Users and tools: the art of matchmaking.
Challenges in choosing appropriate online collaboration tools for development professionals and practitioners

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Introduction

This paper will reflect on main issues to be considered, and challenges faced, when adopting web based collaboration initiatives in the context of development cooperation and the rise of Web 2.0 technologies. Web 2.0 refers to a perceived second generation of Web-based communities and hosted services such as social networking sites, wikis and folksonomies that facilitate collaboration and sharing between users.

During the last years, information and communication technology (ICT) has become part of many developing countries' strategy to reduce poverty. Goal is to use ICT for poverty reduction by complementing specific activities such as training, information sharing (on market prices, corruption, and advocacy, etc.), and access to information and organisations worldwide. However, what is apparent in the implementation of these policies is the absence of a Web 2.0 approach. Most policies focus on the role of businesses and governments whilst Web 2.0 focuses on

> *…users owning the data on the site and exercising control over that data. [and] an architecture of participation and democracy that encourages users to add value to the application as they use it. This stands in sharp contrast to hierarchical access control in applications, in which systems categorize users into roles with varying levels of functionality.*
> (http://en.wikipedia.org/wiki/Web_2#Characteristics_of_.22Web_2.0.220

It goes without saying that access to the Internet is one of the most critical issues and that the task for providing access lies with the businesses and governments, but a third layer, that of the users and the added value they create, should be included in the analyses of the use of ICT in the development perspective. The potential of ICT as a catalyst of social and economic development is clearly recognized. But in most cases this entails 'big' projects, such as a national strategy towards health or education.

Non-governmental organizations (NGOs) play an important part in using ICT for poverty alleviation, for example with projects like providing access to market information for farmers, or providing information that is not or inconclusively presented by governments.

In order to make this kind of strategies work, the capabilities of the poor to use (and thus have access to) Internet is a prerequisite.

Where governments should develop access strategies and create an enabling environment and show political will, the NGOs (and business sector) should provide tools for communication, management and technical skills.

When determining whether and how to undertake a web based collaborative activity, four main issues need to be considered: the target group, the goal of the collaboration, the commitment to invest resources, and the appropriate technology.

Often implementers of web based collaborative initiatives are seduced by the abundance of tools available to facilitate online collaboration, and start their endeavour by searching for the best tool available. However, what they often don't realize is the impact certain web based collaboration technologies can have on the form and style of the collaboration, thereby partially determining the results a web based collaborative endeavour can achieve.

Many technologies also have different prerequisites to a web based collaborative initiative. Therefore, in order to increase the success rate of such an initiative, it is crucial to begin the process by developing a clear understanding of the user's experience, goals, and the relationship between the different participants (cultural, geographical, language, internet access). Inherent to this process should be self-reflection regarding commitment. How many man-hours, possible pre-endeavour training, financial resources, technical resources etc., are available to commit to this process? Although these may seem like givens, these are steps that are often taken too hastily with the assumption that 'if the tool is good, the rest will follow.' Indeed there are many good tools out there, but not for every purpose or target group.

For the purpose of this article it is useful to briefly clarify two terms, namely online communities and collaboration. Online communities come in many shapes and sizes. They are as diverse as real life communities are. There are some typologies of communities that are most commonly used, such as communities of interest, communities of practice, learning communities, knowledge networks, development communities, social networks and peer-to-peer support groups. The differences between these and other typologies are relevant in so far as they reflect the goals of the members and drivers of the community. There must be a shared understanding of the purpose of a community, by its members and initiators, in order to support and achieve the shared purpose of the group. Therefore, exact theoretical definitions of these typologies are less relevant than a shared understanding amongst group members regarding what the purpose is of their group. This article will consider online communities in a broad sense: groups of people using online technologies to achieve a shared goal. We are assuming, over time, some form of many-to-many participation and communication (as in the figure below) and not only one-to-many communication. Online collaboration in this paper is in line with the

Encarta dictionary's definition: 'the act of working together with one or more people in order to achieve something.'
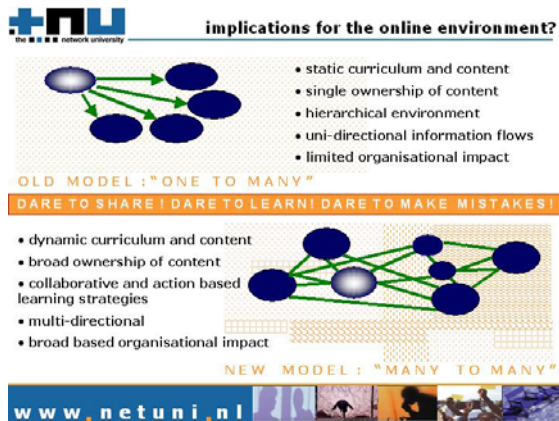

Figure 1: Visualization of collaboration as defined by The Network University

The target group and goals

When undertaking an online collaborative initiative, there are several issues to consider. What do you want to achieve with the platform, who are the participants, what is their background, what are the technical possibilities (access to the Internet and power supply), and what are the technical skills of the participants, etc.

Defining purpose and topic

First question to address is; what is the purpose of your community? Do you want the participants to work together and develop their own products or strategies, do you want to create transparency like a monitor system for the pricing structure of medicines, or do you want to use it in an institutional setting? In general several forms of collaboration can be defined:

- information sharing and policy influencing (including national development strategies)
- institutional development
- multi-stakeholder projects
- training
- knowledge management (for instance small rural medical centres that are connected in a community and can get assistance with complicated medical procedures)
- networking
- SME capacity building
- transparency (for instance registration models for land ownerships)
- advocacy (sharing knowledge and tools for civil society organisations)

All these activities have different goals and different communication possibilities. The challenge lies in matching the target group and goals of the community with the technologies used and methodologies applied.

Regarding communication technologies, the target group may be adept at using the computer, but is reading and writing text the preferred way of communicating? Or is communicating via pictures, videos, or voice-based communication, etc more appropriate and/or familiar to the group? This does not have to be an either/or consideration. The collaboration and communication techniques/technologies can be based on a mixture of means.

For example, sharing experiences around a topic or theme can be done via writing an account of the experience. But it can also be done via taking illustrative pictures and mounting them in such a way as to communicate a message or lesson learned. A picture says a thousand words, and may, in some instances, be a more effective means of communication than writing text. In those instances where one of the goals of the community is to enhance group formation, the level of collaboration can be enhanced by requiring such an endeavour to be undertaken as a joint venture amongst participants, as well as requiring the feedback to originate not top-down, but amongst the group, in a structured manner.

Regarding communication methodologies, members of the target group may have a professional or educational background where, up until joining the community, they are primarily familiar with hierarchical settings. Joining a horizontal community whose purpose is to share information and knowledge, and does not have hierarchical determined relationships (or even changing ownership over time[i]), can be an unsettling and unfamiliar experience. The methodology applied must take the background of its members into consideration. For some groups a horizontal approach may fit perfectly, allowing for a high level of personal freedom and expression. Other groups may fare better under a more instructional guidance setting such as online capacity building programs or trainings. A combination of the two is also possible, planning shifts in methodology over time.

In short, the goal is to match your groups purpose to the collaboration forms to be used (listed above), to apply a fitting methodology for the communication and collaboration forms, and to find communication tools that will facilitate the methodology and collaboration form chosen. The process is similar to planning face-to-face collaborative activities with the extra characteristics of an online environment and geographically distributed group (and all the implications thereof). For example, within a multi-stakeholder process you may apply different methodologies such as Scenario Analysis or Open Space approach. To host the group you could use some form of groupware such as PhProjekt or a simpler platform, such as Dgroups, and the open space activity for example could be hosted in an adjacent Wiki environment.

There is an enormous broad range of methodology options and collaboration technologies to choose from, which cannot possibly all be covered in this article. The most important step is to be aware of these elements and the need to match these with your target group and the community's goals when designing and planning an online collaborative initiative.

Capacity building
When defining a goal, it becomes necessary to define the context of the activity. For this paper we use the concept of 'capacity building' rather than development or poverty alleviation. In our opinion development is used for enhancing the capabilities of a society and poverty reduction for enhancing the capabilities of the poor.

Although capacity building is one of the most frequently used development concepts, it continues to defy a shared definition of what it means in practice. We use the following definition:

> *capacity building policy aims at (a) the upgrading of knowledge, communication and managerial skills necessary to address more effectively the emerging issues in sustainable development; and (b) to promote information dissemination among local communities, policy makers, academics, researchers, and other institutions.* (Global Development Research Centre website accesses at: http://www.gdrc.org/about/cb-policy.html)

With this definition, the restrictions of the terms 'development' and 'poverty alleviation' are no longer applicable since capacity building includes the following information flows:

Who	What	How	Level
Individuals	Information	Access	Individual
Communities	Understanding	Training	Institutional
Trainers	Information and tools	Knowledge sharing	Civil society
Businesses	Tools	Development and dissemination	Strategic
Institutions	Dissemination	Communication	Institutional
Governments	Policy making	Transparency	National

Within the context of capacity building many areas can be identified: health, government, education, access to markets, etc.

Also to be taken into account are:
- level of participation (and commitment); personal vs. institutional;

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- cultural or national differences between participants;
- different levels of access to the Internet;
- different levels of skills regarding usage of Internet (where in some instances the level of skills of participants in developing countries can be much higher than the participants in developed countries due to the limited other forms of access to information and communication).

So in order to specify the goal, one needs to understand the specific characteristics of the target group.

Defining the target group
As with so many projects, identifying the target group is an important step. In this paper we will not go into the details of this process, but we will mention some issues that are important in relation to collaboration with the use of ICT tools. What kind of people does the target group consist of? Maybe it consists of practitioners working with rural communities on enterprise development. Or it may consist of project coordinators, managers, consultants, development specialists, agriculture specialists, community leaders, entrepreneurs, government officers and representatives, union leaders etc.

The implication of defining the target group can be immense when expecting them to use Internet tools; a highly trained government official is likely to be more experienced with Internet skills than a pharmacist in a small rural hospital. In other words, defining the target group also defines the technical possibilities.

Also important is to define their location, i.e. what kind of access to the Internet do they have, and how reliable is the supply of electricity? How many time zones are involved? Is it possible to work with synchronous tools, or do you need to choose for asynchronous tools?

If the target group has access to high Internet connectivity, this is no longer a restrictive characteristic and can be taken as a given when determining how to undertake the online collaborative initiative. If the target group has low connectivity access, such as is the case in many developing countries (see the Global Map of Inclusion below), the form of collaboration must adapt to what is possible and what is not. The medium used must not be a source of frustration, or inhibiting participation in the group process in any way. Therefore, very close consideration to what technologies can be applied, should be made.

Although it may seem that low connectivity inherently means online collaboration is not possible, there are options for online collaboration that minimize the actual time needed to be online. Consider for example e-mail Post Office Protocol (POP) accounts. These are email accounts, which allow the user to download email to his/her computer when connected to the Internet, then disconnect from the internet for the time needed to read and write responses, and subsequently log into the internet again only to send the written responses. The actual time invested in the online communication is more than the actual

time needed to be online. This characteristic of synchronizing offline platforms with online information is not limited to email alone. It can be found in other platforms for online collaboration. A precondition is that the user must have his/her own hardware. Either his/her own computer, or a flash stick (more mobile) upon which the software and information is stored. This latter option would fit a target group with low Internet connectivity but a relatively high level of computer knowledge.

The matrix below illustrates certain characteristics of a collaborative tool, which fit the Internet access and computer knowledge levels of the target group. When you have a group with mixed characteristics, choosing a platform with high levels across the board, will exclude certain members from participation and collaboration. Whether or not these are acceptable 'losses' is up to the decision makers to estimate, according to the goals of the collaboration. Otherwise the lowest level should determine the characteristics of the platform to be used.

Characteristics of collaborative tool(s)		
	Low Internet access	**High Internet access**
High computer savvy	Complex Innovative/pioneering Primarily email based Offline time	Complex Innovative/pioneering Web based Online
Low computer savvy	Easy to use Old school Primarily email based Offline time	Easy to use Old school Web based Online

Technology aspects will be dealt with at length further on in this article. For now, suffice to say that the basic framework of the collaborative platform to choose for the online initiative must match the computer knowledge and Internet access of the target group.

All these questions are important for choosing a tool and methodology. When a synchronous online meeting is organised involving complicated tools (for example video conferencing) often the time and energy is put in getting people online, instead of discussing the topic chosen. People start to make phone calls or send e-mails telling that they are not able to access the Internet or the platform, and much time is wasted on getting these people online (if successful at all). By the time this is solved, other people have already left.

With this article we would like to show that the choice of, and approach to, an online collaboration is very important and we would like to compare it to a process of developing a training module. Many aspects are the same, such as needs assessment, for whom (what level), how to reach them, and what pedagogical method to use. In our opinion, the choice of an online collaboration tool is as important as choosing a pedagogical method.

Commitment

It is a rare thing when online collaborative initiatives occur spontaneously within a professional setting and within a development context. One could even argue that there is no such thing as a spontaneous online community. For example, even for MySpace [www.myspave.com] someone had an idea, mobilized resources, developed a platform with certain functionalities, and invited people to join with a specific goal. There was planning, a drive and conviction to get it off the ground, and resources were committed. Even so, online communities have an incorrect reputation of being easy to create, somehow having a momentum of their own and flourishing as long as the technical opportunities are there. This is rarely true for online communities in a professional and development context.

One of the main building blocks for an online collaborative community is commitment. In varying degrees per instance, the commitment of financial and human resources are crucial elements to starting and sustaining an online collaborative initiative. With the rise of Web 2.0 tools, which are often free online services, the commitment of financial resources for technical platforms or tools can be minimized. However, the commitment of human resources remains a large investment that should not be underestimated. One could argue that the investment of human resources in online communities has grown since the increase in Web 2.0 tools. Due to the bounty of free services available, it becomes even more imperative to guide this participation in an effective manner within online communities. The ivory towers of knowledge and fortresses of information are crumbling, and the wisdom of crowds needs to be managed.

Champions and development

When an online community initiative is still in its birthing stages, the role of a champion is indispensable. The term champion here does not refer to facilitators, administrators, mentors, coaches, or others needed to keep the community running on a day-to-day basis. A champion is someone who will fight against the odds to keep the support for the collaboration alive. Someone who is driven by his/her conviction, who will think out of the box, who will find solutions to problems, and mobilise others. Someone whose enthusiasm is infectious and who is committed and willing to invest his/her time in the initiative. The reason that a champion is essential, is that our day-to-day lives have tons of triggers and put demands on us for direct action. An online collaboration, no matter how enticing and interesting, is always subject to competition for our time from triggers in our direct non-virtual environment.

As the 'Global Map of Digital Inclusion' further on in the article illustrates, the least developed countries (LDCs) have low access to ICTs, minimal infrastructure and relatively high access prices. Broadband subscription is non-existent. In this environment it is even more difficult to prioritise online collaboration activities, which makes the task of a champion in a development context that much more challenging.

Convincing sceptics

When an online collaboration is to be undertaken or supported by an organisation, a champion's role is also to co-mobilise the commitment of managers. The term co-mobilised is used here because a champion alone will in most cases not convince a sceptical manager as his/her enthusiasm can be written off as a singular interest and not to the benefits of the organisation. This is where champions often hit a brick wall.

The approach to convincing a sceptical manager, and getting his/her commitment, is the same approach that needs to be taken when trying to mobilise a community of non-early adapters. That is, to translate the benefits of the community to the needs of the target group. The target group in this sense can be sceptical managers, sceptical participants such as those who are required (top-down) to take an e-learning course, sceptical content producers such as old-school educators who, due to external pressures, are making the move to a fully or partial online collaboration, etc. The key approach to getting commitment from a sceptical target group, is to translate the benefits of the online endeavour to their own personal or organisational needs or goals. Finding individual or organisational drivers, and targeting those. The spin-off can have enormous effects for the 'greater good', which is wonderful when it happens, but relying on this as an initial driving force to get people involved will likely result in effectively reaching the already converted. Therefore, the convincing can be done best by showing it 'in practice'. This means that the best way to convince the sceptics is by showing the goals and results of an ongoing collaboration, translated to their own needs.

Getting commitment in a Web 2.0 context

Individual drivers motivating commitment can also be recognised in Web 2.0 tools. Although the full benefits of many Web 2.0 tools become most visible when they are undertaken by a large group of people, many Web 2.0 tools could be undertaken individually and still have added value.

Take social bookmarks[ii] for instance. For those individuals who do not own their own personal computer or cannot rely on having their own installed browser available at all times when they access the Internet, it is very practical to have a location online were they can store their bookmarks. This is true for many development practitioners who may need to share different computers, or access the Internet via telecentres or Internet cafes. Social bookmarking tools also provide the advantage, above the browsers of today, of being able to tag[iii] (i.e. categorize) bookmarks. This offers the opportunity of organising bookmarks in a more flexible and dynamic manner than simply in a folder structure in 'my favourites'. Therefore, the commitment to use social bookmarks may be driven by purely individual needs and goals.

However, the full advantage of social bookmarks becomes apparent when they are applied collaboratively. There are opportunities to find others who are bookmarking similar resources, possibly experts on the topic. You can access their publicly available bookmarks whenever you have access to the Internet, and become aware of more relevant

resources that you otherwise may not have become aware of. For low bandwidth users there is the added advantage of being able to grab RSS feeds[iv], either based on a specific tag, a combination of tags, or of other users, and see the newly added resources highlighted in a newsreader[v] (these tools are explained further below). Finding and staying up to date on new topic relevant resources no longer has to be done via a web search or visiting different resource repositories (which costs time and bandwidth), but can be done by feeding selections made by others (with less access and/or time restrictions) into your own newsreader. This is advantageous for both low and high bandwidth users.

In an organisational context it can be extremely beneficial for the organisation and the staff members to share their bookmarks. If staff members are involved in knowledge and expertise building, or staying aware of latest developments in their professional fields, it is likely that they are building that knowledge also by tapping into online resources. By sharing these found resources with fellow colleagues, they jointly become more effective in their work, benefiting themselves and the organisation as a whole. By creating a selection of organisationally unique tags, you can further strengthen the information management aspects of filtering the resources.

Commitment to using Web 2.0 tools may therefore initially be individual-based-commitment, but an extra driver and added-value can be tapping into a network and sharing with other users who are searching for, undertaking, interested in, similar topics and/or activities.

Committing to facilitation
Another issue of commitment is that of ensuring some level of guidance to the community. Whether an online collaboration is to be undertaken by an organisation or a group of individuals, some form of guiding the community will have to take place. Even online collaborations, which occur relatively spontaneously, are sure to face a moment where some type of role division is needed.

An online collaboration that is an extension of some form of organised collaboration in real life, will have the real life roles reflected in the virtual environment. They may shift over time, and the tasks may increase or decrease, but the general roles will be recognisable. For example, a geographically disperse committee organising an event, choosing to also use an online tool to collaborate, will reflect the real life roles in the online collaboration tool.

Even Wikis[vi] - currently the most popular (some might say anarchistic) online Web 2.0 collaboration tool available - have roles associated with it. The most basic one is the 'Wiki gardener', someone who in the most basic sense reorganises and edits contributions made by members of the group. By doing so the gardener often has greater insight into the content as a whole, and may subsequently fulfil a guiding role to the group by pointing out content gaps, shifts, focus, and/or adaptations to strategies of use.

The types of facilitation skills needed vary greatly depending primarily on the goals of the collaboration and the target group. If the target group is highly motivated, and consists of early adapters, the expertise of the facilitator will need to lie less in motivating the group. Rather the group will likely need guidance in keeping focused on its goal. If the target group is reluctant or sceptical, the facilitator will need to primarily have motivating skills. The needs of a group can also vary over time. A facilitator needs to be aware of this, the signals to look out for, and have the skills ready at hand to implement when necessary.

Facilitating online communities has become a profession in its own right. It requires specific (social) skills and competences that need to be implemented according to the needs and goals of the community. A community can succeed or fail depending on the skills of the facilitator(s). Therefore, when undertaking an online collaborative initiative, committing to the task of facilitator is essential, and seeking out training to be able to fulfil the task competently is strongly advisable.

Besides having a competent facilitation skills resource base to guide the community, the use of the tool itself may require some training as well. The training needed depends on the specific role a user has and on the complexity of the tool. Most tools have different user roles available. In general these are so-called administrators: users that can make organisational and technical changes to the tool; moderators: users that organise the communication issues (administration of users, adjustment or deletion of contributions); participants: regular users that can make contributions. Depending on the tool one or more of these users have to be trained in the working of the tool and its applications. This can vary from intensive (administrators) to simple instructions (participants).

Committing resources
Finally, additional resources, which need to be committed when undertaking an online collaborative initiative, are human and financial resources. Needless to say, human and financial resources are committed in a facilitation trajectory. However, the resources needed do not stop there.

Human resources over time
Depending on your organisation (and that of the participants) the costs for setting up and maintaining an online collaboration tool are often not calculated, but rather taken for granted. However, if this is the case you should be aware of this and consult with your organisation on the amount of time that you can spend on it. In some projects fees are made available for participating organisations. Often (in the capacity building context) the people that are participating are working in organisations with small budgets (and lots of work to do) and therefore should have some time made available. The upside of this is that the commitment is bigger and the responsibilities can be shared.

The use of an online collaboration tool can be within a set time frame, or indefinite. In general, the longer the use, the more time has to be spent on the organisation of the tool and the community. Often an online community starts with high intensity, but after some time, participation withers away. At this point people need to be stimulated to participate. Unfortunately this is an activity that comes back regularly.

Another cost aspect is the evaluation and reporting. Besides being a very useful activity to gain insight into the functioning or malfunctioning of an activity, and harvesting lessons learned, evaluation and reporting is often required when a budget is made available to report on activities undertaken.

Financial resources
Open source software is never without costs. The 'open' in open source, does not refer to the costs, but to the accessibility of the source code and the fact that it cannot be controlled by any single organisation. First of all an open source package has to be set up and maintained (and sometimes bought under a license structure like for instance Red Hat) and some say 'open source software is by geeks for geeks,' i.e. you really have to be quite IT-savvy to implement, integrate, upgrade them. Depending on the tool you choose, you can make use of a free-hosted application (but often compensated with advertisement), but if you want to have more freedom and possibilities you often have to install the tool on your own server. For this you might need the help of some technical department/people to install, research, implement and maintain it. This implies not only man-hours, but also the costs of technical infrastructure.

Additionally there are 'hidden' costs to consider regarding open source software. Often the tool made available is basic or not completely developed (and thus creating a high risk of being attacked by hackers), or has (hidden) features that you do not want. For instance the most widely used and developed open source discussion tool 'phpBB' [www.phpbb.com] recently had an unforeseen backdoor through which hackers could easily install and run scripts on the server where the software was downloaded (mostly used to run spam programs on the server or simply replacing the entrance website by one of the hacker). This implies that maintenance and installing so called 'patches' is very important. So after installation the technical staff remains involved, whereas with proprietary and commercial software, automatic updating is often provided. With open source extra vigilance and effort is needed on behalf of technical staff to safeguard the security. Next to that you might consider to develop another application within the tool. Although this fits within the concept of open source software, somebody has to develop it, test it, keep it compatible when new patches are installed, keep it secure, etc. with all the resulting costs.

If you choose for a commercial solution, there is a license fee involved. In some cases hosting and maintenance is included in these license fees, in others it is not. Important with commercial solutions is to determine whether the costs have a so called flat fee

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structure (one amount for a set period) or that extra hours will be charged for all kinds of (unforeseen) activities.

Technology

The platform which 'houses' a community, has many of the same effects on a community as a house can have. The platform can have a large determining factor on the characteristics of the community. Not everyone thrives in a modern house, just as not every community thrives in a state-of-the-art platform. There are functionalities to consider that have specific effects on the communication and collaboration styles amongst the group. A house with many functional walls (many rooms) versus a house with scarce walls (one large communal area) will influence the way people interact in that house. There are also styling issues (interior design), which influence the identity of the community. Can you paint your house all colours of the rainbow or are you required to live in it as is? Furthermore there is the issue of accessibility (stairs) and the choice to rent or to buy.

Accessibility
In terms of accessibility, an online community within a development context may have very specific technical obstacles, which mainstream, off-the-shelf products may not take into consideration. For example, development practitioners with low bandwidth and/or old hardware can encounter obstacles in downloading and/or installing new browser versions or embedded applications in browsers. This creates potential problems for utilising technologies as basic as JavaScript and CSS stylesheets, or downloading and installing the newest versions of Flash, QuickTime or DirectX.

Although upgrading a browser is in principle free, there are professionals within development who remain working with older browsers and embedded applications for several reasons. Downloading the newest version can be bandwidth heavy. With an unstable telephone line it can take a lot of time, and in pay-per-minute situations the costs may be too high to download and install new versions of browsers or applications. Also, installing the newest browser is not advisable if the computer is old. New browsers cost more RAM[vii] and may slow down the process of accessing online environments.

There is a tendency to want to choose the newest platform based on the assumption that the newest platform is the best in terms of evolving technologies and built-in improvements based on lessons learned. Also, the desire to be innovative may also drive the decision-making process for a platform towards the newest version. However, being innovative is relative. Just as the 'one-eyed giant is king in the land of the blind', so can the introduction of any form of online collaboration sometimes be innovative in itself in areas with low connectivity. Therefore, the drive to be innovative should not automatically result in the choice for a state-of-the-art platform.

Newest state-of-the-art platforms may also, in their design, assume a certain level of computer or web-savvyness. The 'Global Map of Digital Inclusion' illustrates that LDCs have low access to ICTs. Therefore, when the targeted community consists of individuals in these countries, the probability that this target group is indeed as computer or web-savvy as the designers of state-of-the-art platforms anticipated is low. Advanced functionalities can work counterproductive if your target group is not advanced. They can be overwhelming and discourage users to participate.
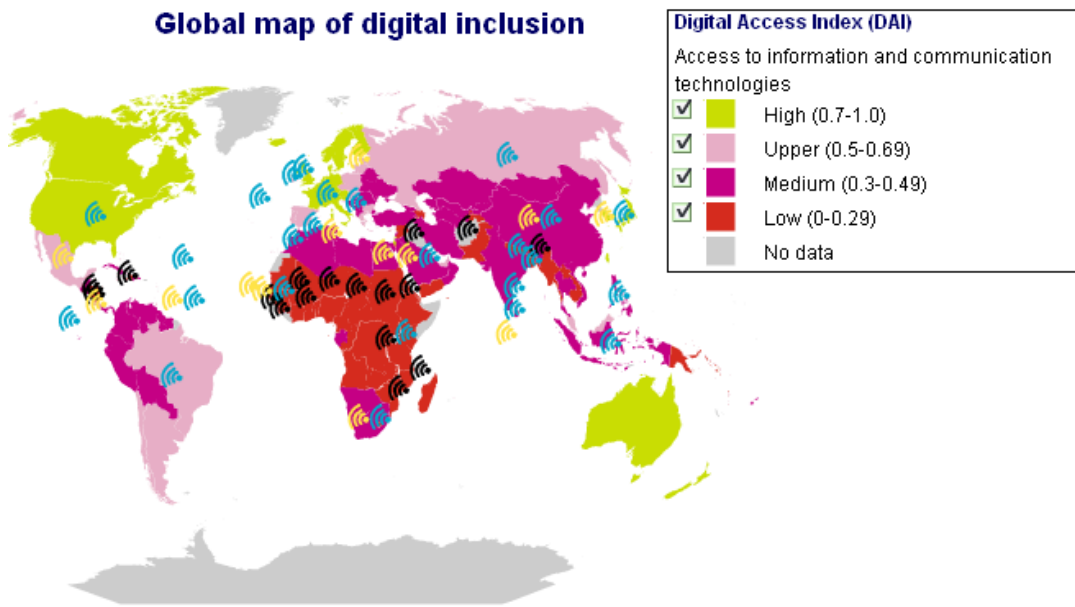

Figure 2: Global Map of digital inclusion

(Source: http://forum.maplecroft.com/loadmap?template=map&issueID=170

The Digital Access Index (DAI) can be used to describe national economies:

High (0.7–1.0): Countries have robust infrastructures, prices are affordable, knowledge levels are high and efforts are focused on enhancing quality through the provision of faster access. Almost all 'high' access countries are from developed regions of Western Europe, North America, East Asia and the Pacific.

Upper (0.5–0.69): Countries have an acceptable level of access for a majority of inhabitants, but with an imbalance in one or more of the five categories. Some countries in this group have a high level of infrastructure availability but score low on affordability. Most of the upper group are countries from Central and Eastern Europe, the Caribbean, Gulf States and emerging Latin American nations.

Medium (0.3–0.49): Countries have a lack of physical infrastructure, and would benefit from the liberalisation of ICT markets to increase competition and attractiveness to investors.

Low (0–0.29): LDCs with low access to ICT, minimal infrastructure and relatively high access prices. Broadband subscription is non-existent and education levels are low.

Web 2.0 and accessibility
Many Web 2.0 technologies are accessible for low connectivity areas. Although they may be considered state-of-the-art, they can be implemented for communities with connectivity and technological challenges.

RSS feeds for example, separate content from design. This allows access to content in a lightweight fashion. This serves four functions: information can be updated in real-time without sending too much data, information from different sources can be aggregated in a single location, highlights can be received for new content, and information can be categorised by theme.

Also, using a newsreader allows a surfer to access RSS feeds, i.e. content, from a multitude of websites, without actually having to load the entire website page into a browser. By opening a local newsreader or accessing a single newsreader service page online, the content of many websites can be pulled into to a single interface. Having to surf to all the individual websites separately costs more bandwidth than simply pulling in the content off those websites into a newsreader. For online collaboration purposes this functionality can be used when, for example, undertaking a group blog[viii], explained further below.

Blogs can be used, for example, to record and publish self-reflection, lessons learned, and tips and tricks. They can be implemented in an individualistic fashion, or they can be applied in a very collaborative fashion. A group of people can choose to author a blog, and can post comments to each other's posts, as well as receive comments from a wider audience. Most blog platforms today offer RSS feeds of their content, thereby facilitating the 'pulling in' of the content into a newsreader, as described above, in a low bandwidth friendly fashion. New content in the feed is displayed in a highlighted fashion, alerting the group members that new content has been added. This is a simple but effective way to further stimulate group collaboration.

Wikis can also be applied for a group collaborative effort. They allow editing by more than one person and the design elements of most Wikis, as well as embedded technologies, are generally very low-bandwidth friendly. Many Wiki platforms also provide notifications of updates, either in email form and/or via an RSS feed, thereby alerting subscribed members to updates in the content. This prevents members from having to make unnecessary visits to the Wiki platform itself to check if anything has been changed, thereby reducing the demands on connectivity. A collaborative effort in a

Wiki could for example be writing, gathering and organising content together, solving problems together, and documenting group process information. There are a myriad of ways that Wikis are implemented as collaborative efforts online today.

As mentioned previously, social bookmarking also has advantages for low connectivity areas. Not particularly the bookmarking process itself, but having access via RSS feeds to lists of bookmarks. Rather than searching the web for resources, accessing social bookmarks of others allows those in low connectivity areas to become aware of topical relevant resources, and the people bookmarking them. Further searching for resources or topical experts can be executed much more efficiently.

Influence of communication/collaboration functionalities and styles
Due to evolving technologies and growing opportunities for online collaboration, newer platforms may also have an increased amount of collaboration functionalities. The more functionalities a platform contains, the more specialized it tends to become, with all the functionalities geared towards facilitating a foreseen type of collaboration. If the assumed specialized target group of the platform deviates from your target group, it may be more difficult to facilitate the needs of your community within that platform. Preferable are those platforms within which you can choose to implement a selection of the functionalities. This allows you the flexibility to turn functionalities on or off, as the needs within the community arise.

Some needs may shift over time within a community. Being aware of this can help to choose a platform that can evolve along with the community. When it is difficult to predict the future developments of a community, it is advisable to choose a platform whose target group is similar to the targeted community. This is based on the assumption that developments over time will reflect shared goals. In other words, a platform developed for business professionals may not be advisable for professionals working in the non-profit sector. Although the platform might fulfil today's requirements of the community, the chances are high that these might grow apart over time.

Another issue that needs consideration when choosing a platform for your targeted community is whether the communication and collaboration style assumed in the design of a platform matches the needs of your community.

For example, one may want to host and facilitate a knowledge network of professionals who can share and learn from each other. This community's goal is to focus on learning. Therefore the initial tendency may be to explore e-learning platforms. However, e-learning platforms are generally designed to facilitate a 'teacher' and 'student' role division. This intrinsic hierarchy, when imposed on the community, may counteract the aim to become a horizontal, peer-to-peer sharing and learning community. When each functionality in the platform is designed based on the assumption that there is a teacher and there is a student, and they will each fulfil certain tasks and roles, it affects how the members collaborate and communicate in the environment.

The communication functionalities can be any form of sharing information or collaborating, be it document uploading, initiating a chat session, sending an email, starting a new thread in a forum, adding an event to a calendar, or any other form of collaboration. If these activities must always be approved by a 'teacher' before they are made public to the group, it will inhibit the bilateral or horizontal communication amongst participants. Basically it will create an obstacle from the very beginning for your community to reach its goal.

Luckily the e-learning platforms available today are designed with more group learning and interaction principles than a few years ago. However, it is still advisable to consider closely those platforms that were designed specifically with the same goals in mind as those set for the new community. Starting and keeping an online collaborative community is hard enough without building in obstacles from the very beginning. This principle underscores again the need to clearly define your community's goals, before making a choice for a platform. The community needs must be leading, not the technology.

Identity
A community's identity is often fragile yet vital. It sets the framework and influences how individuals interact with each other. The identity of an online community is influenced by a variety of things: the shared values the participants bring to the group, the shared professional expertise, the facilitation methods applied, but also the visual design of the online environment the community is hosted in.

Imagine entering a workshop for professionals in real life and encountering a brightly lit room with wall-to-wall carpeting, tablecloth-covered surfaces arranged neatly in the room and with flower arrangements on each table, versus encountering a candlelight-lit room with beanbag lounging seats, and psychedelic colours painted on the walls. Imagine further, if a presenter arrived either in a dark tailored suit versus overalls and a t-shirt. It is a given that we decorate and fashion spaces, and ourselves, according to the activities and people we expect to encounter.

The manner in which we fashion these is based, among other things, on our preconceived notions and expectations, and varies enormously. However the simple fact that we do, illustrates that visual cues are important for the way we interact. The same is true for online environments.

An online environment, which has a stark white background with minimal colours and font type Arial, generally exudes a conservative, business-like air, whereas an online environment with a magnolia background, playful colouring and font type Comic Sans MS, exudes a more informal air. Being able to dress your platform in a 'skin' which suits your community is important for the identity and interaction style of your community. Thankfully, skinning options are increasingly available in platforms today. However, the

awareness amongst implementers that it is worthwhile (and can be pivotal) to take the effort to give your 'members only' online environment a unique skin, is somewhat lacking. Especially in situations where budgets are restrictive, which is not rare in a development context. The skin or 'dressing up' of the platform is often the first victim to budget cuts, or may be simply seen as not of relevance. Microsoft's SharePoint platform, for example, out of the box is quite stark and businesslike. Google has recently introduced themes for its personalized Google homepage, which can be seen as an indication of the importance of skinning. Even though it is a personal page, being able to add an element of identity to the design was important enough for Google to invest in, assuming your experience of using Google's homepage would be improved. The same applies to group environments.

Sometimes a platform's visual identity may match your community's identity so well that minimal changes are necessary. Or sometimes your community may benefit from inheriting the visual identity of a platform. Take for example MediaWiki, the free open source web-based Wiki software developed to serve the needs of the free Wikipedia Encyclopedia. This software has a strong identity in the world of Web 2.0 and online collaboration. It is an icon in the world of free open source software and online community collaborative initiatives. Hosting a collaborative community in Wikipedia software, and keeping the look & feel of the platform intact, may stimulate the community to follow in the footsteps of others who have contributed, on a volunteer base, to create and share information.

Mediawiki homepage
source: http://www.mediawiki.org/wiki/MediaWiki

Figure 3: Screenshot of MediaWiki.org

To buy or to rent, to outsource or not

When choosing which platform to house your community in, certain options to consider regarding open source software or proprietary software have been covered previously under '*Financial Resources*'.

Buying a license and installing on your own server, or downloading and implementing an open source software package imply a lot of self-management and a need for technical know-how in house. Even if you already have the technical staff, and technical know-how to manage a platform, as well as the technical infrastructure, you need to consider whether it might be more cost-efficient to have experts in the specific platform manage the platform for you. Keep in mind the need for your technical staff to invest time into gaining, and continuously updating, the skills needed to manage the platform securely and competently.

Just as there are options to outsource proprietary software, the same is true for open source software. There are providers who offer open source software packages and who have the technical know-how to manage these securely and competently. Therefore choosing for open source still offers the option to choose to outsource management of the platform/tool.

When you have a choice, in the short term outsourcing often seems to be the more expensive option, but decisions for managing a platform in-house should be taken with a long term vision[ix]. If you include in your calculations the staff time needed to stay up-to-date on the technology, whereas a specialized company will usually have a group of people dedicated to the task, the costs often level out.

The rise of Web 2.0 collaborative tools entails there is a rise of free services available to undertake online collaborative initiatives, seemingly making the decision to buy or rent or outsource somewhat obsolete. However, with many of the Web 2.0 services available today, issues of sustainability need to be considered. Many of these services have been developed with the goal of being bought up by a larger company that can then choose to incorporate the innovation into their own products. The comparative price advantage to rely your collaboration on such a tool needs to be counterbalanced with a strategy to migrate your content if the need arises.

Conclusions

If three months from now you are asked to explain what this article was about, let there be one clear message that sticks with you; matchmaking tools with users is as simple and complex as matchmaking a couple to be married. Take the four issues below into account, and you will prevent ending up with a really bad match. A really good match can be made by adopting the four considerations below and doing thorough in-depth

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research into the needs, demands, goals, context, opportunities and challenges, as covered in this article, and take the time to do it right.

The four main issues that should never be overlooked when deliberating which tool or platform to use for an online collaborative initiative are:

1. the target group
2. the goal of the collaboration
3. the commitment to invest resources
4. the appropriate technology

If these are considered, you can never make the mistake of hosting an e-conference for development professionals in an IBM Lotus QuickPlace environment (bandwidth heavy, file-sharing platform), or host a community of practice of southern professionals in a Blackboard Inc. environment (also bandwidth heavy, e-learning platform).

As these examples indicate, Internet access is an issue which must not, may not, be overlooked when matching tools within a development context. Also relevant within the development context sector is being aware of the fact that most of the online tools and platforms available have not been made with your target group in mind. Be aware that this has certain effects and consequences on the collaboration, the methodologies to be applied, the communication styles used, etc. Being aware of what this entails can help you make a better analysis of a tool/platform beforehand when deliberating whether or not and how to use it.

And finally, there are opportunities to be had within the development sector, with the rise of Web 2.0 tools. Among other things, increased accessibility as well as increased access to social networking tools which can help to conduct development work in a more efficient and effective manner.

Abstract

In the past years information and communication technology (ICT) has become part of many NGOs' and developing countries' strategies to reduce poverty. However, there is not much use of tools that encourage collaborative activity and of participation that encourages users to add value to the application as they use it. Next to that, when these tools are used, many of the projects fail. This paper shows that, in order to be successful, four main issues need to be considered when undertaking a web-based collaborative activity in the development context: the target group, the goal of the collaboration, commitment to invest resources and the appropriate technology. Using these four issues when developing an online collaborative activity will ensure a successful endeavour and prevent a project from failing.

About the authors

Vic Klabbers and *Nynke Kruiderink* first worked together as part of an Internet start-up in the 1990s. They were part of a small team that started The Network University, a virtual University which has won several prizes and which specializes in topics within the development and human rights sector. Vic Klabbers went on to become the executive director of The Network University (www.netuni.nl) and Nynke Kruiderink has continued to work in online learning and knowledge sharing at several international development institutions, currently at the International Institute for Communication and Development (IICD, www.iicd.org).
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Endnotes

[i] In many 'horizontal' communities everybody has the same rights and responsibilities. However, some responsibilities have to be appointed to one or more people (for instance administrative issues, changes in content, etc.). Often these tasks circulate among the users.

[ii] social bookmarks = Social bookmarks allow users to store lists of Internet resources that they find useful. These lists can be accessible to the public by users of a specific network or website. Other users with similar interests can view the links by topic, category, tags, or even randomly. For more information see http://en.wikipedia.org/wiki/Social_bookmarking

[iii] Tag: definition, folksonomies

[iv] RSS feeds = http://en.wikipedia.org/wiki/Rss

[v] Newsreader = A newsreader or feed reader is a client software that uses web feed to retrieve syndicated web content such as blogs, podcasts, vlogs, and mainstream mass media websites, or in the case of a search aggregator, a customized set of search results. 'Fresh results' are highlighted. For more information see http://en.wikipedia.org/wiki/Aggregator

[vi] Wiki = A Wiki is a website that allows visitors to add, remove, and edit content. Wikis allow for linking among any number of pages. This ease of interaction and operation makes a Wiki an effective tool for mass collaborative authoring. Wikipedia, an online encyclopedia, is one of the best known Wikis. For more information see http://en.wikipedia.org/wiki/Wiki

[vii] RAM = Random Access Memory (RAM) is a type of data storage used in computers. It allows stored data to be accessed randomly and without physical movement of the storage medium or a physical reading head (like with a CD-Rom). For more information see http://en.wikipedia.org/wiki/Random_access_memory

[viii] Blog = A blog is short for 'web log': a website where entries are written in chronological order, displayed in reverse chronological order. Blogs can function as personal diaries, or as commentary on any topic such as news, politics, business, etc. For more information see http://en.wikipedia.org/wiki/Blog

[ix] for more information, download the publication *how to cost and fund ICT* by Marc Osten and Beth Kanter, published by ICT Hub; http://www.icthub.org.uk/export/sites/icthub/publications/How-To-CostFund-ICT_web.pdf