Making IT "Pay a Bit Better"- Design Challenges for Micro Rural Enterprise

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ABSTRACT

This paper reports on a field study of small market in Wales undertaken as part of broader research project aimed at developing IT solutions to support rural enterprise. The project is predicated on the assumption that the primary challenge facing rural enterprise is that of scale and that IT solutions could and should add value by enabling growth. The study suggests that many rural enterprises are micro in character, that they are not driven by the need to grow, and that value is and can be added in different ways that reflect the social values oriented to and employed by micro businesses and their consumers. The paper elaborates vernacular understandings of supply chains and their coordination, along with business and consumer motivations to consider alternative possibilities for design that place emphasis on making micro rural enterprise 'pay a bit better' rather than scaling it up.

Author Keywords

Micro rural enterprise; fieldwork; design challenges.

ACM Classification Keywords

H.5.3 [Group and Organisation Interfaces]: Computer-supported cooperative work.

INTRODUCTION

Interest in the rural as a site for computing research and development is growing and a wide range of research initiatives are now seeking to bridge the urban-rural divide. These include infrastructure initiatives to address problems of digital access and inclusion [e.g., 1, 24]; initiatives to design technology around available infrastructures and user characteristics [e.g., 4, 30]; and an increasing array of substantive applications supporting e-Governance [19], mobile enterprise [10], finance [21], healthcare [3], indigenous knowledge [26], community interaction [28], interaction between women [22], games for children [17], and more. Running alongside these developments are an increasing array of studies of technology adoption and use in rural contexts in both developing and developed nations [e.g., 13, 16, 18].

This paper focuses on the challenges involved in developing computer support for micro rural enterprise *in the UK*. We emphasize *in the UK* because context is important. It always is, but it is particularly salient in this case as a great deal of the research conducted in rural settings to date (enterprise-oriented or not) focuses on developing nations and Africa and India in particular. The UK is not a developing nation. On the contrary, it is one the wealthiest economies in the world, ranking 6th in the IMF's 2012 GDP listing. We state the obvious because the context of research frames the kinds of assumptions, expectations, and understandings of the design challenges that are associated with the rural [e.g., 6, 15, 29].

Design-oriented research in the UK and other developed nations is not framed by the kinds assumptions, expectations, and understandings that frame HCI4D and postcolonial computing. The context is different, the challenges are different, and the ways in which we might understand and respond to them are different. Research initiatives and studies in this space are also rather thinner on the ground than they are in developing nations. Those that focus on small and micro rural enterprise focus on the generic infrastructure issues that impact the rural per se, social networking between businesses, and micro logistics [8]. Micro enterprises – or businesses with 9 or fewer employees - represent over 90% of all enterprises within the UK and the broader trading zone in which the country primarily operates: Europe. There are over 18 million micro enterprises across Europe employing over 37 million people with an annual turnover in excess of one trillion euros [11]. The sector is, then, a significant contributor to EU nation state economies.

The design challenges we report here are based on an ongoing field study of (and design intervention in) a small market town in Wales. Findings from the study *challenge the assumptions* framing and motivating the research and reframe understanding of the nature of technical solutions required by micro rural enterprise in an already developed context. The research was based on the assumption that technological support should enable micro businesses to *scale up*, and that augmenting the *consumer-producer* relationship is the primary means of adding value and

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achieving this. This assumption may pay dividends in developing nations. However, our study findings suggest that scale is *not* the problem confronting micro rural enterprise in a developed context, and that the primary means to add value is by augmenting the *consumer-seller* relationship.

These findings are supported by cross-cultural research in Japan (another developed nation). Okamoto [20] reports on "success factors for rural B to C [Business to Consumer] implementations" in revitalizing rural enterprise. These factors include using technology to establish a local brand, coordinating collectives of rural businesses under the auspices of that brand, exploiting the digital to enhance collective advertising, and enhancing the collective bargaining power of rural enterprises. These issues preface the need for enhanced micro logistics and are manifest in various ways in our field study of the various enterprises involved in a small weekly market. We take a closer look at the market below, after explaining our methodological approach. We draw on the findings to elaborate the local character of Okamato's 'success factors' and the implications these have for the design of support for micro rural enterprise. Key among these is the need to connect local rural enterprises *and* consumers together. We consider particular design challenges involved in this, including those occasioned by potential online and situated solutions.

METHODOLOGY

Our study of the market was framed by a sociological rather than an economic perspective on enterprise. It uses fieldwork [23] as an ecological approach enabling the elaboration of the "actor's point of view" [2], rather than adopting rational perspectives on "homo economicus" - i.e., the economic human, a self-interested actor who seeks to create value by maximising utility as a consumer and economic profit as a producer [25].

> *"The value of the ecological approach is that it places "the actor's point of view" at the centre of analysis … This does not mean (and this is a fallacy that many critics fall into) the incorporation of first person experience into sociological depictions … We are not concerned with particular people's experience, but with the organisation of experience as that is encountered in the social world as readily available, known and shared schemes of interpretation. We propose to analyse these as aspects of consociation, that is the sharing of social experience. The character which this consociation takes is, of course, a reflection of the environment in which it occurs."* [2]

That 'environment' is a social not a physical one: a lively social milieu in other words, populated by social actors going about their business together. Adopting an ecological approach subsequently supplants home economicus with "homo reciprocans" – i.e., the reciprocal human, a cooperative actor who adds value by explicitly seeking to improve the social milieu.

Our study elaborates the 'shared schemes of interpretation' that drive homo reciprocans and shape micro enterprise in a developed context. It was conducted over a four-month period in 2012 and involved 15 stallholders, 20 customers, and 2 market organisers, along with the collection of audio/visual materials and field notes. Our initial focus when conducting fieldwork was to understand the supply chains implicated in the provision of goods and services provided by the market stallholders. We did not seek to explicate supply chains through the analytic practices of business analysis, however, but as *vernacular* 'naturally accountable' [12] constructs – i.e., as constructs created, articulated and understood by the stallholders.

The motivation for this analytic focus was to explore one of the key assumptions framing the research, which was predicated on the notion of value chains and that supply chain improvements can add value to enterprise [see, for example, 27]. We wanted to understand supply chains from a members' perspective then, rather than from a business analysts' perspective: to understand where the value was perceived to come from and go to from the point of view of those who *do* business in a rural context. Our observations and analysis were not restricted to unpacking vernacular understandings of supply chains. We also looked at the motivations driving the market stall businesses and consumer motivations. We elaborate the findings to emerge from our field study below, key among which was the reframing of where *value* is understood to reside in rural enterprise or at least in rural enterprise in this context. The nature of the findings also suggest that there may be some generality built into the results insofar as they reflect *shared* schemes of interpretation that may be observed in other micro enterprise environments beyond the immediate confines of this market.

THE MARKET FIELD STUDY

The market is situated in a small Welsh town with a population of around 4500 people. This is complemented by a large seasonal influx of tourists, primarily between April and October, across the 180,000 hectare administrative area or 'county' in which the town is located. The county council's annual STEAM report [5] estimates that over 2 million people visited the area in 2011, contributing some £300 million to the economy. The market was set up by a social enterprise created in 2010, which exploits community share schemes to purchase and redevelop disused and derelict sites in an effort to foster business ventures that add value to the town's local economy. The directors and shareholders are concerned to create and retain as much local wealth as possible, especially to stop it being "leached away" by national retailers and global outlets.[1]

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[1] It is probably worth making the distinction between 'leech' and 'leach'. The former refers to a blood-sucking parasite. The latter to the draining away of something. It is also probably for the best not to confuse the two.

The market site also houses a car park, crèche, eco shop and agricultural museum. The market itself is currently located in a former agricultural building and houses between 10 and 15 stalls once a week and more at Christmas. Many of the stallholders attend different markets in different towns on different days of the week, and those that don't have other business ventures such as bed and breakfast for tourists, farming, fishing, forestry, etc. There are a variety of stalls as well, some are 'one-man bands' or husband and wife teams, some are small collectives involving a handful of individuals, others are run by larger commercial enterprises. The market stalls sell a variety of locally produced or sourced goods: fresh vegetables, milk and cheese, meat, fish, bread, cakes and pastries, chutneys and sauces, deli foods, plants, garden furniture, and second hand musical instruments and equipment. The seasonal nature of the county economy means that many stallholders stop trading after Christmas until Easter, when the tourist season starts again.

Figure 1. The market.

Market Stall Supply Chains and Coordination

Our initial analytic focus was on the supply chains that stood behind the various market stalls. Seen and understood from a members' perspective – from the point of view of the stallholders when we asked them to explicate their supply chains - this was understood to refer to the various *resources* that they needed to acquire and make use of, and *actors* they needed to engage with, to get their products to market. We mapped supply chains across 10 stalls and, like the stalls themselves, found a range of resources and actors involved in each along with a variety of *coordination* mechanisms pulling those resources and actors together. We present 3 of these by way of example and elaboration.

The cake and pastry stall

The cake and pastry stall only appears at this market and only does so once a week. Unlike some of the other traders at the market, the cake stall is not the primary business of the stallholder. The stallholder runs a bed and breakfast (B&B) as their main business, which occasionally opens in the evening as a restaurant as well. The stall utilises some of its table-space to display leaflets promoting the B&B and restaurant. The produce on the stall consists of a range of handmade cakes and pastries, some of which are gluten-free or vegan. Warm pies and pasties containing local ingredients (Welsh lamb, calon wen - a local cheese – and locally grown vegetables) are also made and sold by the stallholder. The stall's products are often packaged in boxes for people to take home with them, though pies and cakes along with hot soup for the lunchtime trade are also packaged and served for immediate consumption.

The stall has been trading for around a year and in that time has managed to gather a steady client base, some of who predominantly buy the more specialist, gluten-free and vegan produce. Customers are also able to order cakes for special occasions and pre-order for the following week. The stall itself is run by one person who sources and collects ingredients, and bakes and sells the produce. The baking takes place in a semi-domestic kitchen at the B&B. Figure 2 shows the different resources and actors implicated in the cake stall supply chain. The resources consist of various ingredients and packaging. The actors, various wholesalers and retailers who supply the ingredients and packaging.

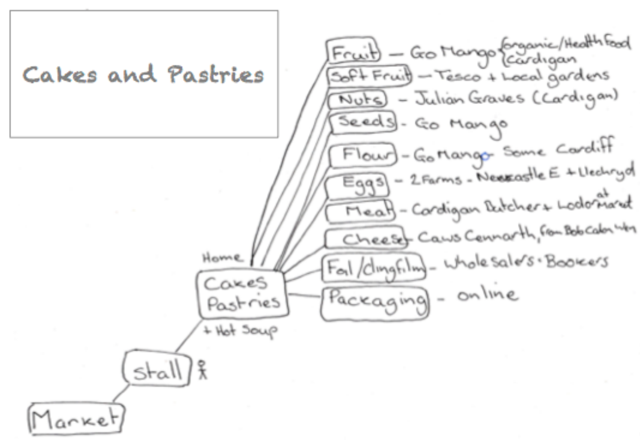

Figure 2. The cake and pastry stall supply chain.

The stallholder is concerned to provide a high quality product and the supply chain mirrors this, with many items being handpicked, fair-trade and organic. Meat is bought from local butchers, eggs are sourced from two local farms, cheese is bought from a local producer who also has a stall in the market and, when in season, fruit is purchased from local growers. More generally fruit, along with seeds, herbs and nuts, are purchased from local 'health' stores and supermarkets. Flour comes from the supermarket. Packaging is bought online. Clingfilm for wrapping and transporting the produce is sourced from a local wholesaler.

Most of these resources are purchased locally, but they are not all produced locally, and their purchase is largely coordinated through face-to-face transactions. All of the ingredients are purchased face-to-face from other local suppliers and physically collected by the stallholder by car. The telephone may occasionally be implicated in coordination, as in the supply of seasonal fruit by local growers. The Internet played a small role in coordination, being used solely to source and arrange the delivery of packaging.

The local growers' stall

The local growers' stall is small cooperative of unaccredited organic fruit and veg producers. The stall consists of 7 people who have small 'allotments' or pieces of land in the local area that are not insufficient in themselves to underpin a business but collectively generate sufficient produce to do so. The produce consists of seasonal fruit, vegetables, fresh flowers, and plants (e.g., fruit bushes). The stall also sells fruit vinegars, eggs, and hot soup. It is often staffed by three people who are themselves part of the producers' collective. The stall is, again, a one-off occurring only once a week at this market. Figure 3 shows that while the underlying supply chain consists of multiple actors, the resources implicated in it are rather more scant: the bulk of them being grown by the producers, who may occasionally buy seed though just as often harvest and swap it. Packing is the only notable resource that the producers purchase online (plant pots, bottles for the vinegar and cartons for the soup). The growers' are also keen recyclers, reusing pots, carrier bags, boxes, etc., behind the scenes and at the stall itself.

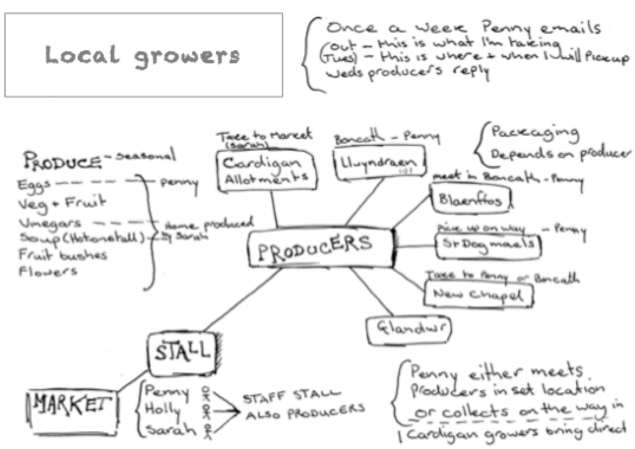

Figure 3. The local growers supply chain.

Coordination in this supply chain centres on the collection and delivery of stock to the stall. This is done by email. Two days before the market an email is sent out by one of the growers who always stands the stall (there are usually 3 of them on hand) to the others telling them what she is taking and where she will be picking the other's produce up from. The other producers usually respond by email the night before the market, saying what they are sending, product prices, and at what pick up point it will be. Growers who live very close to the market drop their produce directly there. Coordination also extends to the sale of goods. The stall's products are not all of apiece but derive from 7 separate producers and sales have therefore to be divided appropriately. Thus, behind the stall alongside the "float" (moneybox) is a price list on which the seller writes down how much of what product they have sold. This enables them to see what has been sold and to "divvy up" or apportion the day's takings.

The milk and cheese stall

The milk and cheese stall is a much larger cooperative, representing 25 accredited organic diary farmers who collectively supply many well-known British supermarkets. The stall sells a range of organic diary products (cheese, milk, yoghurt, butter). It is staffed by one person who works part-time for the cooperative, manning the stall at several different markets per week. Other stallholders buy cheese and milk from the stall and some customers buy their weekly milk supply from the stall. Figure 4 represents the supply chain. It is as interesting for what it doesn't say as for what it does. It tells us that raw milk is collected by tanker from the collective's farms and is taken to a central processing plant. It tells us that bottles are sourced from a large national wholesaler. It tells us that a chap called 'Bob' packs a small van and takes the product to market. The supply chain diagram is remarkably uninformative. There are several reasons for this.

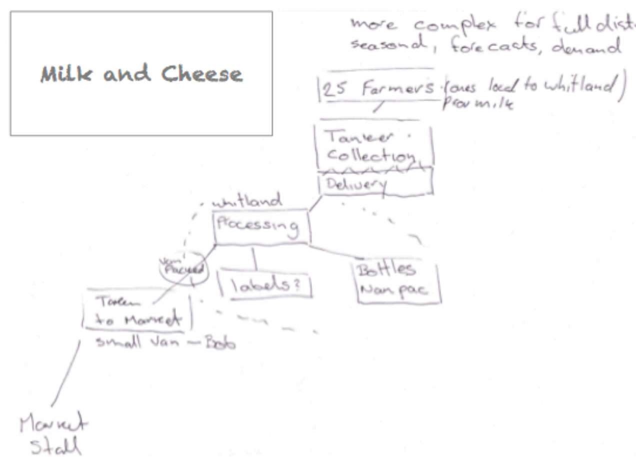

Figure 4. The milk and cheese supply chain.

One is that 'Bob', the chap who stands the stall, isn't privy to the ins and outs of this large commercial supply chain, so no surprise that he couldn't elaborate the resources and actors implicated in it. Two, while we did manage to find out a little more about the supply chain by talking directly to the processing plant (e.g., that the collection of milk and associated routing of tankers is largely coordinated through a rota and phone calls), there was a reluctance to reveal the full details of the supply chain due to commercial sensitivities. Three, the stall is not and nor is it intended to be the cooperative's primary outlet. Rather, it acts to promote the cooperative's brand in the local area.

The promotion works in two key ways. On the hand, the diary products if offers are sold at lower cost than the same ones that are on the shelves in the local outlets of national supermarkets in the area; and on the other hand, in being a part of this particular market, the cooperative demonstrates its support for the social enterprise that owns the market site, in which some of the dairy farmers have invested and nominally 'own' shares. This stall is as much a political statement as it is a business venture, and while it needs to cover cost it nevertheless reflects a commitment on the part of local business to the local community.

The nature of supply chains

Each of the supply chains we mapped reflected the unique character of the individual businesses making up 'the market'. All but the milk and cheese stall elaborated the key resources and actors involved in their production. It became apparent through these vernacular mappings that, as with the cake stall, many of the resources and actors, while being locally available, are essentially external to the town's economy. In short, they take more money out than they put in. When we look at packaging, for example, which was by far and away the most common resource that stallholders purchased (ranging from boxes and jars, bottles and cartons to labels and wrappings), it became apparent that whether bought online or from local outlets, most of the companies that supplied these things were national (UK wide) or international operations.

The same applied when we looked at the purchase of other resources. Indeed, as a rough guide - this is not a quantitative study by the way, the following numbers are merely illustrative – some 65% of the companies that stallholders sourced resources from were not based in Wales, the bulk of them (40%) being UK operations, the remainder international operations. The result, and this rather than statistics is what we really want to draw attention to here, is that when you strip away all the external resources and actors from the supply chains what we are left with is small set of local products of economic value. Specifically meat and fish, diary, fruit and veg, plants and wood products, all natural resources of Wales. What the supply chains show us – regardless of their vernacular nature - is that a significant proportion of the economic value of these resources to the local area is being 'leached away' by external actors.

The vernacular rendering of supply chains also reveals the role of technology in the coordination of resources and actors and the kinds of tools the stallholders used to organise their businesses. One thing the supply chains make painfully visible – at least painful for those of us who want to develop some kind of technological fix - is that there is *very little use* of digital technology in the coordination of micro enterprise. It's not that the stallholders can't afford digital technology or that they are luddites. Most of them have smartphones, which they use to call people and do business with, to leave and pick up messages, and maybe send the occasional text, but that's about it as far enterprise goes for such devices. Most have computers at home as well but their use in business is largely limited to sending, receiving and answering emails and buying resources online.

The supply chains revealed the stark reality of technology use in the micro enterprise, where business is largely conducted face-to-face or by phone, with email usually playing a supporting role. The coordination of micro enterprise largely turns upon *talk* then, more often than not supported by paper resources (notes, lists, rotas, etc.) rather than by digital resources. Out the 10 stalls that mapped their supply chains for us, only 4 had websites. One listed the services provided by the business and enabled online payment via PayPal for one product provided by the business. One listed its products and suppliers where people could buy them from. The other listed products and prices. One listed products and prices and enabled online ordering. The use of websites was, then, largely confined to *marketing* the business. This was complemented in another case by the use of Facebook to do the job of marketing. Nonetheless, most of the stalls – even those with an online presence - relied on physical resources to do marketing (banners, leaflets, information sheets, etc.).

While vernacular renderings of supply chains are never going to satisfy a business analyst or economist, they do convey something of importance to the developers of technology. They tell us that designing technology to support micro rural enterprise is going to be challenging because this class of business doesn't rely on technology for its coordination. While there may be opportunities for collective buying and marketing, micro enterprise is not primarily organised through technology but through the face-to-face interactions and conversations of the parties to it. This seems to work well and (if ain't broke) we might ponder the wisdom of trying to fix it. The situation is further compounded when we turn to consider what motivates micro enterprise

Business Motivations

In order to gain an understanding of what appropriate technological intervention could be about, we also examined the motivations that underpinned the different businesses at the market. We found that many of the stallholders were not motivated by business alone. We have already seen how the milk and cheese stall – the largest business at the market – was politically motivated, for example. This may seem like an over statement of the facts but the company itself recognised the potential negative consequences of not hosting a stall, especially the potential for members of the cooperative to take their business elsewhere, if the cooperative was not seen to support the local community.

Concerns with the local community shot through many of the stallholders business motivations. This was largely reflected in their role as shareholders in the social enterprise which owns the market site, not that this over-rode their or its interest in making money. As a member of the local growers stall put it,

> *"It would be nice to actually get it to the point where we had a selection of all the local veg and could actually make it pay a bit better than it does at the moment."*

Having an interest in the local community doesn't negate business motivations, but it does reshape them and the notion of 'value' along with it.

Perhaps the most obvious example is that of the "life styler" represented by a stall that sells wood products sourced from the holders own woodland which was bought courtesy of an inheritance in an attempt to be self-sufficient and "live off grid". Not all the stallholders share such values. Indeed, the values that motivated most of the businesses operating at the market, particularly the non-shareholding businesses, were much more subtle and nuanced. Others have set up their own businesses as a life style option, but not one based on social or ecological values. The owner of a grocery business and stall, who used to work in a solicitors and started out selling eggs in her spare time (extending her portfolio as customers asked for more) found that she "couldn't do both. I chose this because I have a bit more freedom." That and the time that comes with it to build up the family business on her husband's farm and at her son's farm shop.

Working for yourself and your family is key motivator in micro enterprise, and quite often an end in itself. As a local plant grower put it,

> *"I don't want to get big. I don't want to get to the stage where I'm employing lots of people. I want to just carry on enjoying it really - make a reasonable amount of money just to live on."*

The value placed in being one's own boss and doing enough to get by was expressed by many of the market stallholders.

Wrapped up with this more mundane (less political and politicised) kind of self-sufficiency is a sense of enjoyment that scaling up (the core value entertained by most economists and business analysts) puts at risk and potentially destroys. As the maker of jams and preserves put it,

> *"I don't want to get really big because I wouldn't enjoy it then I don't think. I did think it would be nice to get really much bigger, but I don't have the energy to do it and I'd just rather do it like this."*

Time and again we heard people say similar things when we asked them about growing their businesses. They wanted sustainability – "a few more customers", "more footfall" to "make it pay a bit better", and maybe "a bit better than it does at the moment" in some cases – but "I don't want to get big" was a constant refrain for a host of reasons largely to do with personal effort and responsibility but occasionally to do with the bureaucratic demands placed on business.

Alongside hearing the various ways in which the stallholders "enjoy" working for themselves – the places they go, the people they work with, the people they meet, the conversations they have - we also heard them speak about "quality", not only of life but also of product. Many of the stallholders are artisans, and the things they make and sell are of a different order to those you usually find on supermarket shelves. As the cake and pastry maker puts it,

> *"For me its about coming out and selling my produce with like minded people … It's a lovely thing to do and, you know, I feel you're adding to the community … I feel that it's far nicer to have the contact and for the customer to be able to come in and ask you about something, whereas if I went into Tesco's and wanted to know about a product, nobody could tell me what was in it, you'd have to look at a long list of E numbers and everything, and it's just not the same is it as having it produced freshly yourself."*

We walked away from the market with a very different set of values ringing in our ears than those we might have expected. Of course there was a concern with money, but it was tempered by the values that people placed on working for themselves and their families, on enjoying life in the round, on making quality products which are often locally sourced, and on having a relationship with the customer.

Only one stallholder, who was selling his own chilli sauce as a sideline on his Dad's cheese stall, wanted to make it big and become "as successful as the Reggae Reggae Sauce Company." For him, the market was an incubator for a future corporate success story. Other stallholders valued the market as an incubator too, though their visions of the future were rather more modest. The market provided a testing ground for new businesses, product lines, and the opportunity to build up a customer base. It also provided a site where stallholders could promote their other businesses too, many of them relevant to the seasonal influx of tourists.

What we see when we turn our attention to what motivates and drives micro enterprise we find a host of local concerns that respecify 'value' as it is usually understood in economic and business discourse. The respecification is consequential. It replaces the standard economic concern with scale or 'growth', and the mechanisms whereby that might be affected, and puts concern with such things as community, family, sustainability, self-determinacy and self-sufficiency, quality of life and quality of product in its place. Getting bigger is rarely the point whereas earning an enjoyable and, as archaic as this may sound, honourable living often is. This situation again raises real challenges for systems design, not least because it negates the need for enterprise systems in this area of business. Not only is there no use for them as there is nothing (no business, no information, no knowledge management processes, etc.) to scale, trying to apply them would be like using a hammer to crack open a nut (and would probably produce similar results).

Consumer Motivations

Our efforts to understand the potential for making design interventions in rural micro enterprises has also been informed by studies of what motivates consumer engagement. Twenty customers of the market stalls were informally interviewed during the fieldwork whilst the market was running. A key concern that rapidly emerged in our conversations with customers was their manifold interest in "the local" - "I like local food", "I like to keep local traders going when I can", "I like to buy local produce", "I want local things if I can possibly have local things". These and a host of other comments elaborated a number of thematic concerns that motivated customer engagement with the market. We expand on each of these below.

Local Business and Community

A key motivation driving consumer engagement was the perceived need to support local business. This motivated most customers, including the tourists we talked to. They responded to questions probing their reasons for shopping in the market with statements such as, "It's local and I like to support local businesses", "I like to support local producers and suppliers as well", or "I want to support local people". For many customers there is a direct link between spending money at the market and in other local shops and the health and well being of the local community. They consciously operate a local agenda when shopping, even if it means "paying that bit extra", as doing so is understood to accrue tangible benefits for the community at large.

Quality

A key motivation for customer engagement with micro enterprises, and one that makes it worthwhile to pay that bit extra, is encapsulated in the view that they deliver better quality goods and services. Everyone we talked to spoke of the quality of products at the market in one way or another. "I come every week because its locally grown, and I die for the fresh vegetables which are locally grown", "I like the fresh fruit and veg and food", "I like good food – I bought bread and eggs and beans because I just like the look of them", "I come here for the homemade pies and cakes". Sourcing "fantastic produce" was a key driver of customer engagement with the market.

Home-grown/Home-made

The value that consumers place on quality is further reflected in their orientation to the home-grown and home-made. This is a particular feature of the market stalls and the kinds of products they make and sell: fresh foods and foodstuffs. That these are "locally grown" or "made by the people who sell it" is strong motivation for buying such products. It's not labelling these kinds of products as home-grown or home-made that counts however, but in being home-grown or home-made that customers associate this with quality. Home-grown / home-made adds value to a product and warrants paying out that bit more.

Customer service

The value placed on home-grown / home-made reveals another motivation driving customer engagement more generally and this is the value people place on customer service. This plays out in different ways. In the market, for example, customers talked about "Vicky's bread", or "Jen's quiche" and in doing this displayed themselves as 'regulars' having a 'routine' relationship with stallholders. As we watched them go about their routine business we listened their conversations. Some were related to the products on sale and both customer and stallholder reported on the value of "being be able to come and ask about something". However, much of the talk that we witnessed was entirely unrelated to bread or quiche or any other product. Instead, their conversations ranged across community life events, shared friends, family, etc. In turn this leads, as one customer put it, to "building up friendships, you know".

Enjoyment

Good customer service, including the friendships that may get forged through it, is part and parcel of the enjoyment that also motivates customer engagement with the market, though the enjoyment extends far beyond this: "I like the ambience, the relaxedness." "It's my routine. I come here at nine. I put the dogs into the car before I leave. Then I go down to the beach. Today I'm back for a second hit." "I like the atmosphere, I like talking to people. It's an enjoyable occasion." "You bump into your friends while you're here shopping". "I usually come at nine - my friend also comes at nine; by the time we've been through it's almost like, you know, locusts!" These and other comments made it perspicuous that the market is not only a site of economic exchange whose wheels are oiled through good customer service, but also a place enjoyed in its own right for its aesthetic qualities, a place routinely factored into an enjoyable day out, and a place where people meet incidentally and intentionally. In short, a site where both personal and social pleasures play out and can play out.

Alternatives

The sense of enjoyment provided by the market contrasts with customers' orientation to mainstream supermarkets and brings another commonly held value into view. "I can't stand X", where X stands for the brand name of several large supermarkets, was not an infrequent comment. This isn't to say that customers of the market didn't use mainstream supermarkets. They did, whether it was because "you don't have to pay to park" or because they provide "things I can't get anywhere else". Nonetheless many customers thought it "nicer" at the market. Nicer not only aesthetically and socially but also politically. The stance taken by many of the market customers was one where the supermarkets were seen as selling goods and services that don't support the local economy. Given the opportunity they would prefer to support "local businesses". We come full circle then, back to the values that people place in supporting local enterprise and investing modestly but routinely through shopping in the local economy.

The preference exhibited by market customers for alternatives manifests the relevance of consumer politics to micro enterprise. Consumer motivations emphasise the value placed on supporting local business, buying quality products sourced or made locally, good customer service, and enjoyable consumer experiences that offer an alternative to the mainstream. Some of these values are unique and tied to the kind of enterprise that the market is. Others are, we think, more generic. The value placed on supporting local business, on quality and hand-crafting or bespoke design as it were, and on customer service strike us as issues that extend far beyond the market. With them too goes something of the mundane political impetus to invest in the local economy. There are, to put it simply, a great many goods and services that in our capacity as consumers we source and buy locally and that we do so is no accident. It happens because many of us value the local too.

RURAL MICRO ENTERPRISE AND DESIGN

Studies based on fieldwork or 'ethnography' are typically expected to furnish 'implications for design' – i.e., recommendations or requirements for systems development. As Dourish [9] notes,

> *"A common lament to be found in reviews of ethnographic work is, 'yes, it's all very interesting, but I don't understand its implications for design'."*

Dourish also contests the appeal to implications for design as the primary criteria for *assessing* the worth of field studies.

> *"First ... the focus on implications for design is misplaced, misconstruing the nature of the ethnographic enterprise; and second ... ironically, in so doing, it misses where ethnographic inquiry can provide major insight and benefit ... to focus on ... recommendations as the 'outcomes' of ethnography at best distracts from, and often completely obscures, the analytic and conceptual work that lies behind, which is often where the substantive intellectual achievement is to be found ... they typically go beyond specific instances of design."*

One the key virtues of fieldwork lies not in 'telling designers what to build' – i.e., in specifying system requirements - but in telling designers what *not* to build [7]. It provides, in other words, for **'assumptions testing'** (ibid.).

In this case, it has served to disabuse us of two core assumptions that *framed* and *motivated* the research:

- One, that scale is the problem confronting micro rural enterprise.
- Two, that adding value is about adding financial value to goods and services.

Our studies suggest that scale is not the problem that confronts micro rural enterprise and that adding value is not always about adding financial value. Our investigation of business motivations throw both of these assumptions into serious doubt, and elaborate a range of alternative ways in which value is understood in micro rural enterprise.

Thus, the emphasis placed on personal freedom, quality of life, and the sense of satisfaction or 'enjoyment' involved in working for yourself and your family situates the making of money within a constellation of social values that cut across the demands of scaling up or 'growth'. This constellation of social values is constitutive of a shared scheme of interpretation and is reflected and extended by consumer motivations. The two combine to suggest that the design challenges that are assumed to be operative in this context need to be reframed. If not anathema, scale and growth is actively avoided and set aside by many micro rural enterprises, being seen and treated as something that will involve a great deal of effort that undermines the very reasons that people create their own businesses in the first place and the values that underpin and drive it forwards.

Reframing the design challenges

Another key virtue of fieldwork lies in its ability to help designers understand **'what the problem is'** that they are seeking to address [14] and, concomitant to that, identifying '**opportunities'** or areas of activity in which design might usefully intervene [7] So, if scale is not the problem here, what is, and what tangible opportunities are there for design in this context?

Our initial exploration of vernacular supply chains identified two potential areas for design intervention: marketing and collective buying to reduce the cost of packaging in particular in a bid to help micro rural enterprises retain more of the value they create. Both of these possibilities for intervention are problematic, however, and largely because the tools and solutions to support them already exist. Indeed, marketing and collective buying solutions are commonplace: tools and services for creating websites and promoting businesses abound, and solutions such as Groupon are readily available. So where does that leave us?

As Okamoto [20] points out, an important part of the mix here is *community identity* and *branding* and the ways in which this can be supported digitally. The issue of identity permeated our study of the market, running through the market itself as social enterprise created within, by and for the local community, and the motivations that drove many of the stalls and consumer engagement, manifest in various interests and concerns with 'the local'. Okamoto suggests that the digital may usefully be leveraged to "add the special flavour of locality" and "uniqueness" through the creation of collective brands. The retort to this might well be that there is no design challenge here. It is simply a matter of creating branded websites.

The problem with this kind of response is that it assumes that a local brand will be constructed and maintained centrally by a particular service provider. However, most of the micro enterprises in our study didn't have websites and no single party was in control of service provision. What we have here – and what design needs to respond to – are *ad hoc connections* between *independent* actors. Solutions are required then that enable the bespoke construction and management of local brands by independent actors through contingent association rather than central provisioning. This isn't to say that there won't be a central body of some kind involved in branding – e.g., the social enterprise that organises the market in our study – insofar as some body has to control a brand, but that a commercial service provider is not needed to create and sustain it, as each party to the brand can and does (or does not) commission web provisioning as they see fit.

This kind of intervention also requires that we seek to support branding in manifold ways. A business might use social media to promote itself instead of a website, for example, which means that mechanisms for building local brands will have to cut across *a range of existing tools and services.* What initially sounds like a straightforward challenge that is easily solved by currently available solutions begins to open up and mushroom as a broad range of digital tools and services are contingently drawn upon by micro rural enterprises: not only bespoke websites and social media, but in some cases online ordering and online payment as well, along with other potentially relevant services (e.g. collective buying, online advertising, analytics, etc.). In light of *contingency* it starts to make sense then to think about developing a micro enterprise toolkit that *glues together* a range of existing digital services, and enables them to be contingently exploited, to foster and support the construction and management of local brands.

The glue extends, again contingently, to the use of *physical media* to promote micro enterprise. Each of the businesses involved on our study exploited physical media in one way or another – banners, posters, leaflets, flyers, etc. – to promote itself and the products it sells. This suggests that physical artefacts may be used to embed the digital in the world (e.g., via QR codes) and add what Okamoto calls the "rich information" about goods and services (e.g., provenance, history, culture) that enables micro enterprise to differentiate itself and create the kind of competitive advantage that motivates consumers. The possibility also exists to *extend the physical-digital mix*, through (for example) the judicious placement of situated displays, to enable the physical discovery of local brands and connect consumers to local enterprise.

Reframing the design challenges leads us to consider potential design interventions that enable business users to *mash together* a portfolio of digital services and digitally augmented physical resources, which they can use to coordinate themselves as a group having a distinct identity and advertise "a local image" [20] supporting the differentiated values that enable them to earn a living. In place of scale and growth the goal of such a toolkit is, to borrow from the bread maker and local growers cooperative in our study, simply (!) to **attract** a bit more footfall and thereby make it pay a bit better.

CONCLUSION

The rural is attracting growing interest as a site for IT research and systems development. Much of this interest is centred on developing nations such as Africa and India and this *developing context* shapes our expectations about design problems and the nature of solutions. Here IT research is all about enabling development, by redefining the *consumer-producer relationship* for example. Thus, the 'middlemen' might be taken out of the picture and the producer generate more profit, which in turn enables the producer to scale up and society to reap the social and economic benefits that accrue with it.

We do not dispute these ambitions, indeed they are part and parcel of the broader project in which our own research operates, but we do think it important to appreciate that the 'rural' is not a ubiquitous phenomenon. Yes, a large part of the world may not be densely populated and urban in nature, but the rural is not all of apiece, not all the same – rural India is not at all like rural Wales, for example - and that means that the expectations at work in one rural context are not necessarily operative in another.

Our field study is a point in case. Wales is part of the UK, one the richest nations in the world, which is itself a member of the world's most powerful trading bloc: the EU. The rural here exists in a *developed context*, and this raises a different set of design challenges. In the developed world, living and working in a rural context is often a matter of choice, something imbued - as we have glimpsed in our studies - with a distinctive set of values that are seen as desirable and even something to aspire too. This same orientation is not reflected in rural India, or Africa, or China, etc., where people are decamping en masse to cities, mimicking the rise of the industrial revolution in the West in pursuit of the tangible economic benefits that scaling up brings with it.

The design challenges in a developed context are different. Adding value by scaling up is not an appropriate solution as scale itself is not the problem that confronts many rural enterprises. In a developed context many rural businesses are micro enterprises employing 9 or less people. Our studies suggest that growth is not the problem here: what is at stake is making enough money to live on. They also suggest that augmenting the *customer-seller relationship* is a primary area for design intervention. Our study of the market suggests that the augmentation might initially focus on developing tools that enable micro enterprises to mash together and contingently exploit a portfolio of existing digital services and digital-physical resources to create the 'local' brands and promote the 'local' businesses that customers are motivated to engage with. We recognise in saying this that there is nothing to restrict such a toolkit to the rural. The services it provides may be exploited in urban settings too and in doing so it may help build a new bridge spanning the urban-rural divide between micro enterprise in developed contexts. There may be some scale in IT then.

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