

Web2.0 in the Green Knowledge System; old community norms in new environments?

Josien Kapma, Eelke Wielinga

Abstract

The world is changing and new information and communication technologies (ICTs) are powerful contributors to this change. People acquire knowledge in radically different ways compared to before. This is also true for farmers and other stakeholders in the green domain. “Web2.0” is the name of a new generation of ICT applications that go beyond providing access to information, *users feed the system with their own experience and knowledge*. As a result of users finding and tracking like-minded people, patterns emerge that in time evolve to networks of peers, or even communities.

In The Netherlands, several of such patterns can be distinguished. Online communities from backgrounds as diverse as magazines, extension, clubs, groups of emigrants, or trade are forming.

The Ministry of Agriculture, Food Quality and Nature initiated an interactive web portal for the rural sector. Via this portal named GUUS (a Dutch boys’ name; picked for simplicity and neutrality) users offer each other links, weblogs, professional profiles. The first author of this paper is community manager of GUUS. In this article she likes to share her first experiences.

In this contribution we investigate differences between classical ways of knowledge transfer and web 2.0 communication in the “Green Knowledge System”. Society is moving from an industrial model with vertical hierarchical structures to a networked society with increasingly horizontal organizational structures. The opening up, through ICTs, of information, communication, participation and collaboration leads to changes that are both incremental and entirely novel or transformational.

About the authors

Josien Kapma works as independent consultant on knowledge mobility, communication and networking, mostly in rural environments. She is active in initiating, facilitating and participating in networks formed by farmers and rural inhabitants. She acts as a community manager to GUUS, a Dutch knowledge sharing community for rural development. She is also a dairy farmer, in Portugal. www.josienkapma.com , jk@josienkapma.com

Eelke Wielinga works as senior researcher for the Agricultural Economics Institute, which is part of Wageningen University and Research on network dynamics and knowledge systems. He has his own consultancy firm as well: LINK Consult. eelke.wielinga@wur.nl

Web2.0 in the Green Knowledge System

Old community norms in new environments?

Josien Kapma, Eelke Wielinga

Introduction

- Farmers, traders, experts and citizens in the US discuss agriculture between 8 and 10 pm (east coast time) every Tuesday, text messaging over Twitter. They call it “agchat”, after the tag they use to filter their multi-directional conversation from the millions of other tweets. The debate can be followed by anybody with an internet connection.
- In the Netherlands, a community is forming itself around GUUS, an online tool for aggregating and sharing web links related to rural development.
- Since May 2008, a farmers’ information service in Kenya exchanges information on agriculture and weather through mobile phones using interactive voice response.

The world is changing and new information and communication technologies (ICTs) are powerful contributors to this change. What does it mean for knowledge and information practices around agriculture? In this paper, real life examples from Dutch farmers illustrate what impact the changes taking place have, at both individual and group level.

Society is moving from an industrial model with vertical hierarchical structures towards a networked society with increasingly horizontal organizational structures. The opening up, through ICTs, of information, communication, participation and collaboration lead to changes that are both incremental and entirely novel or transformational. (Smith et.al., 2008)

Implications for agriculture, extension and education are not limited to methods and media alone, but also include institutions and skills.

New technologies, new possibilities

A new generation of information and communication technologies is emerging. “Web2.0” is a set of Web-based tools that allow for more interactive and collaborative social activities. Mobile phones with text messaging (SMS) are widely used, also in the developing world context. Increasingly, mobile phones and Internet are merging to become one interconnected system.

Related to this is the consistent reduction in cost of digital content, which arguably has collapsed to almost zero. Publishing content has become very easy and cheap, copying and disseminating of electronic content is very efficient, in part enabled by new technologies such as peer-to-peer (P2P) sharing. These trends allow for a new range of potential social and creative activities, above and beyond what Web1.0 technologies provide.

User-generated content

One of the most wide-spread aspects of new Web2.0 applications currently on the Internet, besides the social networking software, are the sites that provide a space to place user-created content. Web logs (blogs) and YouTube are possibly the most well known, but the field of user-generated content extends into almost any domain of social life that can be imagined. The intensely lowered costs of production and dissemination through ICTs has enabled individuals to share their own creative work with the world.

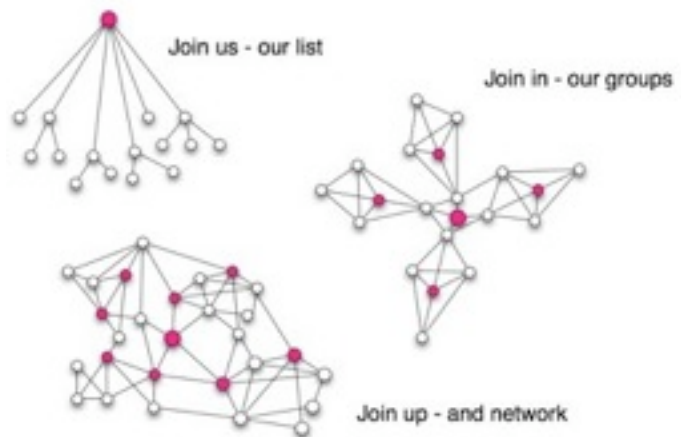
Increased coordination, organization, and mobilization of people

Individuals, groups and organizations have an unprecedented opportunity to take advantage of the highly networked world to coordinate, organize and mobilize in ways that were heretofore impossible (Rheingold, 2002; Shirky, 2008). The technology has changed the rules by lowering the costs of coordinating group action: “most barriers to group action have collapsed, and without those barriers, we are free to explore new ways of gathering together and getting things done” (Shirky, 2008). (Smith et.al., 2008).

Implications for communication and learning

Communication

The traditional model for ‘communication’, depicting a sender, a message through a medium and a (group of) receiver(s), has drastically changed. Control over sources of information or channels of communication is no longer the privilege of few. Today communication is a mishmash: receivers have themselves become senders, and all kinds of messages are sent out multi-directional, and over a multitude of different channels and media. Information scarcity has turned into information overload.



The incredible abundance of information and communication has two effects. First, it creates an attention scarcity and media fragmentation. Compared to before, our messages need to be very relevant or audiences filter them out. So, instead of talking louder to unfocused audiences, now ‘senders’, whether organizations or individuals, need to engage in meaningful dialogue with relevant partners. Second, it creates an immense pool of searchable communications among others. This buzzing universe of linked sites and blogs is an incredibly rich source of information and learning... if we know how to filter and how to listen. Organizations need to listen to conversations about their fields, niches or needs they can fill, feedback and suggestions for improving what they do. It is about tagging and remixing and mapping the network of relationships, looking for where to respond, and where to catalyze action. It is a little bit like listening to the universe.

These tasks can't be done by an individual. They require the diverse "ears" of communities, the wider net of networks, seeking to make connections between people that advance our organization's learning and goals.

Learning

Several forces are driving the trend towards peer learning. One is technology. The new Internet based tools allow individuals to build a unique online presence and profile including what they know; and, they facilitate connections between individual users, allowing each user to build a personal network around a knowledge area.

Second, farmers have less interest in authority or being "taught." They learn with and from each other. Instead of connecting farmers with a small defined set of experts, you help them tap into networks of expertise. Informal and voluntary learning becomes a key strategy to move faster than we can accommodate with formally constructed training initiatives.

People flock together without the need for a mediating organisation. Instead of formal expert associations, loose peer networks or communities of practice are emerging. The resulting groups can be highly effective learning opportunities. (White and Kapma, 2008)

Examples from agricultural practice

Web2.0 has proven its worth in writing a Wikipedia and developing Open Source software. But how does it relate to agriculture and rural areas? How far have these web2.0 tools been adopted by farmers and others in rural areas, and do they work? While several experiences from Africa have been described (Gakuru, et al. 2009), little is documented about Europe. The following are our own experiences, mostly from the Netherlands.

Dutch communities

In the Netherlands several experiments exist to make use of online interaction related to farming or rural areas. The groups around their 'online homes' (websites) are all very different, in type of participants, size, liveliness, online or offline focus, activities, tools used. They come from backgrounds as diverse as: media (the farmers' weekly), extension, markets or auctions, associations and companies. It is remarkable to see that the most thriving ones, those that really are *actual* self-organised communities, came about from 'nothing'. They started off around the content of one or a few individuals and started to grow, seemingly without a preset objective, and often without significant funds.

Does web2.0 change farmers' way of working?

To discuss the statement "The Internet (Web2.0) changes farmers' way of working" I could simply ask users of the interactive possibilities of Internet on their forum. I posed the statement on a dairy farmers forum and on a rural youngsters forum. I received the first reaction 4 minutes after posting the question. On both forums I received about 12 reactions within 24 hours, then a few more reactions to the earlier reactions, and within a day the attention had shifted again to other discussions. On the dairying forum farmers testified that their personal way of working and dealing with information is influenced very much by the contact with peers over the web.

- "A lot changed for me. I read for less of the conventional papers and journals now."
- "I still go to meetings but often i've heard it all before. Here on the forum."
- "Other information sources have clearly moved to second place. I have cancelled some subscriptions."
- "Before I buy anything I look at market sites and at the opinions of colleagues who reacted. It makes it much easier to decide."

The youngsters at the other forum, on the contrary, said that "it's not about information exchange here, we just hang out together for fun". Later on from other reactions, and especially from other discussions on the forum, it became clear that although it may not have changed for *them*, information strategies of these young people are very different from those of young people before - even as little as a few years ago.

GUUS

The Ministry of LNV became aware of the potential of web2.0, but also recognized the organic nature of online knowledge sharing. With investing in the development of www.GUUS.net, the Ministry initiated a community tool which potentially can:

- 1) keep track of and support all types of online activities in the sector;

2) help users get to know and network with other users who follow and track this.

GUUS is an aggregator for bookmarks. Users mark and annotate webpages they like and send this to GUUS. The resulting continuous stream of bookmarks, with personal notes and recommendations of peers, can be checked daily by users to see if there is something of their interest, and can also be sorted out, filtered and searched. Users can subscribe to partial streams or to certain peoples' streams. Several hundreds of users are now gaining experience with GUUS.

Farmers organizations 2.0?

Since the summer of 2005, web 2.0 tools have been taken up by community of dairy famers (Dutch immigrants) in Portugal, resulting in a Rural 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. '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.

Opportunities for the 'Green Knowledge System'

The paradigm shift towards the network society (Wielinga, 2001) has been given a new impetus by the advent of the new Internet tools. Knowledge systems and their stakeholders finally have the possibilities they always wanted. Web 2.0 for the first time in history brings methods for knowledge sharing within the reach of those stakeholders themselves, for interaction with diverse and if needed numerous others.

There is a general potential for development: if society as a whole is more open it means knowledge is more universally accessible, it means larger freedom for more people. The new interactive ways give farmers, who are often bound to their farms, options to connect to other farmers.

Agriculture, and many of today's issues have become so complex that diverse stakeholders and sometimes competing claims are at stake. The interactive Internet might be the ultimate Multi-Stakeholder Platform (Roling, 1998). Interaction through Internet might help to listen and connect, to expose stakeholders to others, and thus to support multi-stakeholder issues.

After a period in which we mainly celebrated the fact that Internet enables us to work separated of location and distance, now a period has started in which content is geotagged to a location. In Google Maps, we can already do Google searches on the basis of location. Shortly, unprecedented amounts of data will become available linked to GIS, Geographical Information Systems, and presented on maps in ways meaningful to us. While devices for Internet become more mobile, the content itself is increasingly tied to the land around us, to the extent that it will be significant for the area, the landscape, the people who live there.

The new tools for easier collaboration bring fine-tuning business-to-business between successors in the production chain -before mainly the privilege of large companies who could invest in it- more within the reach of SME's. Finding and collaborating with neighbors and regional partners was never so easy. Niche products could be marketed to a larger public with web 1.0 already, with

web 2.0 they can be pooled and grouped a lot easier as well. Selling less of more, region bound web malls also for food, subscription agriculture, regional branding and regional sourcing might emerge.

For research and policy making, the possibilities are huge but still difficult to comprehend. Automated searches, filters and subscriptions by make it easy to 'listen in' and track exactly those conversations you need to know about. The way data becomes available and can be combined makes it possible to see patterns that could not be seen before. An example is how Google predicted flu better than hospitals could (Ginsberg, 2009).

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. (Kapma, 2007)

Questions and threats

The questions and threats are equally large. The overview article by IDRC, 'Open ICT' (Smith et.al., 2008) sums up:

- Education -What type of education is best and how should we deliver that education
- Socio-economic divide -How to generate the maximum social benefit to lessen the digital divide
- Institutional change -What form will the new institutional structures take?
- Sustainability/new business models: (...) What are the sustainable business models for content production and provision? (...)
- Intellectual property rights
- Filtering and accreditation: how and who will validate, filter and organize data? (...)..for what technologies and in what circumstances do different approaches to peer-based validation of content work (or not) and how do we avoid the downsides (such as the spread of mis- or dis-information)? (Smith et.al., 2008)

Implications for agricultural extension

Media

Not only have new media been added to the options, such as online video, blogging, skype; but these media can be used in entirely different ways. *Cross-media*, meaning many media and platforms are used simultaneously and *social*, meaning content comes from multiple sources and in rather unorganized ways. GUUS alone uses an aggregation tool, a blog with text, photo and video, a linked in group, a Hyves group, a Ning platform, a wiki, and Twitter.

A trainer / facilitator is no longer all-round if s/he can only manage real life facilitation. Contact methods will change to include ICT mediated contact, but real life contact will not necessarily become less. Offline (real life) and online methods will complement and support each other, like the use of telephone supports a relation. Real life and online work each have their own dynamic and each provides a different milieu for participants to manifest themselves. People known to be shy in real life, may flourish online, and those who talk a lot may wither.

Equally, the ICT mediated interaction provides an important opportunity for orally and visually oriented people. Reading and writing suddenly seems overrated now we have found easy ways to document and replicate those older and richer ways of passing a message. Multi-literacy, the capability not only to read and write but also to shift gears between oral, visual, text, real and virtual, is both an opportunity for less-schooled and an important challenge to us all.

Institutions

The organizational models that we avail of at present do not match the new dispersed form of organization which these technologies herald, nor are they particularly conducive to this change. 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.

Content

As personal learning and information strategies change; so do training needs. Knowledge sharing and sensemaking become more and more important, as well as networking among colleagues and likeminded people. Even more than before, knowledge workers will participate as peers and facilitators. They will be asked to help shape working ways, to design events and online surroundings, to help create and enabling learning environment. New roles are being recognized, like community manager, for stewarding technology to foster knowledge sharing and participatory approaches among the community members. Instead of providing answers, the ability to ask or help surface the right questions is more important.

Implications

For agricultural extension and education the changes are not only incremental as was the case in the progress from print to photocopies or from radio to TV. The new technological options are in many ways transformational, marking the transition from the industrial age to the networking age. Still, for rural populations there is a lot of common ground, as social norms among successful networkers are remarkably similar to those of the 'old-fashioned' communities. As yet, none of the mentioned questions and threats have been studied for agricultural extension. We need to learn the ropes (technology) while community norms are still familiar.

References

Gakuru, Mucemi; Kristen Winters & Francois Stepman (2009) *Inventory of Innovative Farmer Advisory Services using ICTs*, The Forum for Agricultural Research in Africa
http://www.fara-africa.org/media/uploads/File/NSF2/RAILS/Innovative_Farmer_Advisory_Systems.pdf

Ginsberg, Jeremy, Matthew H. Mohebbi, Rajan S. Patel, Lynnette Brammer, Mark S. Smolinski & Larry Brilliant. *Detecting influenza epidemics using search engine query data*, *Nature* **457**, 1012-1014 (19 February 2009)
<http://www.nature.com/nature/journal/v457/n7232/full/nature07634.html>

GUUS, link aggregator: <http://guus.net> Blog: <http://guusnet.wordpress.com> Twitter: <http://twitter.com/GUUSnet>

Kapma, Josien (2007) *Web 2.0 supported rural communities: a case study from Portugal* Knowledge Management for Development Journal 3(1): 79-92
www.km4dev.org/journal

Rheingold, H. (2002). *Smart mobs: the next social revolution*, Basic Books.

Röling, N.G. & Jiggins, J. (1998). *The ecological knowledge system*. In N.G. Röling & M.A.E. Wagemakers, eds. *Facilitating sustainable agriculture*, p. 281-307. Cambridge, UK, Cambridge University Press.

Shirky, C. (2008). *Here comes everybody: the power of organizing without organizations*. New York, The Penguin Press.

Smith, Matthew, Nathan J Engler, Gideon Christian, Kathleen Diga, Ahmed Rashid and Kathleen Flynn-Dapaah (2008) *Open ICT4D [Working Draft]*, International Development Research Centre
<http://openict4d.wikidot.com/abstract>

White, Nancy and Josien Kapma *From workplace courses to global conversations ~* Published in: "Leren in organisaties" p. 30-34. 8e jaargang, nummer 6/7, juni 2008. Rotterdam.
<http://www.fullcirc.com/wp/2008/08/27/from-courses-to-community-a-personal/>

Wielinga, Eelke (2001) *Netwerken als levend weefsel*, Uilenreef, Den Bosch