PAPER: Rural Enterprise as an Agent for Technology Development and Facilitation in the Digital Economy

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ABSTRACT
This paper outlines recent developments in the Scaling the Rural Enterprise (SRE) research project – an interdisciplinary project that combines the expertise of social scientists, computer scientists and software developers, in order to inform the development and design of digital technologies in a rural context. The paper provides a brief overview of the research undertaken. It then highlights the outcomes from three stages of the work. Initially, it undertakes a review of associated literature and discusses issues of definition in relation to rural enterprises in the UK. Following this we present the insights from rural business advisers on the current state of use of digital technologies in these organisations. This then leads to work that analyses community-based enterprises as agents of economic change and gatekeepers to the introduction of digital technology solutions. The paper concludes by highlighting some implications for the design of digital tools and services.

Keywords
Small business; business support; rural area; digital technology; digital tools and services.

1. INTRODUCTION
SRE aims to support small businesses and induce change in their business practices through the provision of appropriate digital tools targeted at business processes. It undertakes a user-led participatory approach to design, which uses an in-depth understanding of the intended users and their context. Thus it employs ethnographic (ethnomethodologically-informed) design methods to empirically ground the research outcomes [1]. The research takes a community-based approach explained in more detail by Chamberlain *et al.* (2013) [2]. Focusing on the community of a market town in rural Wales has provided access to small business owners, as well as local community enterprise initiators, local government and other associated stakeholders in the local rural economy.

The inductive research process has led to two specific organizational frameworks that have been examined in more detail: one is the local producers market, where product chain coordination and technology uses have been examined [3],[4]; while the other is a community enterprise (*as presented later in this paper*). The local market has been investigated in-depth through engaging the potential users of our designs and getting their input into the development of such systems. While the community enterprise has been examined from a socio-economic sustainability perspective that reveals a set of shared values and objectives between business organisations and citizens in the community. This allows an understanding of both the businesses as intended users of the digital tools and services and the context in which it takes place. The next three sections of this paper represent some of the outcomes from the social science perspective in the research.

2. DEFINING AND DIFFERENTIATING RURAL ENTERPRISE IN THE UK
In order to undertake research that focuses on rural enterprises it is imperative to first understand and explicate the core features associated with *rural enterprise*. A key feature of the concept is that it is attributed with a geographical (spatial) specificity. Thus we need to understand the meaning of the term 'rural' as in 'rural areas'. This urban – rural divide perspective in the UK is firmly rooted within public policy [5].

Investigation into the definitions used for collecting data by government bodies for policy purposes reveals that several different definitions have been used with respect to rural areas. These differ according to the level of administrative division, where they can be applied and are determined by the proximity of the said population to an urban area and the share of remotely situated population [6], [7]. Nevertheless, these sources inform us that at a settlement level a population of less than 10000 people defines it as rural.

Recent studies see rural enterprises as encompassing activities beyond agriculture and food production [8]. Furthermore, the literature argues that enterprises in rural areas are not different from other businesses in the economy [9]. This means that in terms of organisation, management and marketing, rural enterprises are not conceptually different from urban ones.

3. EXPERT VIEW ON THE USE OF DIGITAL TECHNOLOGIES BY RURAL ENTERPRISES
Public policy in favour of the adoption of digital technologies by small businesses has existed in the UK for more than a decade. More recently enterprises have been introduced to e-government services and Internet-based business support. Thus we approached rural business advisers as sources of expert data on the use of such technologies by rural businesses. We anticipated that they would be able to provide us with an understanding that had been drawn from multiple observations over time. Possible biases have been

considered in terms of the selective use of the advisors' services by rural businesses, as well as the impartial perspective of the advisers on the behavior of the businesses as a result of their working relationship. Accessing advisors from different genders who had experience in advisory role from at least five to more than 20 years ensured avoiding some of the biases. The advisers have been working with businesses of different sizes and types of products.

Different use-cases in the rural business population regarding technology adoption and use were revealed. This contributed to the findings of the in-depth research on small business owners and was used to conceptually inform the design and development of digital tools and services. For example, business owners of lower age had an advantage relating to the take up of technology and had more positive attitudes towards it. Furthermore, use of digital technology in the management practices was often externally introduced by buyers, suppliers or public institutions.

Findings from the interviews with rural business advisers were in line with those from the inquiry into small businesses. For example, the business owner needs to be convinced that the digital technology brings value to the business by decreasing costs or increasing revenues. However, usefulness may not be obvious and the demonstration of the technology in practice aids the display the beneficial aspects and its adoption. This also suggests that the role that the gatekeepers play in regard to the demonstration and adoption of new technologies is important.

4. COMMUNITY ENTERPRISE MODEL

A community-based enterprise emerged as a key organisation with an important social and economic role for both local citizens and small businesses. It was created through a grass roots initiative in 2010 in response to macro-level pressures on the local economy and aimed to sustain and regenerate the town through supporting local businesses. This was supported by a set of shared values that prioritised the fulfillment of community needs (Picture 1).

Picture 1: The Pwllhai area in Cardigan town centre. Part of the land and buildings have been purchased by the community enterprise and are under the control of the local people.

The creation and development of the enterprise were analysed with the help of a conceptual framework resulting from studies in less developed countries of the world [10]. Characteristics and factors related to the success of the enterprise contributed to elaborating a community enterprise model. In addition we analysed links, relationships and interactions between rural community members, small businesses and local community enterprises. They informed us on the key points for intervention where digital tools and services can facilitate business development.

5. IMPLICATIONS FOR DIGITAL TOOLS AND SERVICES

Drawing on the presented research strategy this section points out prospective outputs in terms of tools and services and can support the small businesses by helping them with the following three functions: 1. Promotion – access to customers; 2. Awareness of the market – knowledge on the customers [2]; and 3. Connectedness – with customers. In addition, the examined community-based enterprise emerged as a potential gatekeeper for digital technology. In this key role it can make technological facilities available to a number of small business users.

Digital tools and services in relation to these results are currently in process of development. This paper supports a Demo in the Digital Economy 2013 conference, based on our research work within the contexts that we have described.

6. ACKNOWLEDGMENTS

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7. REFERENCES

[1] Crabtree, A., Rouncefield, M., & Tolmie, P. 2012. Doing Design Ethnography. London: Springer.

[2] Chamberlain, A., Crabtree, A & Davies, M. 2013. Community engagement for research: contextual design in rural CSCW system development. Paper presented at the 6th International Conference on Communities and Technologies (C&T), Munich, Germany.

[3] Chamberlain, A., Davies, M., Crabtree, A., Greenhalgh, C., & Rodden, T. 2012. The rural digital economy: the local market as an arena for digital economic consideration and design. Paper presented at the 3rd Annual Digital Economy Conference "Digital Futures", 23-25 October, Aberdeen.

[4] Chamberlain, A., Crabtree, A., Davies, M., Greenhalgh, C., Rodden, T., Valchovska, S. & Glover, K. 2012. Fresh and local: the rural produce market as a site for co-design, ubiquitous technological intervention and digital-economic development. Paper presented at the 11th International Conference on Mobile and Ubiquitous Multimedia (MUM), Essen, Germany.

[5] Scott, A., Gilbert, A., & Gelan, A. 2007. The urban-rural divide: myth or reality? Socio-Economic Research Group (SERG), The Macaulay Institute, http://www.macaulay.ac.uk/economics/research/SERPpb2.pdf Accessed 29-06-2012.

[6] DEFRA. 2012. Rural and countryside statistics, http://www.defra.gov.uk/statistics/rural/ Accessed 25-06-2012.

[7] W. A. G. 2008. "Rural Wales" - definitions and how to choose between them. Statistical Bulletin (10).

[8] European Network for Rural Development. 2012. EU Rural Review: issue 10 - Rural Entrepreneurship. Brussels: EU.

[9] Alsos, G., Carter, S., Ljunggren, E., & Welter, F. (Eds.). 2011. The Handbook of Research on Entrepreneurship in Agriculture and Rural Development. Cheltenham: Edward Elgar.

[10] Peredo, A. M., & Chrisman, J. J. 2006. Toward a theory of community-based enterprise. Academy of Management Review, 31(2): 309-328.