and indeed the new venture went through some major re-organising in the next 12 months. Growth of revenue was initially slow and the size of the new team was reduced. Fundamentally, the business model changed from a focus on through-bookings, competing with the larger players, to a more niche approach of booking regional flights in a wide range of countries. The technology infrastructure was also changed by John through outsourcing to industry professionals, rather than through a strategic alliance with a systems provider, bringing the know-how more internally as consistent with John's role in the business.

From Paul's point of view, this business model was different from the one he anticipated and was not likely to lead to an industry-changing disruptive business. It slowly became an extension of the existing business, with online consumer sales being analogous with an extended telephone sales support for regional airlines. Paul increased the amount of experimentation in relation to the General Sales Agency business to make stronger links to the new venture, while John concentrated on making the venture work operationally. By late 2007, the new plan was to develop the venture as adequate for a trade sale.

In this phase, we see for the first time the supervening influence of the marketplace as the business is fully exposed to that structure, but we also note the subvenient influence of the two founders. John, who now leads the project, asserts his knowledge and disposition to stabilise the business technologically and operationally. More fundamentally we consider that the overall emergent business model has crystallised the inherent knowledge of both business partners into a bundle of routines and internet presence that underpin the identity of both Flight Directors and its newest family member, AAC. The emergent business has embedded the joint expertise of the founders. The practices and routines (the Organising Domain) of the venture is the codification of their practical knowledge and their relationships with that market, and in particular with their existing client customers and the industry leaders. The emergent new venture thus exerts supervenient causal power over the microstates that produced it.

As an aside to this descriptive flow, it should also be noted that experimentation was also evident in this phase, but that these were related to new fields of endeavour and not AAC.

6. Discussion: Process of emergence in entrepreneurial contexts

The above analysis indicates that throughout the time that a new venture went from small idea to a market launch, interlinked social processes were enacted by the entrepreneurial team which produced emergence and then stabilisation. The material causal power that explains the existence of the new venture was invisible to empirical observation at the time of the launch. Causality, we suggest, is found in the relational interplay of social processes with the emergent and ephemeral ontological materiality arising from these processes.

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We have observed in this case that the processes produce instability and stability, both of which were necessary for the emergence of the new venture; for the emergence of novelty. We also noticed that the characteristic entrepreneurship role is to stabilise and destabilise through these processes. Furthermore, emergent phenomena are materially symbolic and in some instances, artefact.

Thus at the outset of what turned out to be the new venture: the discussion in a Moscow Hotel, the venture was a simple thought experiment created from a conversation between two people, which through the processes we describe emerged over three years as a sustained new venture. Entrepreneurial agency enacted by both people was material to the outcome. Over the period, experimentation was the main process by which practices and resource usage were shaped. Experimentation was used as a destabilising, disruptive, process and also as a stabilising, annealing, process to make small refinements to improve efficiency, once a commitment has been made. These experiments had 'upward' (subvenient) effect on the overall business structure as well as downward (supervenient) effect on the practices of individuals in the businesses, including the owners. The reflexive identity work (Sveningsson and Alvesson 2003; Watson 2008) by the owners of their personal and professional identities and that of their enterprise was highly influential in the way the business became what it was. The sensitivity of the owners, and later of the venture team, guided by their mental models and anticipations was seen as influential in how and when they acted and what experimental and organisational practices they pursued. The Organising Domain, i.e. the inter-related everyday practices and logics contained in those practices, were shown to have causal effect on the emerging enterprise as anterior (pre-dating) and as a constraint on practical available options. The Organising Domain was re-shaped through the subvenient power of the emergent venture, which was manifest as ephemeral microstates of symbolic materiality to the actors.

Over the phases of the process, the roles of these processes de-stabilised the existing structure to allow emergence to take place and stabilised ephemeral emergents.

The above paragraphs compress a description of what might be considered an entrepreneurial mechanism; that is the interplay between specific processes and the intentional formation of ontological status in a zone between individual ideation and motive and social or institutional structures, to reinterpret Sawyer's 'emergence paradigm'. Not only is there interplay between processes, there is also interplay between structurally hierarchical strata; a concept inherent to the notion of emergence. In the case we have investigated, this interplay between strata (or microstates as Bedau (1997) theorises) was enacted through entrepreneurial process and is inherent in the mechanism described above. Experiments are active within different strata (thought experiments, discursive interactions, temporary practices, ephemeral logics); identity work involves individuals, new ventures, existing structures, industry relationships; Organising Domains are formed as projects, company-wide logics and impinge on industry domains; Sensitivities range across microstates and relate to the relationships between microstates and macro-states, i.e. sensitivity (to conditions) is explicitly multi-level in its conception.

This leads us to propose that part of understanding entrepreneurship and the creation of new ventures is to recognise the role in generating ephemeral emergents and in stabilising these in the anticipation of value. As discussed later this role is played parallel to other roles

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as identified in extant literature. This assertion is based on the concept of emergence as a process involving multiple activities, where emergence is a process by which new properties are created that have independent properties from that which produced it. A new venture is such a property, or bundle of properties, the creation of which is consistent with the meaning of entrepreneurship. Furthermore, the helpful notion of ephemerality and the stabilisation or persistence of some ephemeral emergents adds to our understanding of entrepreneurial process. Entrepreneurial practice produces ephemeral emergents and stabilises emergents through asserting ontological status of these, albeit temporally.

In the case of Flight Directors, we have previously reported (Fuller and Warren 2006; Fuller and Warren 2006; Fuller, Warren et al. 2008) on how these processes have been used to sustain the business over many years but not as a result of formal or informal strategic planning processes. We can see the shift from individual cognitions and identities at the outset when the idea arises, as the new entity emerges and becomes more stable over time in light of constraining social structures, eventually persisting as part of the firm. The causality is defined by the shifting ontological status of stable and ephemeral emergents which arise from entrepreneurial agency in the anticipation of eventual value realisation. The analysis is based on the language and understandings of social theory and in part therefore explains how certain essential sets of activities result in the emergence of novelty, as a means of realising value, though the outcomes are not predetermined.

Emergence, as a concept, theorises the appearance of meaningful existence from prior conditions. In any field, the question of how the significant objects related to the field are produced is a vital question. In this paper, and in the context of a particular case, we have developed an emergence perspective to add to the field of entrepreneurship. What we have found supports recent extant work which point to the lack of strategic rationality in how entrepreneurs effect innovations. Through taking this approach we offer further theoretical explanation for the observations found in other literature.

In particular, we find that by the very nature of its existence, an emergent enterprise is unpredictable. This is because the network of interactions between multiple actors at multiple levels is complex and that development is punctuated with temporary microstates which may or may not generate future microstates, depending on the anticipation of value by those with the power to enable the emergent to persist.

Although outcomes of entrepreneurial practice are unpredictable and perhaps only rational at a micro-state level, we can offer explanations and suggestions for entrepreneurial practice in the context of innovation. The key role of the entrepreneurs in our case study was the creation and maintenance of evolving ontological materiality, as meaningful to themselves and to those with whom they interacted. In simple terms, they made things meaningful to people who mattered. Artefacts, actions and logics all contributed to this, alongside the linguistic tropes (Polanyi 1967; Hill and Levenhagen 1995; Cornelissen, Clarke et al. 2012). Without doubt this required them to understand the structures in which their business existed and to act through a process of interplay described in this paper.

We propose that an entrepreneurial emergence perspective modifies our understanding of what constitutes a new venture, and when and how it emerges. A new venture is an emergent that has stabilised. The existence of ephemeral emergents and processes of

stabilising these are an ontological necessity for the comprehension of the process of emergence. In addition, the presence of anticipation, as Aristotelian "final form" causality, is inherent in the stabilisation of ephemeral emergents. We conceptualise a stable emergent enterprise not in market terms or as an artefact such as a product or service. Rather, it is an enacted sense of possible futures consisting of interlinked, multilevel constructs that resonate between the past, the present and the future. Such an emergent embraces a discursive anticipation of future value; an entity to support the exchange of value in all its forms.

7. Conclusions and further research

The main theoretical contribution is in the demonstration of how entrepreneurial agency is put into effect in relation to the disruption of social structure and social change. Our central argument in this paper is that emergent forms (or 'emergents') may be short lived (ephemeral) but have causal power on the performance of the actors in the system of inter-relationships in the innovation ecosystem. Emergents have causal effects on the anticipations of value inherent in the particular system of innovation they inhabit. This causality is manifest as the attraction of resource in the firm; as such the stabilisation of the emergent constitutes strategy in the enterprise. As the theoretical posit has been expressed operationally as a framework for data collection and analysis, we are also able to make a methodological contribution to the study of multifaceted, multilevel phenomena in the field of entrepreneurship and innovation.

The analysis identifies that entrepreneurship, value and society are inter-linked and without any of these three elements, innovation and social change arising from agency would not take place.

More generally, the work contributes to a social process perspective on entrepreneurship. Social process is not something that takes place alongside entrepreneurship. Our analysis shows that entrepreneurship is not possible without social process, thereby supporting and adding to entrepreneurship process research . Moreover, through the enacting of particular processes, emergents can be created, which expands the explanation of how ventures make themselves known and how this links to process. Emergence is inherently ontological and asserts stratification. Stratification addresses a theoretical challenge in entrepreneurship as being between individualism and holism. In our analysis we begin to unfold the social processes that help explain why enterprises are formed incrementally, why strategies are not prior to practice, but where anticipatory visions and external reputation may be causal. Why the very heart of entrepreneurship: the opportunity, is a description of a mechanism for de-stabilising and re-stabilising the materiality of what is taken as a new venture.

Our analysis shows that an understanding of entrepreneurship is irreducible to the individual and their behaviour, but that there is "ontological dependence" (Lawson 2003, p183) in theorising entrepreneurship. Such dependence includes relations, the artefacts and other emergent, institutional structures and other strata. The processes and interrelations are idiosyncratic, non-repeatable and unpredictable. Such a perspective underlines the limitations of covering laws and the measurement of regularities in theorising entrepreneurship.

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As to practice, we argue that better understanding of emergents may lead to better understanding of the management of emergents in small entrepreneurial firms, particularly those in fast-moving contexts where disruption of industry structures is possible, but only through agility, where the firm has no control over large industry regulators or industry incumbents. Firms can learn how to organise for the 'EROS' processes: for example, fostering a culture where low-level experimentation is encouraged; identity work (firm and key individuals); develop stronger understandings of the critical value (McKelvey 2004) that might trigger change. Recognising and playing out their role of constructing stabilising narratives to create anticipations of value would be useful. Further research could develop identify how managers can observe, evaluate and make use of these concepts in terms of designing strategic approaches.

Finally, we recognise that our claims are limited by that use of one case study, however detailed and prolonged that study is. Firstly, further work needs to be carried out to test the generalizability of the methodological framework in different firms, industries and cultures. Secondly, this paper focuses on just one emergent, though others were identified during our study, most of which did not persist. More knowledgeable management of emergent requires us to know more about how many emergents are desirable, how do they interact, economies of scale, when to persist (or not). Thirdly, we need to explore more deeply the theoretical linkages between the methodological framework with other relevant literatures, for example, strategy, organisational identity, entrepreneurial identity, complexity science, sense making and opportunity recognition.

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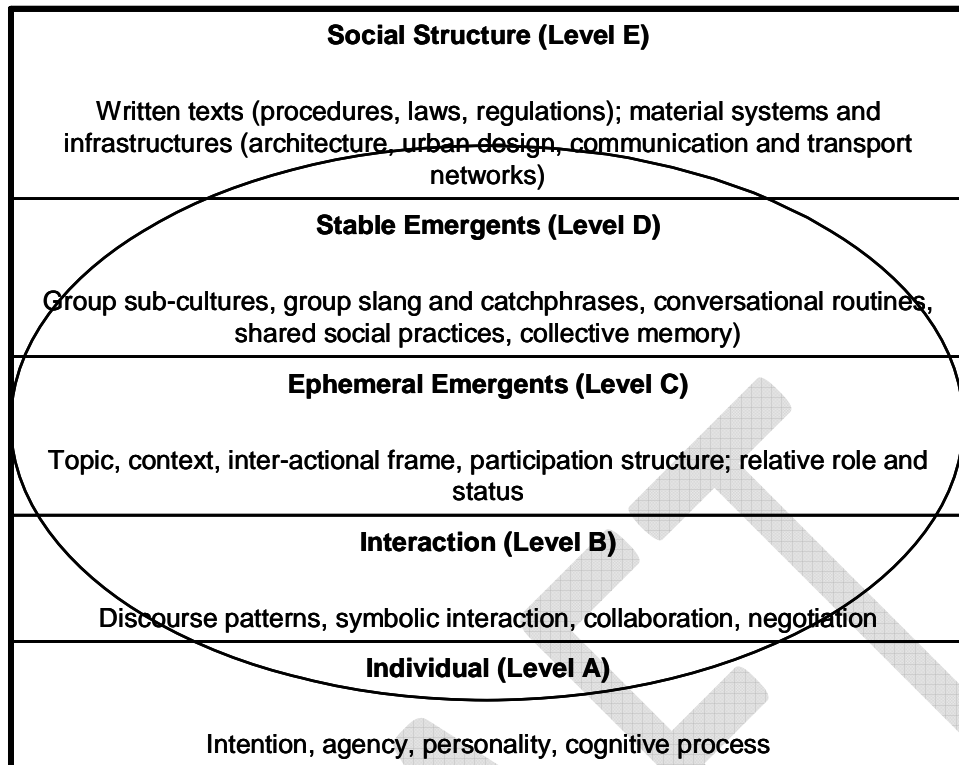
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Social Structure (Level E) Written texts (procedures, laws, regulations); material systems and infrastructures (architecture, urban design, communication and transport networks)	
Stable Emergents (Level D) Group sub-cultures, group slang and catchphrases, conversational routines, shared social practices, collective memory)	
Ephemeral Emergents (Level C) Topic, context, inter-actional frame, participation structure; relative role and status	
Interaction (Level B) Discourse patterns, symbolic interaction, collaboration, negotiation	
Individual (Level A) Intention, agency, personality, cognitive process	

The Emergence Paradigm (Sawyer 2005, p211), showing the 'circle of emergence' (p220), i.e. that area which is subject to social emergence

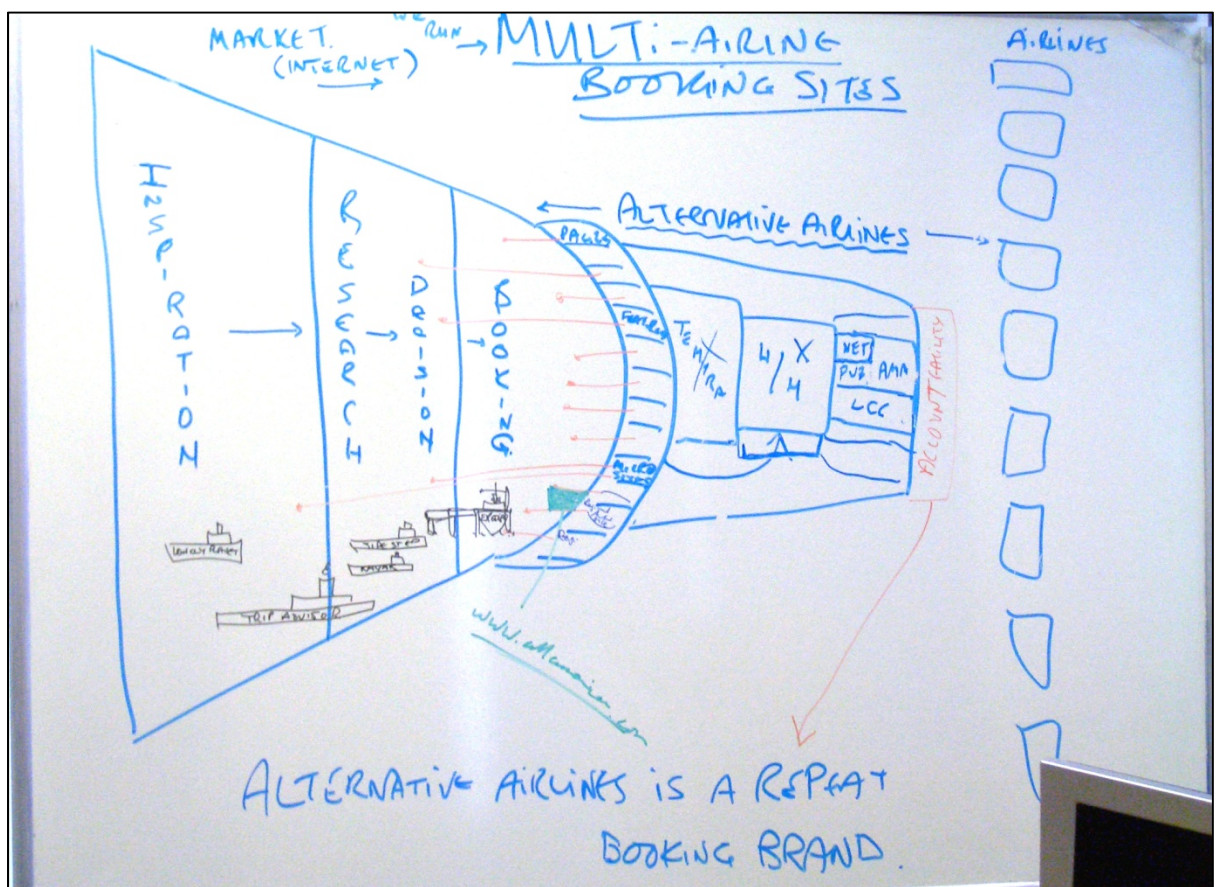FIGURE 1. THE EMERGENCE PARADIGM
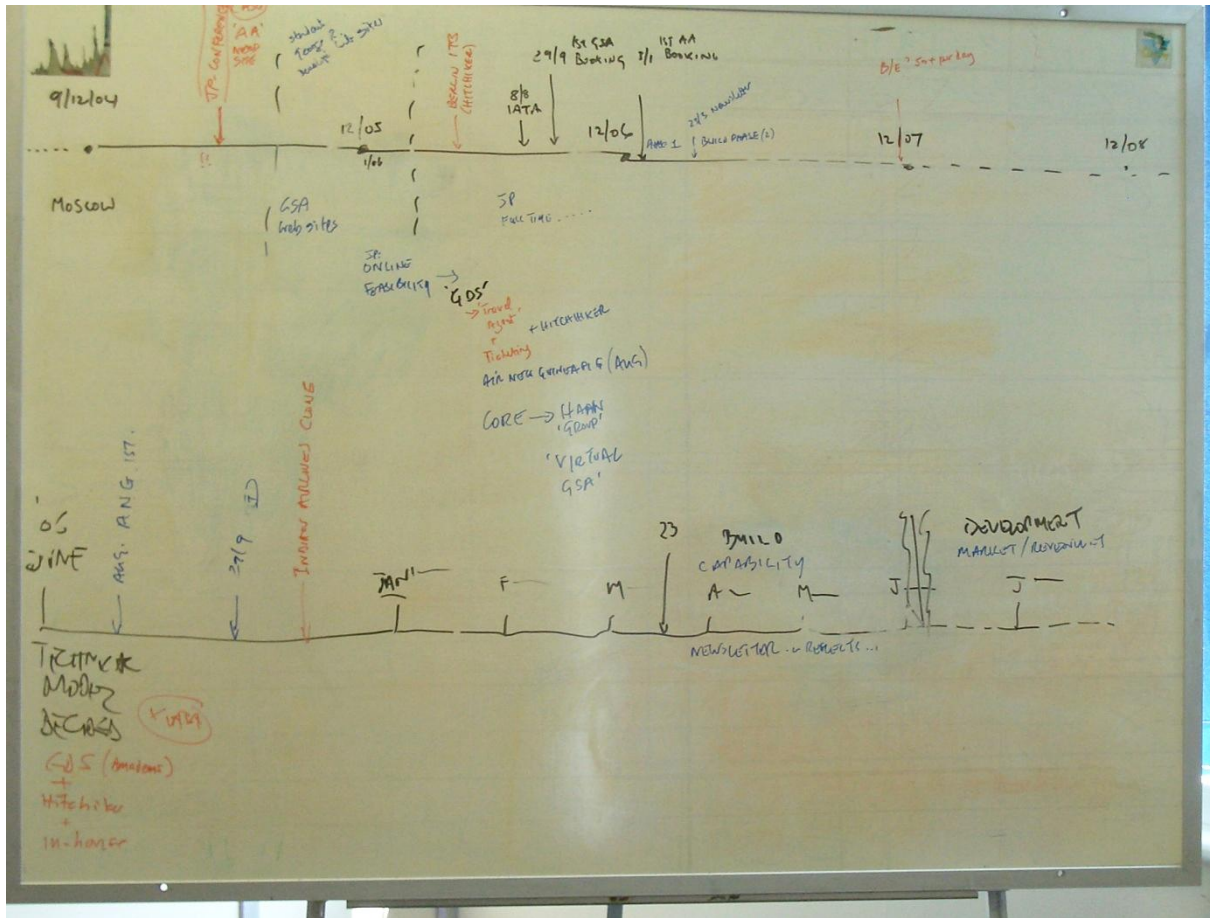
FIGURE 2. HISTORICAL TIMELINE AS DEVELOPED WITH MANAGEMENT TEAM

FIGURE 3. BUSINESS MODEL DIAGRAM SEEN IN PROJECT ROOM