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Web2.0 supported rural communities: a case study from Portugal

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Introduction

Web 2.0 tools such as email groups, blogs and wikis facilitate collaboration and sharing between users and offer possibilities to communicate and organize group work where otherwise this would not be possible or prohibitively expensive. Examples of such tools are Wikipedia, open source software development, social networking sites and online communities of people who share an interest. Most of the well known examples involve large communities and draw predominantly young, computer-literate and urban crowds. But the same principles of collaboration and networking hold promise for rural development. For instance: communities are formed for joint learning and information exchange, among farmers or micro entrepreneurs (support groups, farmer-led extension, and so forth). Alternatively, social networking or portal sites are created, focusing on brokering and partnering among a broader diversity of stakeholders for a particular region. Even so, whether the promise of web 2.0 holds for rural development is yet to be seen.

An important consideration is that, in both urban and rural, developing and developed settings, web 2.0 is not merely the next step in technology, but has the potential to completely transform the interaction and organization of professional practice. The organizational models that we avail of at present do not match the new dispersed form of organization which such technologies herald, nor are they particularly conducive to this change.

This case study draws on experiences using web 2.0 tools within a small farmers' community in Portugal, consisting of about 50 families of Dutch emigrants. It sheds light on two central questions: first, how can web 2.0 tools contribute to local (rural) development? Second, what issues need to be considered when designing web2.0 supported rural communities?

The community has used web 2.0 tools for almost two years now. The resulting two (e-mail) groups are autonomous, self-organized by people living and working in rural areas, and both meet online as well as face to face. The groups are of a recent date, they are not particularly successful, and their constitution – from a homogeneous community of emigrants foreign to their surroundings and generally well-to-do – is exceptional rather than representative. Still, an account of these groups' dynamics and the lessons learned from their experiences can unveil some of the principles underlying 'web 2.0 and rural development' that are valid irrespective of the context. Moreover, Portugal's marginalized interior shows similarities to rural areas in many upcoming economies in the South.

The Alentejo (south Portugal) is not historically a milk producing area, but over the past 20 years a dairy sector developed, influenced partly by Dutch emigrants who have started dairy farms. Over the years the Dutch dairy farmers have formed a loosely knit informal community. The case study begins with a background of the community and a short history of the development paths of the two (email) groups. This is followed by the lessons learned so far, and unresolved issues. A wider view is taken in the final section paragraph, addressing the two central questions, and ends with a reflection and a fictional story about the use of web 2.0 for rural local development.

The development of a dairy community in the Alentejo

Portugal's southern province *Alentejo* represents almost 30% of Portugal, but is populated by only 5% of the national population. Agriculture continues to be an important source of income for its residents, but its impact in terms of employment or economical returns to the area is ever decreasing. Consequently, apart from a few urban centres, the area is depopulating, displaying a 45% reduction in the last 40 years (CCDR-A, 2006). Estates are often managed from a distance, the employment of labourers is greatly reduced by mechanization and now limited to a few seasonal projects, if any. Often, the only permanent employees are resident caretakers looking after the properties. For traditional crops such as cereals, forestry or cattle for meat, production is not viable but for subsidies. The new Alqueva dam was constructed to bring a push to irrigated agriculture. Other than that, wine, irrigated olives and products with value added, such as biological produce or regional quality products, combined with (rural) tourism, are the alternative hopes for the future.

Dairy production is another viable sector. It is an activity relatively new to the Alentejo, as dairy production (from cows) in Portugal historically took place in the North, in small family farms (*minifundios*). When feasible farm size increased, the *minifundios* of the North became cramped and the large areas of land available in the Alentejo offered opportunities for modern, large-scale dairying. These opportunities were recognised by the Portuguese, as well as by immigrants from the Netherlands. While the total national milk production is limited by quota and as such has remained stable, milk production in the Alentejo has steadily grown over the past 25 years. By now, the Alentejano dairy sector is firmly in place and still growing, representing 10% of national milk production (the Açores Islands excluded) in 2006 (INGA, 2007). Its modern farms are on average much larger than those in the traditional dairy provinces in the North and basic services, such as feed supply and milk collection, are well organised. However, the Alentejano dairy sector still remains underdeveloped when compared to the North in terms of farmer organization, extension services, specialized suppliers or specialized services.

Around two thirds of the Alentejo milk production (an estimated 90 million litres per annum of a total of 140 million litres per annum) is in the hands of 50 families on the same number of dairy farms who immigrated from the Netherlands. Collectively, these farms employ over 250 full time job equivalents directly, indirectly there are quite a few more. The farmer families form a loosely knit, bounded community: either

you belong to this community or you don't. The (fictional) family de Boer introduced in Box 1 typifies these immigrant families.

Despite the vast area over which this community is dispersed (with a diameter of about 300 km), most members of the Dutch dairy community know (of) each other. Several subgroups have formed, for instance between people who are geographically close, who work with the same vet, or who send their children to the (jointly organised) Dutch language lessons on Saturdays. Some social interaction takes place between most of these farmers and a few times a year, a social event presents itself where a majority of the community is present.

The author of this case study has been part of the Dutch Alentejo dairy community since January 2004, when she and her husband took over a dairy farm in South Portugal. She is a relative newcomer, who has a background in rural development, agricultural extension, and farmers' organizations, but not in dairy farming. Excited by the potential of web 2.0 tools and intrigued to look for ways to tap into the experience of other dairy farmers, she introduced web 2.0 tools to the community in the summer of 2005.

Emigrating to the Alentejo: the de Boer family, dairy farmers
Case story, part I

The De Boer family arrived in Portugal in 1992. Both Jan and his wife Martha grew up on dairy farms, but when they married in 1990, they found the future for farming not so bright in the Netherlands. Land and milk quota were very expensive, so they decided to emigrate to Portugal, following the example of a fellow farmer who went before them. After three short visits, they bought a nice piece of land, with some financial help from their families. The land contained a ruin, and a building permit could be obtained, but no house or farm buildings; there was a water connection, but no electricity. On their first day on their new land they started fencing off some of the land, to hold the 20 heifers that arrived by truck from Jan's parental farm the next day. In the six weeks left before the first heifers would calf, a primitive milking parlour was built.

The first years were difficult. It took longer than expected to connect to the electricity network, so the family ran their farm using a diesel generator. Irrigation equipment broke down. There were no contractors to whom they could outsource some of the land work, so the young couple had to do it all themselves, supported only by their unschooled labourers, whom it took time to train. Building permits took a long time to arrange, or did not come at all.

With a significant effort, Jan and Martha got the farm going, built the stable and the new milking parlour. But whenever something was finished, the number of cows also increased, and more work ensued. In the meantime, three daughters were born. After almost a decade, they were able to build a new family house, and today they milk over 300 cows.

While the children are bilingual and prefer to speak Portuguese among themselves, the family language is Dutch. Martha continues to work on the farm every day, and has a flower garden. She exchanges seeds and cuttings with the village women. For a while, she volunteered in a home for the elderly. Jan often has lunch in a local restaurant with the vet or a salesman, and Martha sometimes joins them. All in all, the family has assimilated well into the local community, but are still perceived as different by others: with their long limbs and blond hair, their appearance is so unlike that of the local people. Overall, parties and social gatherings – cheerful events that often take a full day – are mostly with fellow Dutch farmers. The men drink beer and boast about their cows and the women discuss life – both in Dutch, while the troops of children of all ages happily play, speaking Portuguese.

Box 1. Portrait of Family de Boer, members of a Dutch dairy farmers' community in South Portugal

Development paths of two interest groups

Women's group

In the summer of 2005 an email (Yahoo) group was started, intended for the women of the farming community. Personal emails between these women brought in new members, after some time e-mail traffic took off, and the number of members increased to around 50. Supported by a facilitator (the author of this case study), email conversations continue to evolve, a 'community culture' is developing and a large proportion of members participate in the discussions. The content is a mix of practical issues (where to buy specific items) and deeper issues (the effect of emigration on the lives of members' children). It is expected that communications will steadily continue and not suffer from minor disruptions. Indicative for this assumption was a recent incident whereby a newcomer sent a rather blunt email but was reprimanded in a friendly but firm way by 2 or 3 members; the issue was settled without the interference of the facilitator.

In October 2005 a first face-to-face meeting was organized and 30 women attended. An inventory was made of what women could offer the group, and what they hoped to get out of it. It became clear that the majority of the women wanted to focus not on farm issues but on broader topics. Since then, quarterly face-to-face meetings have been organized with a specific theme of interest. A steady number of approximately 30 women attend; this number comprises the majority from a core group of about 40 loyal members, but a small minority from a wider circle of loosely connected women across the region. While the dairy farming women are still in the majority, over time women from other sectors or retired women have joined. Each meeting starts with a 'networking' round, where everybody talks in turn, before moving on to the theme of the day, usually derived from members' projects – other than their dairy farms. Organization of each meeting rotates among group members, and the initiator continues only as technology steward and occasional facilitator.

Milk Net

As a group, the women decided their network would focus on mostly social and informal topics rather than farm business, but individuals (both men and women) expressed an interest to share knowledge on this topic. As such, a second email group open to both men and women was initiated within the wider community, with the particular interest of milk production. Activity for this 'Milk Network' started over one year ago, using a Google group, based initially on the women's community email database and supplemented with others who wished to join. A blog (Wordpress) was used to explain and promote the network, and to provide a window to the world. During the first month, weekly announcements explaining the purpose, rationale and potential uses of the Milk Network were sent out using the email group; the same messages were published on the blog. A month after the network's initiation, a kick-off event was organized with an external speaker, during a wider agricultural event organised by the Dutch Embassy.

Gradually, blog posts were no longer copied and sent to the group through the email group, but only the links to the blog posts, and eventually no links at all. Thus, a separation was made between public posts on the blog and member-only

announcements on the email group. The blog had 70 posts in the first year, all by the initiator. Judging by increasing numbers of page views of the blog, readership gradually developed and, considering the relatively small target audience, is quite high. Comments are however seldom left.

Communications via the email group never really took off: initially some exchange took place around price comparison projects, but when these were terminated late last year, months passed with less than 10 emails, over 50% of which are from the initiator. Occasionally a spur of emails is prompted, after which then traffic slows again. Even so, several members have expressed their content at having found interesting contacts through the conversations. While the number of different contributors is increasing, the overall number of contributors remains low.

To boost participation, a workshop was organized in October 2006. With 33 people (mostly men) from 20 different farms attending, it was fairly well attended. After a farm visit and further content-related workshop, the workshop was also used as an opportunity to explain the use of the Milk Net, and active participation or volunteering for (co-) leadership was promoted.

Although feedback about the workshop was positive, it did not bring in volunteers or active participants. In Box 2, the two groups within the Dutch dairy community are compared.

Network comparison

	Women's Group	**Milk Network**
Community		
community	Dutch dairy farmers in Alentejo. In the women's network other Dutch women (non-dairy farmers) have joined as well. Large overlap; around 80% of families participate in either group or belong to both (though perhaps different individuals)	
sub group	women with an interest in the rural area of (south) Portugal	dairy farmers (male and female) in (south) Portugal
domain	not defined or limited: life, emigration, family, farm, rural development, culture	milk production, farm business and everything related
practice	sharing, conversing, organizing f2f meetings	knowledge base or joint practices are not developed yet
community activities	-email group (not moderated) -f2f meetings every 3 months	-email group (not moderated though facilitated) -blog kept by initiator -kick-off event and 1 f2f workshop
Organizational model		
initiative for network	community member	
sponsoring organization	none	none
membership fees	none	none
leadership	widely shared within network	initiator
activities of initiator / technology steward	maintenance of technology (minimal), online facilitation (minimal), co-organization of	maintenance of technology (minimal), online facilitation, organizing of f2f events, blogging, external communication,

	f2f events	networking at third party events
started	July 2005	April 2006
web 2.0 tools used	Yahoo group	Google group, Wordpress blog
# of active members # email addresses served	40 women 54 email addresses	25 farms (both male and female) 56 email addresses
# different email contributors in first three months of 2007	22 (of 54 total)	9 (of 56 total)
% of total emails sent by initiator in past 6 months	20%	50%
Contribution to development		
objectives of group	knowledge sharing, joint learning	improved farm results through better entrepreneurship, by jointly: - gaining access to information; - learning; and - innovating.
ambition for future activities	depends on members interest (for instance: provide support to local social projects)	- streamlining information and generating knowledge (in, across and outside community); - represening interests of dairy farmers / lobbying with policy makers; - maintaining contact with the production chain partners (suppliers and dairy plants); - fostering innovation (for instance: renewable and bio-energies, manure treatment); - recruiting staff, educating young generation, linking with education; - tapping Dutch offers of dairy information / services; - integrating better in local agricultural sector, for instance in collaboration with associations
potential contribution to local development	raising members' knowledge of and interest for the area and for local development	- improved practices in dairy farming and management; - smart innovative environmental solutions; - larger share of locals familiar involved in dairy farming; - better integration in agricultural system; - better articulation of needs and offers: creating opportunities for local businesses - raising members' knowledge of and interest for the area and for local development

Table 1: Network comparison within the dairy community: Women's Group and Milk Network

Lessons (to be) learned

Both groups are comprised of emigrants belonging to a small, fairly closed community where people know each other. In this particular case geographical distances between the families have prevented most of them from socializing on a daily basis, but they share a common language, frame of reference and similar

experiences (emigration, dairy farming, social events), in otherwise foreign surroundings. These factors positively influence the dynamics of the groups.

The Dutch farmers described in this case study are generally fairly well-off and have more reliable and faster access to Internet than the average Portuguese rural family. As such, this case is somewhat unusual for the region or for the development context in a more general sense. Nonetheless, many of the lessons that are being learnt can be transposed to other contexts struggling with similar issues in terms of their community objectives, knowledge sharing purposes or policy influencing efforts.

Selecting an appropriate organizational model

As table 1 illustrates, the two groups are comparable in size and set up, and find their members from within the same wider community. Both groups lack a formal organizational structure; there is no clubhouse, office or filing cabinet, there is no Board, no postal address, no logo and no website. There is not even an official list of members' names. The Yahoo/Google groups are all there is. This minimizes organizational and administrative costs and tasks, takes away the need for membership fees or sponsorship structures and maximizes flexibility and versatility of the networks. It allows the communities to focus on the core of networking, namely the relationships between people. The absence of money makes things much simpler: social capital is the only capital. The group determines its own sustainability: when interaction stops, the networks cease to exist.

Despite these benefits, this model is characterized by three major drawbacks which challenge the continued mobilization of the networks. First, there is no concrete motivator to draw the group together on a regular basis. In many organizations, the activities needed to sustain the organization itself – such as board meetings, organizing assemblies or elections, maintaining the clubhouse, deciding on a logo – contribute to strengthening the organization. Second, the lack of visibility and legitimacy can also be a problem in terms of outside interactions. In the women's group for instance, invitations to external speakers, or even requests for using a venue, are not easily rewarded as the group has no clear outside identity. The Milk Network cannot be represented in the national farmers association (CAP) as long as it is not an official Association. Third, the lack of funds means that each community event or activity has to cover its own cost. There is no money for general expenses such as translations to make more of the communications bi-lingual. For these reasons, the organizational model for the Milk Network was originally intended to be more formal, in order to recover running costs.

Either way, traditional financing models, either membership or transaction based fees, are not applicable in a straightforward way to this network. Membership fees are problematic in the same way they are for all networks: by excluding those who are not prepared or able to pay, potentially valuable knowledge or people are also excluded, thereby reducing the value of the network, also for those who are paying. Transaction based fees (for instance by charging relatively high prices for a workshop) are problematic in that they reduce a community to the sum of its (paid) activities, ignoring the valuable ties between participants, the social capital, the community feeling, the joint responsibility of the members, and so forth.

In sum, a combination of these models is likely to be most effective. Web presence may also offer new opportunities, for instance by selling advertising space: although numbers of page-clicks are by no means impressive for small communities like these, the specific niche and local ties of the community may be interesting to local business partners.

Overall, possibilities exist, but the task for community leaders is not an easy one: to select an appropriate model, to negotiate funding with members and sponsors, to design and install a model, and so forth – all the while remaining loyal to the interests of members (and not sponsors), maintaining full transparency and accountability, yet without mechanisms for control or conflict resolution.

Community Leadership: juggling different roles

In the dairy community, the initiator has taken on the role of convener, facilitator and technology steward all at once. In the women's group, after some time, these roles were separated and shared; now the time invested in running the group by each individual is in balance with (social) benefits they derive from it. In the Milk Network, despite careful efforts, no others have shown interest to be community leaders, so the roles are not yet separated. This is problematic in that the time and energy invested by the initiator is disproportional to the benefits derived, which can adversely effect the longer term motivation to continue pursuing these tasks.

Many communities are facing similar challenges, and on the whole it can be wise to separate the different roles in a very early stage. While generally it is difficult for an outsider to take on the initiative for building a network, facilitation or technology tasks can be fulfilled by another party. That way, it is clear early on that such tasks incur expenses, and that arrangements need to be made if the community wants to continue taking advantage of them. If services are supplied by outsiders rather than on a volunteer basis, it is more obvious that some form of financial compensation will be involved and this is less likely to disrupt internal community dynamics.

Us-them and smug communities: fostering inclusiveness

Managing internal versus external communication is a careful balancing act. This means dealing with such questions as: for whom is content accessible? How exclusive, or on the contrary, how transparent should communities be, how visible should members be?

While the dairy groups are intended to help shape and connect to wider institutional landscapes (organizations in government, private and NGOs), they risk achieving the opposite: communities emphasize 'us versus them' sentiments and as such risk developing into self-satisfied, inwardly focussed groups that set the community (further) apart from the surroundings. In this particular case, the language barrier (a Dutch network in a Portuguese setting) complicates transparency and openness to outsiders.

Dealing with multi-linguism

Dealing with multi-lingual demands from a community is a complex issue. Static web content can be translated into multiple languages, but web 2.0-generated sites are characterized by a constant stream of dynamic, user generated content. In such a

context, multi-linguism provides serious obstacles, generating an explosive increase in stewardship tasks and time if addressed consistently. For instance, bilingual blogs are difficult to create and maintain, when compared to single language blogs, even when using translation tools which suffice in conveying the basic message, at best. Bilingual e-mail groups are difficult to realize in practice: users want to express themselves in their preferred language, and translating users' messages would be time-consuming, expensive and troublesome.

Gender equality in technology stewardship

For a target group with home PCs, varying computer skills, Internet connections that might include rickety phone lines, unstable electricity and no systems operator or help desk in sight for miles around, technological tools have to be simple. Any minor technological hurdle can lead to a drop out of valuable members. This case showed that e-mail groups work, blogs are read although commenting functions are scarcely used, but wikis are felt to be too complex.

The Women's group was introduced first (when fewer people had reliable Internet connections) and served as a model to the Milk Network; despite its 'pioneering' role, being the first network established, the Women's group took less energy to set up and shows better results. In the women's group email traffic is higher; participation in discussions and organizational tasks is higher and ownership is stronger.

Analysis of these cases identifies four factors which may explain this dynamic:

- *Gender*. Generally, women seem to easily adopt the 'conversational' style of email groups, as is more akin to their communication style more than that of men. This is reflected in proportions of male and female participation in email groups especially of the social variety. In the case studies addressed here, the initiator is female, which also contributes to a higher participation by women;
- *Social needs.* In this case, the groups provide the female members of the farming community with an attractive means to address their social needs, as they have fewer possibilities to interact with peers than the male members of the farming community.
- *Thematic flexibility*. The 'low profile' approach and free choice of themes proved to provide a low threshold for the women to participate;
- *Division of labour*. The task division in many of these farm families is fairly traditional, with the women conducting more of the tasks in and around the house. As such, email correspondence is mostly maintained by the women in this community.

  This is illustrated in the De Boer family case (see Box 3).

Computer usage in the De Boer family
Case story, part II

Since obtaining a high speed internet connection (after a 1,5 year delay), the 3 De Boer daughters take turns in their free time to surf the Internet or chat with friends on the family PC. During their school hours, Martha checks the family email most mornings and does administrative farm work on the computer. She did not grow up with computers, but with some patience and help from her daughters she can manage. Most emailing is social: notes from relatives in the Netherlands or what Jan calls 'chit-chat' on the Dutch Women's group.

While milk analysis results can be found online, e-mail is generally not integrated into Portuguese farming business as a regular means of communication. Jan does occasionally looks something up on the Internet, but he finds the keys too small for his fingers and therefore experiences typing as a nuisance.

During a Milk Network project, local farmers shared price information on farm inputs via the email group. Jan is the primary interface with salesmen in terms of purchasing supplies or feed, and provided the price input of done deals to Martha, who would then contribute this information to the group via email.

Box 2. Computer usage in the De Boer family

Design of activities: collaboration versus broadcast

Users' willingness to participate in dialogue, either on- or offline, is often overestimated. A common assumption found in literature on online communities is that users are actively looking for ways to share dialogue, but in fact discussion often must be prompted to get going. In the case of the dairy community, the farmers are not directly competing with each other in terms of their farming business (although some competition does exist in terms of reputation, access to labour or quality feed), yet any type of farm business is a sensitive subject that can only be discussed under specific conditions, not usually met in online surroundings. Mixing online activities with real life activities can however enrich a community.

In this case, the use of a blog has proven effective in terms of expressing objectives of the Milk Network, exploring its scope and establishing a domain for it. The blog also helps to legitimize the Milk Network and contributes to making it more visible. However, in the case of the Women's group, only an email group exists and no blog; perhaps the latter would have helped the users realize more quickly that they are expected not only to read, but also to write and otherwise participate actively.

Reflection

'It can work!' is probably the most important lesson learned – so far from the Portuguese experience. The web 2.0 tools incorporated by the networks helped to enliven communication in a pre-existing, small farming community, contributed to the formation of new internal and external links, provided an opportunity for social interaction for and learning, and helped develop shared new practices. The fact that computer use and literacy among members is limited proved to be of relatively minor importance. Overall, faith in the promise that web 2.0 holds for rural development is sustained and strengthened.

Yet the experiences in the dairy community also give rise to reservations and questions to the web 2.0 promise. The 'web 2.0 state of mind' of sharing and participating, if embraced by a critical mass within the community, could entirely change the character of communication and organization. In the dairy community, the technologies have supported the initiation of these networks, but a knowledge sharing state of mind does not come about easily – in fact, is very difficult to cultivate. Active participation, networking, role-switching, dealing with messiness – these are some of the characteristics that web 2.0 communities share with small rural or farmers' communities. In the two groups in the dairy community, gradually a better understanding of the 'web 2.0 state of mind' of sharing and participating is evolving.

How can web 2.0 tools contribute to local (rural) development?

In the case-study, the networks consist of Dutch dairy farmers in Portugal – a group of relative outsiders in their region. While they have contributed to the development of local economies, for instance by providing employment, this contribution could have been larger for instance by using local suppliers rather than Spanish or Dutch ones. The absence of historical bonds with the area (for most of the Portuguese dairy farmers as much as for the Dutch) makes the southern milk sector operate in a somewhat isolated way. Each farm has developed its small network of business partners, but these relations are not backed, duplicated and triangulated by social and village networks, nor are they embedded in a wider institutional landscape.

Apart from the Dutch in dairying, it is remarkable how large a share of the new rural enterprises have been taken up by newcomers: among the new entrepreneurs there is overrepresentation of immigrants from Spain and Northern European countries, but also a proportion of Portuguese moving in from a very different city life. None of these relative newcomers have full ties (historical, lingual, cultural, emotional or social) with the area, not all of them permanently live there, but they do have a stake in local development. Similarly, some of those who migrated out to live in Porto or Paris send remittances or help organise the village festival for when they will visit during summer. Increased mobility, changing urban-rural interdependencies and migration change our relationships to locations, and local development no longer only depends on having the full range of ties to an area. Web 2.0 tools can help peers acquaint themselves with an area – geographical or thematic – and take up their share in local development.

An important contribution to development of web 2.0 tools lies in the social capital created when two or more people interact to share practices. Examples whereby this takes place include bottom-up rural development, farmer-led extension, self-help groups, environmental groups, and so forth. But communities do not intrinsically lead to development – in fact, as indicated above, web 2.0 tools can be counterproductive to development especially when they contribute to an exclusive rather than an inclusive environment for knowledge sharing.

Designing web2.0 supported rural communities

Internet technologies support the emergence of new organizational forms: networks, communities of interest, communities of practice. The criteria determining the use, leadership, organizational and financial models, and legal attributes of these new forms are generally flexible. They may evolve where only informal communications

existed before (as in the case of the Women's group) or where otherwise a more traditional membership organization operates (for instance in the case of the Milk Network). These new organizational forms are however, quite different from traditional membership organization models such as associations or cooperatives in many respects such as leadership structure, means of communication, and accountability, which are generally less conducive to a participatory and sharing way of conducting business.

In general, many web 2.0 supported communities have a relation with a 'parent' organization or a company providing some of the resources or leadership needed to support them. However, in terms of sustainability and autonomy, this model may need to be reconsidered.

Is it possible to have more autonomous, self-organized networks? The Women's group illustrates that 'ultra-light' model can result in sound, sustainable and comparatively easy to manage networks. The Milk Network is intended to develop into a sturdier, more professional, slightly higher profile network, and an ideal mode has not yet been found for the latter.

The abovementioned lessons translate into questions that should be taken into account when starting rural web 2.0 communities for development (as illustrated in table 2).

Design issues rural web2.0 communities for development	
Issue	*Questions to ask*
User value	What is the main *raison d'être* of the community? What are its members primarily looking for?
Organizational model	What needs to be organized or enabled in terms of tools, activities, structure, to meet this *raison d'être?* How can these tools, activities, structure be funded?
Leadership roles	What are the leadership roles needed? How will leadership be organized?
Fostering inclusiveness	What are membership criteria? What is the right balance between community building and maintaining a low threshold to participate? How to prevent self-satisfaction and thereby community inertia?
Coping with multilingualism	How to enable access for other language users? How to deal with translation requirements?
Technology choices	What technology is appropriate to fulfil all these needs?
Collaboration mindset	How to cultivate a mindset of collaboration?

Table 2. Design issues for Rural web2.0 supported communities

These questions illustrate why so many communities depend on an outside organization or company to help tackle some of these complex issues. Perhaps the solution lies in developing an 'Association 2.0' model that can cope with the dynamic and ever changing demands of the new community format.

A portrait of the Family De Boer in 2015 (Box 4) shows how they have realized the promise of web 2.0 technologies, and thereby contribute to local development and thriving communities.

The future for the family De Boer
Case story: part III

It is now 2015. The De Boer farm is thriving and the family has multi-dimensional relations to the Alentejo. Solar panels on the cow sheds are providing the farms with electricity. A biogas installation is providing gas for heating for the farm houses, the neighbour houses and for a green house of a young horticulture farmer, with whom a partnership is signed. The equipment for these energy innovations was jointly negotiated and purchased by a number of farmers from the Milk Network, while the contacts for the partnership with the horticulturalist where made through the local community web portal focusing on sustainable local development.

Martha signed up for the e-mail newsletter from the home for the elderly where she once volunteered and after a while went back to help set up a volunteer programme. Through this programme she successfully recruited, through Internet, 18 volunteers, some from the Dutch women's group and others from the local development community portal. Together, they are contributing significantly to the quality of life of the elderly in the home.

Jan participates in a project set up by the municipality and the provincial agricultural school, offering an internship on the farm to two students per year. One of these students showed such promise that Jan decided to help him set up, and he now acts as a credit provider and business-coach to a starting, local dairy farmer. The municipality identified Jan as a suitable project candidate through the Milk Network.

The De Boer children lead an active life, both virtual and real, and they move between the Netherlands and Portugal for both their personal and professional lives. They belong to both Dutch and Portuguese online communities and have introduced their Dutch friends to the region, who eagerly return to it as an attractive, relatively unspoiled yet connected (since Wifi was installed) holiday destination. The rural and village bed and breakfasts benefit from this increase in tourism and have joined as a 'chain' onto a wonderful web space made up exclusively of testimonials from guests. Increasingly, conferences and workshops are being organized in these accommodations, providing an attractive extra income for local residents of the region.

Isabel, the second daughter of the De Boer family, is working as a network broker for the community development site; she is constantly on the look-out to forge new partnerships between local actors. Thanks to her efforts, the site is flourishing, home to 14 email groups, 6 of them bilingual, 3 transnational EU projects, and 2 research projects. Designated activities are fully funded, but otherwise the site is sponsored by local companies.

All in all, the once isolated region is now characterized by learning and collaboration between cross-sectoral communities of practice, between members of different professional disciplines and sectors, immigrant and locals alike.

Box 4. The family De Boer in 2015: fostering local development

References

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Abstract

Over the past 20 years, the dairy sector in the south of Portugal has been given a new impetus, driven partly by Dutch emigrants who have moved their dairy farms to this rural and underdeveloped region. Since the summer of 2005, web 2.0 tools have been taken up by community of dairy famers, resulting in two networks: the local Women's group and a Milk Network. Both groups are autonomous, self-organized by people

living and working in rural areas; both use e-mail groups and meet face to face to share knowledge and interact.

This case study describes the experiences from the perspective of a community leader, stewarding technology to foster knowledge sharing and participatory approaches among the community members. The case illustrates how web 2.0 tools enabled the formation of the groups, and defines interaction and organization in a geographically remote and dispersed region. It explores how different organization models contribute to collaborative interaction, and identifies the drawbacks of the 'ultra-light' and the externally supported community model. Web 2.0 supported communities have the potential to support social organization for development, linking different actors to local development, but to promote autonomy, sustainability and replicability of communities, further thinking is required.

About the author

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