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Anticipating Technological Futures in Rural Enterprises

Track: Technology and innovation in the rural economy

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Abstract

The purpose of this paper is to elaborate ways in which rural enterprises prepare for their futures with respect to technological developments. It sets out a methodological framework for operationalizing the notion of Anticipation and applies this to data from interviews with a range of rural small enterprises

The methodology takes an anticipatory perspective. Anticipation is conceptualised as processes that mediate between knowledge and action; how knowledge is 'used' to guide and motivate practices.

The data is drawn from eleven case studies of small enterprises in rural areas, based on interviews with the principals and follow-up engagement with the firms to help them shape their digital strategies.

Analysis to date, initially published at the ISBE conference in 2015 and subject to more data and analysis for this paper, highlights the particular concerns and focus of the business owner-managers with regard to their identify and practices the digital economy. This analysis also helps to reveal the more precise nature of the mediating quality of anticipation between knowledge and action in rural entrepreneurial contexts in a digital economy. This mediation, termed 'modelling relations', appears to focus on the boundary conditions of the enterprise, i.e. the limits of its relationships with stakeholders and with technologies; testing in various ways how these can be modified to create greater value. External resources, such as the university play a part in this process of experimentation or testing.

The work allows us to understand the actual challenges being addressed by rural enterprises, rather than taking a supply-side perspective on what these might be. In particular it helps us understand how these challenges are constructed, anticipated and responded to. This knowledge is likely to be of value to other rural enterprises in that they can learn and judge what anticipatory practices might help them to achieve their prospects. This in turn will have effect on the design of rural business models

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Introduction

In this particular paper, we are interested in the way that a selection of small firms based in rural areas prepare for their futures in a more digitally symbolised and interconnected world (M. Castells, 1996; Manuel Castells, 2005). The context for our investigation is a programme of university-business collaboration, mainly funded by European structural funds and related to a central government response to the market failure of telecommunications companies to provide adequate broadband technologies in rural areas that are more sparsely populated (with customers and competitors) than urban areas. The purpose of this collaboration is to provide stronger links between a university and local enterprises, and in this case with a focus on economic sustainability,

Within this context therefore, are a number of specific areas of interest, such as how the small enterprises are using or planning to use digital technologies, how this is changing their businesses, and what effects access to a wider range of knowledge and skills might have on the enterprise. These latter points have both evaluative and formative aspects; evaluative in terms of the 'added value' that faster broadband technologies might provide and formative in terms of how small enterprises can develop in the digital economy.

This working paper gives a brief report on work in progress in a small empirical study of small enterprises with regard to the responses to the digital economy. The paper investigates the extent to which a central concept in strategic shaping in the digital economy, the business model, is apparent in the thinking of the principals (leaders, owners etc.) of these enterprises. Our analysis of the way that these small enterprises are dealing with the environmental changes uses a central question of the ways in which they are anticipating the effects of the digital economy. For this purpose we extend previous work on innovation and emergence (Fuller, Warren, & Argyle, 2008; Fuller, Warren, & Norman, 2011; Fuller, Warren, Thelwall, Alamdar, & Rae, 2010; Warren & Fuller, 2015) to consider the role of anticipation in entrepreneurial processes.

Context

Even the most regionally remote of small businesses in the UK are engaged in the global economy, and this economy is mainly mediated through the internet. "The Internet" is used here as an umbrella term for online, interconnected relationships and transactions, including web sites, social media. Even when such technologies do not reach the individual small enterprise, they are used by their customers and competitors and this changes the landscape for the 'unconnected'. The digital economy as Tapscott (1998) called it, is ubiquitous. The literature connecting ICT and small enterprises, rural firms and the issues of broadband access is not extensive and that which exists is well summarised by Townsend et al. (2013). The significance and shortcoming of internet access is certainly a policy issue at the present time with strong advocates for ubiquitous high speed internet connections for businesses in business organisations¹ and government (House of Lords, 2015). The assumption that high speed internet access is necessary for innovation and growth in businesses, as well as in the provision of public services is widely held (Salemink, Strijker, & Bosworth, forthcoming). The premise is a general form of anticipation that high speed internet access is a strong element of 'the future' of social, economic and cultural life and that not being fully 'connected' disadvantages firms and people.

The ecology surrounding any form of digital enterprise is complex, dominated by larger firms, highly volatile because of the ease and speed of new entrants and requiring high levels of ongoing investment in "being present" online. How then, does a small firm compete, when somewhat disconnected or with low levels of connectivity because of slow broadband speeds (Townsend et al., 2013), and frequently with low relative levels of skill in both online communication and in the technical management of online business? Our research set out to discover the ways in which the principals of the enterprises (owner managers/entrepreneurs etc.): were preparing for their digital futures, were considering their competitive position, were reconceptualising their enterprises and

¹ See for example the 2013 report from the Institute of Directors stating that rural business leaders are dissatisfied with download speeds (60% mobile and 45% fixed line) <http://www.iod.com/Influencing/Press-Office/press-releases/new-iod-poll-faster-broadband> (accessed September 2015)

what kind of resources they were enlisting to achieve this. These questions, in simple terms are a way of accessing the anticipatory practices of the enterprises and to reveal the limitations, or perceived limitations, experienced by the firms.

Methodology

Our approach to this study is grounded in an emergence perspective (see for example (Fuller & Moran, 2000; Fuller & Warren, 2006a; Fuller et al., 2008; Benyamin B. Lichtenstein, 2014; Benyamin B. Lichtenstein, Dooley, & Lumpkin, 2006; Sawyer, 2005). This perspective takes the position that entrepreneurship and innovation are linked, such that entrepreneurial actions generate novelty (innovation); that such innovation is generated through the inter-relationships between actors and, while it may be planned to some extent, is largely unpredictable in its outcome because of the inter-subjectivity of the actors and the multiple interactions that take place. The perspective is informed by complexity and constructionism. The unit of analysis in this study is the business model, in particular the emergent business model. If an enterprise is responding to changes in its environment created by the digital economy, then how does the pattern of doing business (i.e. the business model) change? How does a new business model emerge from existing practices, modified by the influences of a digital economy?

The “Business Model” is a description of the main set of relational interactions that creates and captures (appropriates) economic value. (Teece, 2010; Zott, Amit, & Massa, 2011). The concept of a business model is more aligned to networked value creation than a simple value chain or value creation by the individual firm. The business model “mediates between technological development and economic value creation” (Chesbrough & Rosenbloom, 2002, p 532). For the individual enterprise business models are a way of distinguishing competitive strategies, i.e. the formation and operationalization of a business model is relatively strategic. It is also a site of innovation; i.e. by innovating the business model (Chesbrough, 2010) or reshaping the structure through which value is added in a particular market context. Arguably business model innovation is different from product or process innovation, requiring a different strategic orientation (Bock, Opsahl, George, & Gann, 2012). Business Models can be used as a framework for analysis of a particular enterprise and also as a construct for design. Used for joint purposes, a business model framework can be used to structure a strategic conversation by managers about the structure, capabilities and strategies of a particular business.

The premise of a business model approach is that value can be quantified and that the quality of one particular structural form or model over another can be assessed. Used as a design device, a further premise is the possibility to identify alternative possible structures and to align necessary resources to achieve the desired design. From the entrepreneurship perspective, this teleological premise does not sit comfortably with the more bricolage oriented theories of entrepreneurship, such as effectuation (Saravathy, 2001). A bridging concept in this respect is that of emergence (the emergent business model). The innovation of a business model in a smaller enterprise has been shown to be largely process oriented, emerging over time and in constant adjustment as conditions, technological capability and stakeholder responses change, see for example: (Fuller et al., 2008; Lehoux, Daudelin, Williams-Jones, Denis, & Longo, 2014).

An analysis of business model innovation is consistent with the effects of the internet and the speed and density of communications. The concept of The Business Model has been much amplified by its relation to e-business (Amit & Zott, 2001; A. Osterwalder & Pigneur, 2004). Innovations in communication and technology enable changes in patterns of business activities and can change the extent and location of value being created and value gained (appropriated or captured). It is an empirical question therefore, rather than a theoretical question, whether the business models of rural small firms (to select a particular type of firm) have been influenced by the digital economy and in what ways. Online technologies are complex. Engaging with online activities is time-consuming. Larger corporations employ technical teams to operationalise online business and invest heavily in technologies and digital resources. More strategically, online economies are dominated by a few large-scale firms who have created new spaces and systemic economic ecologies that enable small scale enterprise: small firms acting as retailers, service providers, software developers and

fulfilment services, to name but a few. Engaging in such economic ecologies is likely to require changes to (and innovations in) the business models of the firms concerned.

It is also the case that applications of new technologies, such as 3-D printing, genomics, robotics and software services, create opportunities for new business models, and the effects of those changes is unpredictable. The causal connectedness of technologies, connections and practices is complex – meaning a) the effects are difficult to understand or anticipate consequences and b) the connectedness generates novelty at a faster rate than can be perceived by those outside the immediate site of the innovation. All of the above aspects of the digital economy have a tendency to increase uncertainty, increase rates of change and decrease the longevity of a particular business model, requiring ever greater agility and anticipatory capacity.

Before turning to the empirical aspects of the question of effect on small enterprises, let us give some critical consideration what underlies the business model idea. Primarily a business model is designed or produced to carry out or achieve the purpose of its host enterprise. A second aspect relates to value creation: What is the nature of the value pursued by the enterprise. In a corporate plc, 'value' is primarily economic; frequently manifest as high salaries for senior executives, a competitive return on shareholder investment and relative growth in equity value. In smaller enterprises, what is taken to be valuable may be less clear-cut or a mix to complex of value types; social, personal, economic, familial etc. Two further aspects that underpin the notion of a business model relate to dynamics. Firstly, what motivates or triggers changes to the business model and secondly the set of processes by which business models form, evolve and reproduce.

Furthermore, in the same way that a singular enterprise cannot be understood simply in terms of its own characteristics, but only with reference to the context in which it exists (industry, market etc.), (Morris, Shirokova, & Shatalov, 2013) so a business model can only be made sense of as part of a wider ecology of interdependencies. For example, if the main motivation of the actors in a particular business is mainly a social purpose (Yunus, Moingeon, & Lehmann-Ortega, 2010) (such as a social enterprise), but the business model is part of an economic ecology, then its survival will depend on generating economic value. Thus what underlies the business model is perhaps a more explicit sense of interdependencies than is embedded in the concept of an enterprise.

The absence of explicit multiple values in the language of business models is a shortcoming if used to analyse, explain or design the organising patterns of a small enterprise, given the personal nature of small enterprises. The language tends to dehumanise enterprises. Human endeavours in the world of business models are taken as entirely instrumental with no difference between what is automated, what is undertaken locally by people and what is provided by other assets. The question of what might comprise a 'business model' for designing a small enterprise and how value and values are inscribed within this design or set of practices is open to further research. The evidence that business models are changed through process and practices rather than by design informs such research.

It seems reasonable to assume that for the entrepreneur or business owner or principal, a business model is a tool for them to use as an instrument of agency, such that the key personal aspects, so important to small enterprises, stand outside this design device but are inherent in the process of constructing the model. The overall process of shaping and reshaping practices in a small business is human agency, and human agents can use the 'tool' of a business model. A research question in relation to this is how the concept of business model is 'used', if at all, by the entrepreneur. It is a similar question to asking how a 'business plan' is used by the entrepreneur. Lehoux et al (2014) suggest that one use of a business model by entrepreneurs is to explain to stakeholders the value creation logic of the forming enterprise. In that sense it is prospective and provisional, and not unlike a business plan, it is a device that provides a capacity to make explicit the anticipation of future value.

We suggest that the central point of 'value creation' – a well-used phrase in entrepreneurship literature, is certainly important. A key analytical question is what is taken as being valuable (to the entrepreneur), and hence what shapes the business model, within its wider context. This question has at least two purposes, first, with respect to the enterprise itself, is to attempt to make explicit

what is valuable to the enterprise and to set a design criteria for the business model. Many assumptions about purpose and the sustainability of the enterprise may be challenged in the process. The second set of criteria or analytical questions about value is to establish a much wider sense of value within which this particular model operates and to ascertain which actors in this ecology benefit from this value. This type of analysis takes a more critical perspective with a concern for power, value appropriation and sustainability. Thus with regard to 'value'; we need to understand what is valuable to the enterprise, what is valuable to the significant set of stakeholders in the 'ecology', how value is created with respect to this multiple set of values and finally how the enterprise is sustained by appropriating and capitalising value from the process, relative to other actors in the ecology.

Business model as an anticipatory system

Given our 'emergence' approach, and the unit of analysis being (broadly) business models, we introduce into the study the anticipatory aspects of the process of business model dynamics. We consider anticipation to be important to users of theory because of the complexity and unpredictable dynamics of the environment. Anticipation does not mean accurate prediction, nor does it mean 'long term' forecasting. 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). This very concise, parsimonious theory presents the idea of an anticipatory system and its models as an abstract concept. It says something of the relationship between the 'living thing' and its environment. In social science terms explanations of the workings of such a system are much more likely to be put in terms of inter-subjectivity, dispositions and critiques of power, to mention but a few. However, although explanations may be found through interpretative methodologies, the idea that sense is made of the environment, and that sensing triggers actions and consequences, some of which are a matter of forethought, seems consistent with the basic process of monitoring and adapting behaviour in relation to beliefs and perceptions of the environment. Our main argument is not whether accurate predictions can be made, nor whether highly dynamic environments require more complex forms of anticipation. Our position is simply that anticipation, as a process, is prior to emergence (of some novel form of behaviour), and has causal effect on that emergence.

Rosen's work in relational biology, modelling, category theory and systems theory is the subject of continuing development, much of it outside the scope of this paper. The main contribution here is the epistemology of anticipatory systems; advocating the significance of modelling relations and the materiality of feed-forward. In total, a systematic account of the causal nature of anticipation and the ubiquity of anticipation in life.

The central concept in Rosen's work is the "modelling relation", which is the way that the agent's internal model (of themselves in their environment) is related to themselves in their environment. It is this model which forms the inferences guiding the purposeful activities of the agent to maintain fitness in their environment. This is the feed-forward effect. Reflexivity (Bakken, 2014, p494) is consistent with Rosen's inferential entailment, in that agential interpretation is the basis of their knowing, and therefore causal on behaviour. By entailment, Rosen (1991) refers to logical consequences. Broadly, in natural systems the consequential relations between things are causal entailments. In models, such consequential relations are inferential entailments. Louie explains it thus:

"There are two different realms in which one may speak of entailment: the outer world of causal entailment of phenomena and the inner world of inferential entailment in formalisms. These two realms of entailment are brought into congruence by Rosen's modeling relation."
(A. H. Louie, 2008, p291)

We thus consider the role of anticipation in entrepreneurial actions from which emerges 'innovation'; meaning some novel form of performance via, for example, new combinations (Schumpeter, 1934). In our studies of emergence in entrepreneurial contexts the entrepreneurs' "capacity of seeing things in a way which afterwards proves to be true, even if it cannot be established at the

moment”(Schumpeter, 1934, p85) is not quite how foresight is done by entrepreneurs, but we would accept that a futures orientation and the anticipation of possibilities is consistent with how entrepreneurs practise innovation and produce emergent novelty.

Rather than a simple cognitive explanation for foresight, we suggest that the modes of anticipatory coupling of the actors need to be understood. Fuller and Warren (2006b; 2008) identify that foresight is practised by entrepreneurs as a combination of processes, guided by a sense of producing both regularity and value, for example as a ‘business model’ which, when formed, is relatively stable and creates exchangeable value. They draw attention to combinations of intersubjective processes relating to (1) Experimenting, (2) Reflexive Identity formation, (3) Organising and (4) Sensing (responses to perceived environmental change) (Fuller, Argyle, & Moran, 2004; Fuller et al., 2008). The processes are inter-connected and if one is missing, emergence of novelty is unlikely to occur because of their inter-dependence. These processes are part of the anticipatory coupling between the enterprise and its environment, mediated by intersubjective interpretation of the actors in the enterprise and of course, the other actors with whom they inter-act.

Very briefly, these four processes relate to the following domains: (1) *Experimenting*: trial and error, “let’s see if it works” attitude, is the creative process of assemblage, requiring considerable competence (Barney, 1991; Nicholls-Nixon, Cooper, & Woo, 2000). (2) The *Identity work*: of the entrepreneur and the business is a powerful stabiliser (Down, 2006; Fletcher, 2003; Warren, 2004) and, as Flores and Grey (2000) suggest, a motive force. (3) *Organising*: is the everyday allocation and use of resources and the connections between them in patterns so as to be able to replicate and reproduce useful activities; (4) *Sensing*: is, in short, the coupling with the environment mediated through many connections and senses, without which actions may not lead to increased fitness of the enterprise in its environment, which one case study entrepreneur referred to as “enforced agility” (Fuller et al., 2008, p7). Through these combined actions emergence occurs in material forms, including routines, narratives, artefacts, images.

We do not consider that these processes offer a complete description of anticipatory coupling or the ontology of an enterprises’ anticipatory system. For example, often an entrepreneur has a ‘vision’ or particular models of the world which informs this ‘coupling’ but many other mechanisms or influences may be at work in producing the emergent properties. It will take further research to understand and explain anticipatory coupling, including the analysis of the data gathered in this particular study, some of which is presented below. However, we can offer further explanation of the importance and role of anticipation.

An emergent business model, developed interactively within a changing environment, is unstable. If it fails to create or deliver value, it will not be supported or sustained within that ecology. The persistence of emergent material forms, (Sawyer calls these ‘Emergents’ (Sawyer, 2005)), is not assured. Indeed, in general we consider them unstable and ephemeral (after Sawyer). We observe that the entrepreneurial teams involved in bringing about a new business model (or similar) are highly concerned with its value; its value to them as profit generating and its value to others (e.g. as benefits to customers). Value: created, captured, destroyed, or missed is a central idea to the explanation of the stabilisation or sustainability of ephemeral and emergent ‘business models’, though still only part of the explanation as to how emergence of such models occurs. If a business model is perceived as likely to produce value for its stakeholders at a future date, these stakeholders will tend to accept the legitimacy of its continuation, making attendant judgements about risk. A collective anticipation of value by the actors concerned stabilises this emergent form. Fuller and Warren (2011) suggest that the dynamics of emergence in the volatile environment of creative industries require anticipations of multiple forms of value amongst the actors.

The question arises as to how a nexus of anticipations are formed or are manifest. We suggest that value is anticipated through the interactions between the actors and mediated by the materiality of the ephemeral emergent. Thus even short-lived emergents can be causal or have effect on the behaviour and beliefs of the actors, i.e. they have ontological status; they are meaningful. Thus in observing the creation of a new business model we have observed a set of interactions which produce, in communicable forms, a set of expectations about some future state. This imagined

future state will include a range of assumptions by each actor, for example about their performances, obligations and rewards. Thus the future as a state of being and knowing is causal; it has effect on the present through these interactions. The process of constructing, evaluating and enacting a business model is, at least in part, guided and motivated by its expected relationship with the future, i.e. the process of anticipation. Such a process and interpretation is not by one person or one firm, but a nexus of interpretations. The anticipatory processes engaged in the production of an emergent business model are intersubjective.

Seligman et al (Seligman, Railton, Baumeister, & Sripanda, 2013) report that “a wide range of evidence suggests that prospection, the representation of possible futures, is a central organizing feature of perception, cognition, affect, memory, motivation, and action” (p119). We suggest that our observations of entrepreneurial contexts indicate that such prospection affects emergence, but that to create a sustained emergent, some way of co-ordinating the prospectations of the actors involved is necessary. This might be done simply through a shared idea of economic value that a proposed business model might create. However, given the experience of most innovations, the path to a final relatively stable form is long with many twists and turns. It is far more than a rational view and teleology of economic value that attends emergence in this context. According to Seligman et al (2013, p 126) generating simulations of the future can be conscious, but it is typically an implicit process— not requiring conscious initiation or monitoring, often not accessible to introspection, and apparently occurring spontaneously and continuously. Indeed, even when individuals engage in conscious prospection, their intuitive sense of the value of alternatives may be underwritten by unconscious simulation (Railton, 2014).

Appadurai adds an anthropological argument to the significance of the future as acting on the present, which focusses firmly on “three notable human preoccupations that shape the future as cultural fact, that is, as a form of difference. These are imagination, anticipation and aspiration” (Appadurai, 2013, p286). He also reminds us that the future is “not just a technical or neutral space, but is *shot through* with affect and sensation” (p287). He also discusses the ethics of thinking, feeling and acting in relation to [future] possibilities (increased horizons of hope) and [future] probability (where he refers to amoral behaviour, profits from catastrophe and corruption).

The above perspectives lead to a conclusion that anticipation, as a set of relationships with the future, has a causal role in the creation of emergence in entrepreneurial contexts. These contexts are taken as being volatile and complex – with many interacting actors, multiple systems, multiple levels and multiple values. The causal power of anticipation comes from the motivation it generates amongst the actors to fulfil an absence, to address disharmony, to create, capture value or consume value. The interpretation by actors is ‘*shot through*’ with emotional and sensational experiences and actions and, in some way, guided by particular ethics. If as researchers, we wish to understand more clearly the practises of emergence in complex environment, these ontological properties are salient and worthy of description.

What is less clear is the extent to which anticipation is conscious and explicit. From Rosen’s work, for example, and considering reflexivity in general, anticipation occurs and “modelling relations” are present in the interpretations and actions of the agent. One research question therefore, for any particular agent or firm or organisation, is how we might access or comprehend such anticipations, i.e. to try to understand the modelling relations. In this particular study we ask what pro-active explicit forms of anticipation are used by the small firm, i.e. what *anticipatory work* is undertaken by the SME? Anticipatory work, rather akin to Identity Work,

In summary, anticipation and emergence inform our methodology. They direct our gaze as researchers on the process of constructing a response to the digital economy by small enterprises. Empirically we are interested in the use of the notion of a business model, either explicitly by the firms as a design / narrative device or implicitly as a helpful unit of analysis. We are also interested in the perceived and anticipated effects of the digital economy and the internet on the particular businesses and take an interest in the particular geographical effects and access to high speed broadband in this respect. We are also interested in the nature of *anticipatory work* done by the firms.

Method and findings

To gather empirical data about forty small enterprises were contacted through various networks and co-nomination processes. The context for this recruitment was as part of the university-enterprise collaboration programme. Of these twelve were selected for further contact. The criteria for selection was that they were SMEs (as defined by EU) and that, through conversations with the principals of the enterprise, they might benefit from engaging further in internet and digital aspects of their business. The data set is a non-representative selection and no claims to statistical representation are made. As elaborated above, the methodological research question concerns manifestations of anticipatory processes, .i.e., an intensive method, rather than extensive (Sayer, 1992, p243), after Harré (1979).

The initial research contact with the firms involved discussion with their principals (owners or chief executives). The artefact of a conceptual 'business model' was taken as a guide for a conversation with the principals about their enterprise and the relationship with 'the digital' in that context. Each interview lasted between one and two hours. A set of descriptions from Osterwalder et al (2010) was used (Appendix 2), along with the concepts of value creation and value capture (or appropriation). The guiding questions are shown in Appendix 1. The initial interviews were followed up in two ways. In some cases, further discussions took place with regard to specific aspects of the business model and in other cases university staff with relevant expertise provided direct guidance to the enterprises. Of the twelve firms, nine continued with some further engagement after the initial interview.

The findings from interview and follow-ups are tabulated in the appendices. These are descriptive and interpretative. No attempt is made to ground this analysis in the 'meanings' of the interviewees because the focus of the interviews was instrumental not reflective and the results descriptive. The follow-up interventions and guidance also helped identify priorities and commitment, reflecting the 'modelling relation' of the firm with their environment and stakeholders. The descriptions are analysed below in a manner consistent with the methodology, i.e. to detect, identify and describe the firms agendas with regard to the digital economy, the apparent relationship with their business model (Appendix 3); the focus of their anticipatory gaze or attention; their anticipatory actions both in terms of formulating patterns of practice (Appendix 4) and more broadly as anticipatory work (Appendix 5). Finally, an attempt to identify specific effects of being in rural locations was made, which were conceptualised as having effect on the modelling relations (Appendix 5). That is to say, the spatial context is part of the 'environment' with which the firm has modelling relations.

The articulation of the 'Business Model' innovation with respect to the digital economy

Typically, if not universally, the principals of the businesses had not used the concept of a business model as a guiding device, at least not explicitly. It is the case that the popular form of business model description covers common aspects of everyday business practice. Therefore although not explicitly experienced in the use of business models the principals were able to relate easily and readily to the format as presented in Appendix 2. There was no clear sense of business model innovation as their focus for innovation, i.e. this approach was, understandably, not part of their language.

The areas of their business they identified as a focus for innovation were linked to the use of communication and internet technologies. This is unsurprising because these issues were the premise of particular intervention; i.e., that is why the enterprises were engaged with the programme of research and support. The enterprises were self-selected. The types of innovation they were pursuing were consistent with their understanding of themselves as existing in a wider market/sector context, not based specifically on business model design.

Two of the enterprises (A&B) had well-developed e-business, with a significant proportion of sales being generated from online business. For these enterprises, the technology majors, such as Amazon (marketplace) and Google (search / click through /analytics) were dominant in the discussions about e-business. The sense of the possibility of innovation in this context was very operational in its focus, i.e. a co-evolutionary perspective of remaining competitive in a continuously

changing environment: pricing patterns, competitive products and Amazon's and Google's listing algorithms. The main issue for these businesses was keeping a strong relationship with their customers. Hence tactics to move the customer closer, e.g. from (say) Amazon's marketplace to a direct relationship (e.g. via phone-in enquiries), were prevalent. One enterprise (E) was 'born digital' as a start-up online trading platform for farm produce.

For the remainder, internet and broadband were part of the available resources, to a greater or lesser extent. In all cases the digital resources were becoming part of their way of doing business, part of their business model, even if not spoken of in that way. All were tackling the issues of using digital technology in pragmatic ways, gradually introducing changes to the way they did business.

At the same time, many had more visionary perspectives, though generally less well articulated. In this respect, the principals had a good idea, if not completely specific, about what they wanted and hoped for. Some were able to articulate strong notions of what they would like their business to become with respect to the digital economy. Others were less clear, less visionary, and taking incremental steps to improve their business (adding value, reducing costs) with the technologies. As table 1 shows, several of the enterprises saw digital communications as helping them to reach more customers, typically in extensions to their current customer types.

One enterprise (D), appeared to be taking quite radical steps to reinvent themselves in a digital economy, making significant investments of time and resource in introducing digitally enhanced experiences to the centre of their relationship with customers. One enterprise (K) had actually formed a working relationship with a wireless internet provider, such that the enterprise provided a tower for the wireless transmitter in exchange for internet access. This had made a significant difference to the way they offered and managed their services.

In all cases the existing business model was at the centre of their anticipatory practices. The 'business model' being the everyday practices and the meaning of these to the principals. The business model in this sense is an interpretation of their practices and their relationships with their 'ecology' of inter-connected actors, rather than an abstract notion.

Anticipatory gaze and organisation

The Table in Appendix 4 elaborates examples of the anticipatory 'gaze', i.e. to where the principals were looking to identify their futures, and what aspects of their organisational practices they were reformulating or developing in response to their inferences.

The principals appeared most sensitive to their important relationships. They continuously assessed the dynamic of these relationship and formulated patterns or modes to maintain power in those relationships, for example by creating and narrating greater value or service. It is possible to hypothesise that the areas of relational dynamics and power-related practices are the locus of their 'anticipation' of their future businesses. These are consistent with the underlying concept of the 'business model' as an expression of the flows of inter-relationships and the core 'value proposition' that generates value through those flows. However, they are not quite the same things, i.e. anticipating relational dynamics and anticipating power imbalances provide better explanations of what needs to be managed and amended, than does a description of flows and propositions.

In most cases, the enterprises were doing something in anticipation of their future state, and which was within their capability. The principals also talked about things they would like to do if they had capacity and capability. Some of these things were more generally related to growth or performance, such as seeking new customer types by using online resources as a medium. Most of the other activities were attempts at value creation or capture utilising the new technologies. Their probing and developmental activities, and their visions of what might be possible or desirable appeared to be guided and constrained by the skills and knowledge available, the actual technologies available (for instance cloud computing was not possible with low bandwidth) and, to a lesser extent, the responses of existing clients or customers.

Anticipatory Work

Visions of possibilities, and imaginaries, might well motivate the principals to respond in particular ways to the digital economy. What those might be, one analytical question we can ask what anticipatory practices are being performed, or what anticipatory work is being done? By anticipatory work we mean how is meaning of *the future* shaped by the practices of anticipation? The question is analogous to that posed with respect to Identity Work, i.e. what set of active processes (such as forming, strengthening and revising) serve to construct a sense of identity? (Sveningsson & Alvesson, 2003). And, to what extent does being located in a rural area, as these firms are, make any difference to this work? The table in Appendix 5 addresses these questions.

Anticipatory work, rather like identity work, is a continual reflexive forming and reforming of the modelling relation between the focal agent (in this case mainly the small enterprise in this case, but entangled with the principal of the enterprise) and the set of relationships they experience with other agents. The modelling relation is the set of assumptions being made by the focal agent about the reciprocal effects of changes in behaviour of both the focal agent and relational agents. The term 'agent' takes a Latourian 'actant' meaning but our observation is that the mediation of actants by human interpretation, i.e. the people that the principals interact with, grounds the modelling relations.

Questions important to the principals include

How do I maintain power over my customers?

Which strategy will produce the most revenue long term?

What do I need to learn – what don't I know about the modelling relation or environment that I should?

What do my customers (who have power and provide resources as revenue) value most?

What do others do in this situation?

What combinations of activities work best for the customer?

The anticipatory work involves trying to solve or answer these questions by analogy, by experimentation, by direct contact and conversations. The principals don't articulate the questions precisely in this way, but phrases such as 'capturing the customer', 'brand identity' are examples of how they do express these question. And their actual practices of trying things out, whether as differential pricing, theoretical modelling or prototypes are interpreted as being more concerned with the dynamic of the anticipation of value and loss of value, which in a market situation, forms the power base of the enterprise.

Anticipatory work in this case involves the maintenance of power through value creation/capture in the set of relationships between the enterprise and its clients and other stakeholders.

The rural influence of the modelling relations is largely inherent in the nature of the value being created, and the way it is created. Hence it is as central to the anticipatory practices as it is central to the enterprise itself. Where rural location is of little relevance, the rural context will matter less in the modelling relation. All enterprises in rural locations have some external influences that arise from being in that particular context. All sets of their modelling relations will have some notion of these characteristics, if only the time it takes to get to a major city or to get home from work. This particular study has not sought to examine some of the more embodied influences of the rural on enterprises, though they may be important.

In nearly every case described in this paper. The location context did have salience to the business model and to the anticipatory work with regards the digital economy. This was manifest in different ways. Summarising the table in Appendix 5, the main areas include:

- Lower skills levels than desired, such as management, leadership and technological skills
- Lower bandwidth and internet speeds, or uncompetitive high costs of obtaining high speed networks.
- The *raison d'être* (reason for being) of the enterprise. For example, a particular tourist location (seaside or area of outstanding natural beauty) or a rural-related skill.
- Part of a rural based economic network, such as food production.

Conclusions

This research is “work in progress”. Empirically, we are concerned with the way that small enterprises in a rural area are dealing with the growing digital economy while being somewhat disadvantaged by a lack of connectivity and perhaps a lack of density of available skills and local exemplars. Conceptually we are using this changing environment to understand the ways in which local enterprises anticipate the effects of such changes and how they respond i.e., how their process of *being enterprising* constitutes an anticipatory system.

We infer from the analysis of the cases included in the paper that the changes to the business model linked with a greater use of technology were emergent and dynamic. Innovation in these business models emerge from ‘what works’ through trial and error experimentation rather a clear blueprint or design of a (different) business model. The enterprises understand themselves as being embedded in a system of relationships and understand their role as providing (and exchanging value). The nature of that value is inherent in the network of relationships. One set of networks for one enterprise will generate entirely different forms of value than the network of another enterprise. Of course, some of that value is appropriated as economic value. We have not elaborated on value types in this paper, but rather kept the focus on what is being anticipated by the leaders or principals of the enterprises concerned. Their dependency on value being created and appropriated through networks of relationships was their key concern.

Their anticipatory focus was on the conditions that framed their current practices. As these conditions changed, they were able, conceptually at least, to practice or perform in different ways. Giddens suggests that in social science theory, boundary conditions include a basic set of knowledge about the circumstances of the agent and their actions (Giddens, 1979, p243). The practical response of these small enterprises to anticipated changes in their relationships, or the premises of those relationships, was to explore ways in which changes to boundary conditions enabled them to practice in different ways. Boundary conditions is a general term for the background circumstances, such as the current operating environment with its constraints and enablers, and might include those internal to the enterprise, such as habits, practices, skills, knowledge etc., and external influences including powerful stakeholders, market lock-in and technological capacity (including access speeds)². The anticipatory process used by the enterprises appears to involve actively testing and expanding boundary conditions, experimenting with practices within these and reshaping the enterprise and its core identity as modified practices become established. Within this small study, we see a glimpse of the particular significant boundary conditions that were of chief concern to the principals and which guided their anticipatory focus. When boundaries change, modelling relations need to change, so a focus on the effects of relations at the boundaries of performance is a pragmatic approach to anticipation as *strategy*.

The continued study of the data will further clarify the anticipatory processes and what anticipation is inherent in the practices of the actors. Also worthy of further investigation is the degree to which the stretching of boundary conditions, as a mode of anticipation, has an affective influence on the enterprise principals or owners. By affective, we mean the domain of senses, feelings and emotions, Cf. Appadurai (2013). The cognitive, analytical knowledge-oriented, visionary aspect to of anticipation can to some extent be captured in descriptions of business models, but the excitement, expectation, and ‘fun’ , or indeed fear and anxiety of anticipation may be important in explaining behaviour and choices..

Further related with both the cognitive and affective aspects of anticipation is the question of value. It is quite evident that economic value is important to the enterprises included in this analysis, and to most if not all others. However, a range of other forms of value and values also exist within the

² Giddens refers to ‘laws’ (Cf physical laws) as boundary conditions, we adopt a wider meaning in the context of open social systems. Also Layzer 1975 Laws and constraints are complementary aspects of the physicist's description of nature. Laws describe the regularities underlying phenomena; they are few in number and each applies over a wide domain. Constraints serve to select from the set of all events governed by a given law the particular phenomenon of interest. The laws define what is possible, the constraints what is actual or relevant. (p. 58-59)"

context of the business model. With owner managed firms such value often relates to the personality of the owner. Just taking the first three cases, for enterprise **A** the sense of personal success seemed evident in the discussions. In enterprise **B**, family values were highly evident, and in enterprise **C**, the quality of life of local citizens and volunteers was important. As Fuller and Warren have suggested in previous research (Fuller et al., 2011; Warren & Fuller, 2015), anticipation of value has causal effect. In particular, when a business model is emergent, and unstable, the anticipation of value by the nexus of stakeholders produces stabilising conditions such that the emergent forms of practice persist, even if modified through experience. Part of the entrepreneur's leadership role is producing narratives of value for the stakeholders in order to establish or maintain stability.

Reflecting on the above analysis, the enterprises are concerned with the boundary conditions that influence their value-creating relationships. Their anticipatory focus is on the ways that such changes may manifest and how they have influence over this. The enterprises seek increases in value and so when anticipated conditions appear to produce or promise value, the enterprises shape and stabilise new practices in relation to these conditions. This may result in a new business model.

Anticipation, we tentatively suggest, mediates between knowledge and action. The *anticipation of value* is a filter or evaluative construct to guide the interpretation of knowledge and to design, perform and evaluate actions and their effects. Multiple aspects of this process influence what emerges from changes in boundary conditions and what stabilises and persists to be recognisable as an entity or phenomenon (in this study, a business model.). These aspects include the nature of the value sought, the actual knowledge available, the resources and capacity to act and the sensations (affect) generated. The judgments enacted through the anticipatory mediation are guided by values. These aspects are not simply from one perspective (i.e. the enterprise or its leaders), but a complex of anticipations by multiple actors, modified reflexively through interactions. The mediation between knowledge and action as anticipation, and the connections between knowledge and action as an anticipatory system can be further studied. We will continue to probe the use of the dynamics related to business model (re)construction as an empirical source, which should lead to a better understanding of business model dynamics and the nature of anticipation.

Value in use

What does the above tentative analysis offer to practice or policy? We suggest that the main purpose of the analysis is methodological – helping to understand what should be considered, analysed, given empirical form etc. in order to explain, in this case, the effects of a growing digital economy on the behaviour and sustainability of small enterprises? We conclude that the anticipation of changes in boundary conditions, which includes attempts to change boundary conditions, and the narration to other stakeholders of anticipated value arising from modified practices are important entrepreneurial practices. The more precise nature of the mediating quality of anticipation between knowledge and action in entrepreneurial contexts, including the rural enterprise in a digital economy, is open to further research based on these methodological principles. We suggest that analysis of the process of business model innovation will reveal inherent dominant values and dimensions of responsibility. Assistance in identifying the changing boundary conditions and the experimentations in business model re-design would be of benefit to these enterprises as they do not have all the knowledge they require to do that.

Summary

This paper utilises an 'anticipatory' perspectives to the analysis of the actual and potential influences of the technologies, markets and work practices of the digital economy on small rural enterprises. This preliminary analysis suggest that *anticipatory work*, the exploratory testing and expanding of practices beyond current boundary conditions is an important mode of strategic development and provides a focus for entrepreneurial action to maintain the sustainability and development of these enterprises. It is also clear from the evidence provided that the small enterprises are disadvantaged relative to larger ones, and to those located with a greater intensity of

technological resources and knowledge. Increasing this density, through collaborative and infrastructure means is likely to help the enterprises.

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Appendix 1. Guiding questions for discursive interviews

Strategic Broadband Questions

Talk us through your Business Model – Where is broadband critical in this? How does it make a difference to your business performance?

The key areas of the business to consider: from Osterwalder et al (2010):

- Key partners
- Key activities
- Key resources
- Value propositions
- Customer relationships
- Channels
- Segments
- Costs
- Revenue streams

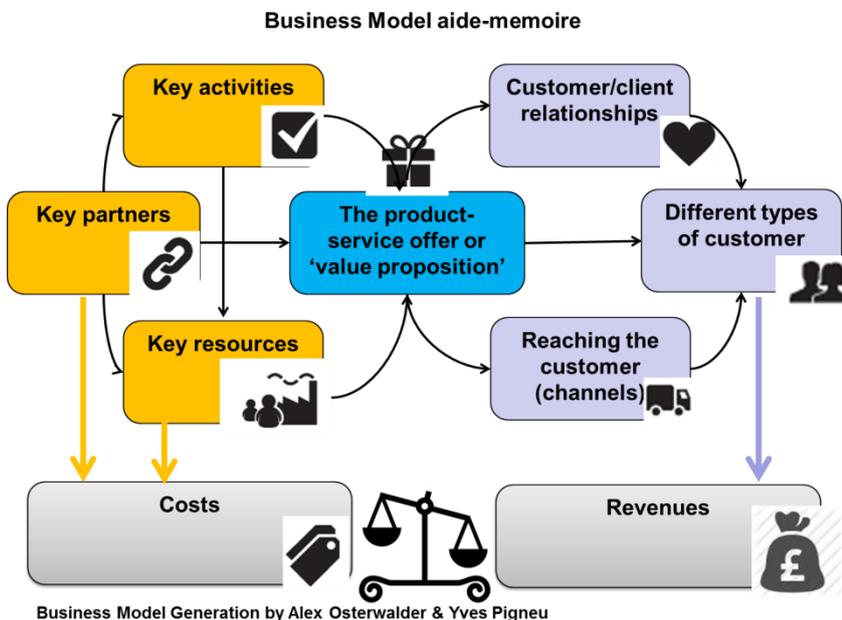
Where are the key challenges within the business model? And could technology provide advantages (or is it creating the challenges if others can have better internet access than you?)

What innovations have you carried recently – did it rely on the Internet?

What are your next ambitions/ideas/projects? Are there any barriers to pursuing these?

Other sources of funding and opportunities for innovative projects and partnerships?
(e.g. KTP, European partnership projects, student placements)

Appendix 2. Business Model Platform



(Alexander Osterwalder et al., 2010)

Appendix 3 The case study enterprises and the salience of the digital economy.

Table 1.

Type of enterprise	Employees	Focus of discussions on digital economy	Business model innovations
<p>Ent A: specialist wholesaler Trade and wholesale specialist equipment mainly B2B</p> <p>Strategy of always 'trying new things ("If its thinkable we try it")</p>	28	<ul style="list-style-type: none"> • Dominance of Amazon/Google that encouraged transaction (price) based customer relationships • Use of (over 40) product micro sites for representing OEMs • Importance of Branding • Use of online to drive phone-in enquiries (keeping control of customer conversation) • Current partnership with online small scale retailers/order fulfilment as distribution channel 	<ul style="list-style-type: none"> • Greater focus on service value and less on 'box shifting' • Development of circa 100 videos to add service element online (Online asset creation) • 3D printing of easily lost/broken components • Building their own-brand
<p>Ent B: Own products for niche consumer market. Designed locally, manufactured internationally, distributed mainly in Europe to retailers, though expanding coverage and e-retail of own products.</p>	10	<ul style="list-style-type: none"> • Dominance of Amazon • Keeping control of the customer relationship • Channel conflict between wholesale and direct e-retail • Fine tuning pricing for online retail 	<ul style="list-style-type: none"> • Use of 3D printing for prototypes • Creation of online environment for adding value to product use • Sales forecasting • Distribution logistics

Table 1.

Type of enterprise	Employees	Focus of discussions on digital economy	Business model innovations
<p>Ent C: Arts and Heritage visitor centre Semi-rural location. Footfall essential to business. Offers multiple space-based local services (café, gift shop, meeting rooms, events, library), promotes historic significance of region to tourists. Range of partners</p>	<p>6 plus 75 volunteers</p>	<ul style="list-style-type: none"> • Opportunities for use of online resources for efficiency, responsiveness and service, e.g. booking systems, promotion of events to email lists of selected types of client. • Challenge of setting up systems because of general lack of technology skills amongst the active volunteers • Knowledge of most appropriate approach to develop useful systems for the enterprise. 	<ul style="list-style-type: none"> • Development as a global presence as representation of and gateway into the local regional culture, heritage etc., i.e. greater focus on tourism alongside the current 'local' services. • Establishment of technological resources on which to base further developments
<p>Ent D: Heritage Museum (Company limited by guarantee) – based 'live' portrayals of historic local skills Local stakeholder support for start-up.</p>	<p>2 plus about 12 volunteers</p>	<ul style="list-style-type: none"> • Have already started to 'use' digital technologies as part of their resources: such as a digital storytelling and heritage database. They have also provided space for a 'digital hub' as local service with 3-D printers, scanners and PCs • Developing virtual reality application with UoL School of Computing for VR headset to simulate being a blacksmith. • The focus of discussions was not on digital economy, but on increasing footfall and access to the museum experiences via digital technology • The sense that they could be a leader to others like them was also emerging through the conversations 	<ul style="list-style-type: none"> • The broad direction was the digitization of the heritage experience • The digital advances have become an essential element of the enterprise; part of what they offer and how they offer it. • Developing digital 'experiences' via VR and augmented reality (smartphone interactions), i.e. extension of product/service range. • Utilising know-how in consulting services to other small museums.
<p>Ent. E Agricultural service Start-up business providing online platform for real time data on prices for rapeseed and wheat.</p>	<p>1</p>	<ul style="list-style-type: none"> • A 'born digital' enterprise that has developed a web based trading platform for grain. • Current users value the price look-up but don't use the trading platform as they are locked into more personal approaches to brokerage. • Need to increase user base to be viable • Broadband speed is issue, and need to incorporate mobile technologies 	<ul style="list-style-type: none"> • The basis of the start-up idea is a disruption to traditional brokering of grain at farm/wholesale level. • Building trusted relationships online and critical mass is the challenge to new business model innovation

Table 1.

Type of enterprise	Employees	Focus of discussions on digital economy	Business model innovations
Ent F Self-Catering Farm based accommodation with high end self-catering in rural setting. Part of family business including a farm	Less than 10	<ul style="list-style-type: none"> • Better use of social media and marketing to maximise occupancy • Challenge of slow speeds and lack of technological know-how • Current use of intermediary websites and platforms have inadequate analytics 	<ul style="list-style-type: none"> • Catch-up to sector's use of online marketing, rather than business model innovation, though innovative for this business.
Ent G .Gallery and holiday let High quality accommodation for both.	3.	<ul style="list-style-type: none"> • Producing promotional video for website (became a student project) 	<ul style="list-style-type: none"> • Targeting specific audiences (photoshoot) through online advertising and social media • Offering combinations of space to hire
Ent H. Box Manufacture Makes wooden containers for horticulture produce, part owned by Venture Capital investor	23	<ul style="list-style-type: none"> • Building links to customers and suppliers through the web • Rebranding with many images which require 'superfast' broadband • Widening product lines for different users • Need to evaluate effectiveness of online strategy 	<ul style="list-style-type: none"> • Use of metrics, such a analytics to fine tune approach to market • Broadening product range and therefor e potential customer base
Ent. I. Cooperative Buying Association Long established membership by agriculture / horticulture community	21	<ul style="list-style-type: none"> • Automation and digitisation (rather than current imaging approach) of invoicing process • EDI systems • Review of current systems that could be used more effectively • Some customers prefer paper copies 	<ul style="list-style-type: none"> • Possible growth into new markets
Ent J. Golf Club	12	<ul style="list-style-type: none"> • Use broadband for email, broadband, marketing, buying and selling, Facebook page and social media. 	<ul style="list-style-type: none"> • Same basic business model, but focussed on improving customer service • Examples include bookings, equipment prices, handicap revisions, credit card admin.

Table 1.

Type of enterprise	Employees	Focus of discussions on digital economy	Business model innovations
Ent K. Seaside Theme Park	50 all year, 150 in summer season	<ul style="list-style-type: none"> • Internet supplier installed mast on the top of the roller coaster and park receives free connection and broadband in return. • Broadband used for... CCTV, back office purchasing, pay as you go barcode cards for use on rides, checking weather conditions for the rollercoaster, social media, Dropbox (no longer need to send out memory sticks for large files), skype, purchasing, cloud computing, themed lighting, training 	<ul style="list-style-type: none"> • Businesses now able to trade in the park who were unable to before due to improved broadband speed. • Using free broadband in shopping area to encourage people to spend more time there. • Pay as you go barcode cards for prepayment on rides is running – this was installed before, but couldn't be used due to slow connection speeds. May have wider uses e.g. can check whether people were actually on a ride if they are claiming for whiplash. Reduced number of staff required to count coins so they are re-deployed elsewhere. • Able to more easily deal with international suppliers e.g. via Skype, dropbox. • Reduced the time spent obtaining quotes and purchasing items. • Looking to develop a map app for site using radio frequency identification (RFID). This could help encourage people to visit quiet parts of the site and monitor footfall, movement. • Improved marketing without any additional cost using social media

Appendix 4. Relational dynamics and the anticipatory shaping of practice

Table 2

Type of enterprise	Focus of anticipation on relational dynamics	Focus of anticipation on formulating new patterns or practices.
Ent A: specialist wholesaler	Monitoring and attempting to influence the behaviour of key customer types, OEM suppliers and small scale online retailers.	Experimentation “If its thinkable we try it”
Ent B: Own products for niche consumer market.	Attempts to establish better understanding of temporal dynamics in their business model, i.e., to speed up and make more efficient transactions. Longer term development on extending the connection with their customers and increasing the depth of experience as part of the value proposition	Continuously sourcing external ideas about e-retailing, e.g. peer exchange group Modifying specialised family roles (it’s a family business) in different areas to keep focus on changing environment
Ent C: Arts and Heritage visitor centre	Concern focussed on the use and capability of essential volunteer network – who were also clients, Maintaining clarity of ‘purpose’ to encourage philanthropic giving (i.e. constructing meaning) Reconceiving identity from a ‘virtual’ perspective.	Focus on efficiency (streamlining) for greater service (in regards to technology). Constant search for new services and new clients
Ent D: Heritage Museum	Modification of the mediation of relationships in physical space between public and the artefacts to increase experiential sensation Broadening range of relationships through extending types of users groups	Major shift in patterns of practice towards augmented and virtual reality rather than observed artistry.
Ent. E Agricultural service	This service attempts to replace face to face trusted network relationships with online information based value.	The trading of commodities through a new online platform is a major change in client behaviour, and hence slow to develop.
Ent F Self-Catering	At present ‘digital’ seems to be constructed as ‘advertising communication channel’, i.e. an additional or replacement medium for advertising. The relational dynamics do not appear to have changed because they are not engaged in digital communication and therefore not leant.	The principals appear to link new and as yet unknown practices synonymous with new more skilled staff.
Ent G .Gallery and holiday let	Focus is less on relational dynamics and more on being more focussed about target markets	No evidence of anything innovative, simply describing better current proposition.

Table 2
Type of
enterprise

Focus of anticipation on relational dynamics

Focus of anticipation on formulating new patterns or practices.

Ent H. Box Manufacture	Rebranding the identity of the company is a significant move in relational dynamics, as well as widening types of customers being approached.	Main focus of new patterns of practice is inherent in expanding the range of products to different types of customer, which is a significant change for the business. The linkages between online promotion and this market change are strong.
Ent. I. Cooperative Buying Association	A focus on anticipating the negative consequences of changing systems, therefore trying to make it appear 'the same' if more efficient.	Internal administration processes and supporting technical systems following, rather than anticipating, the technical changes. Plans for extending range of users to buying services when more efficient.
Ent J. Golf Club	Providing additional services to members via online connections.	Focus on efficiency in administrative operations
Ent K. Seaside Theme Park	Increased value being created through online resources, both for sub-let areas and for customers.	Digital information has become inherent in most relationships and practices in the overall business model

Appendix 5. Anticipatory Work and modelling relationships in rural enterprises

Table 3

Type of enterprise	Nature of <i>Anticipatory Work</i> reflecting modelling relations or environmental coupling	Rural elements of modelling relationships in relation to the digital space occupied.
Ent A: specialist wholesaler	Anticipatory work is said, by the principal, to be experimentation, with some evidence; in the use of 3-D printing and eco-system of product web sites for example. Strengthening the brand identity with customers Centrality of providing value to customers in modelling relationship	The principal's view was that the main effect of the rural location on their capability to anticipate and respond to their environment is a shortage of management and leadership skills available in the team, limiting the growth of the firm.
Ent B: Own products for niche consumer market.	Focus on moving towards direct B2C model rather than B2B; which is considerable change in organising, driven by feed forward from image of online retail operation. Constant adjustment on feedback from Search page positions, relative prices etc. coupled into online retail platform Developing and using models for demand	This firm trades worldwide and is based in the city of Lincoln for the available resources. The relative lack of high speed internet connections is reducing the firm's capability to understand and anticipate from experience. Modelling relations and an understanding of their environment are constructed through physical travel and networking as well as technological communications.
Ent C: Arts and Heritage visitor centre	In recognition of changing set of relations and the need for new modelling relations, a process of learning and self-education underway.	The geographic location is inherent in the identity of the enterprise. However, the actual relations between this identity and the 'external environment' will be diverse. Part of the modelling relationship is the anticipated value derived from multi-purpose resources in the rural location
Ent D: Heritage Museum	The development and application of technology based services or 'experiences' is changing the modelling relations, and being embedded in the enterprise, these new modelling relations are becoming embodied. Value creation is implicit in designs.	The rural location is central to the 'heritage' authenticity and customer experience, even if delivered digitally and globally.
Ent. E Agricultural service	The business model design is conceptually modelled on larger scale trading platforms. This is design led, but has inadequate anticipatory modelling of customers, i.e. the way their potential responses feed forward into emergence of this business.	Customer base comprises growers and traders, and the basic 'business' relates to rural cereal production and trading – a core aspect of the modelling relation. . An example of the implications is the necessity to focus more on mobile communications rather than internet.
Ent F Self-Catering	Recognition of gap between necessary modelling relations and current environment. Current modelling relations based on less digital/online environment.	The rural location provides the specific resources to shape 'inimitable' distinctiveness and value. Lack of local skills/knowledge is an issue with regards the capability of the enterprise to adequately 'model' themselves in a digital environment.

Table 3
Type of
enterprise

Nature of *Anticipatory Work* reflecting modelling relations or environmental coupling

Rural elements of modelling relationships in relation to the digital space occupied.

Ent G .Gallery and holiday let	Imagining / imaginaries of combinations of resources suited to particular needs of differing client groups Experimental formats described and offered via online media	The rural location provides the specific resources to shape distinctiveness and value. It is the portrayal of these that is key to the customers' ability to infer or anticipate value from the experience, later underpinned by the actual experience.
Ent H. Box Manufacture	Grounding approach to new types of customer in existing modelling relations, built from experience, then modifying these from feedback. Also having to reshape internal model because of external investment.	Business is part of rural food/agriculture eco system. Heir assumptions about the dynamics of the context are inherent in this set of relations.
Ent. I. Cooperative Buying Association	Current focus is the evolving characteristics in the space between their imagined model of future processes and the responses of the actors internal and external, grounded in current model.	Clients are rurally based farms in the main, so the business and business model is formed by this. Key issue is lack of skills/knowledge in the location.
Ent J. Golf Club	Focus of anticipation is value to members, indicating strong relational ties.	
Ent K. Seaside Theme Park	Anticipatory work is based on imagining, designing and experimenting with information based services, triggered by availability of wireless broadband technologies. This work is informed by models used in the industry, customised to the characteristics of the particular location and resources.	The remote nature of this site inspired a relationship with subsidised wireless internet provision that become a critical resource for an evolving business model.