Information Management Resource Kit

Module on Building Electronic Communities and Networks

UNIT 3. OPTIONS, CHOICES, TOOLS AND APPLICATIONS

LESSON 1. OVERVIEW OF TECHNICAL OPTIONS

NOTE

Please note that this PDF version does not have the interactive features offered through the IMARK courseware such as exercises with feedback, pop-ups, animations etc.

We recommend that you take the lesson using the interactive courseware environment, and use the PDF version for printing the lesson and to use as a reference after you have completed the course.

Objectives

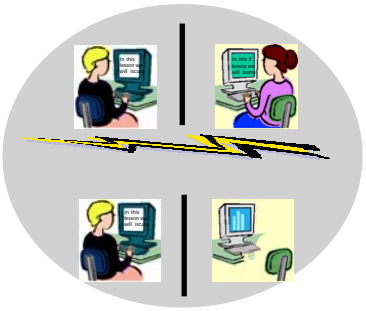
At the end of this lesson, you will be able to:

- distinguish the key features and peculiarities of interactive tools suitable for your online community;
- identify strengths and limitations of e-mail based and web based tools;
- identify strengths and limitations of synchronous and asynchronous tools; and
- decide, in broad terms, which groups of tools are likely to be most appropriate for particular contexts.

Introduction

In this lesson we will discuss the importance of **assessing the technical options** that are available to you for building an online community, and we will have a broad look at **online community tools** available, which – in order to simplify – we distinguish in two **main groups:**

1. **e-mail based** and **web based tools**; and
2. **synchronous** and **asynchronous tools.**



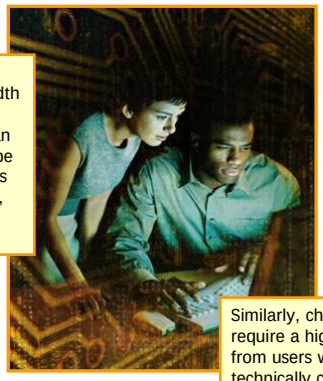
Let's explore key features, strengths and limitations...

The importance of technical choices

The tools you choose for your online community will have an impact on the **effectivness of your community** and on the **level of member participation**.

The right tools will promote effective community building, the wrong ones can actively hinder it.

For example, choosing a tool which requires a high-bandwidth Internet connection and extended online time can mean that online interaction would be easier for community members from "resource rich" countries, where such access is more common.



Similarly, choosing tools which require a high level of skills from users will put the less technically competent members of the community at a disadvantage.

The importance of technical choices

Make sure that your decisions about tools are driven by:

• the **needs** of your target audience, that is the communication and information flows your online community is intended to facilitate;

and

the **context** in which members operate, that is the nature of their Internet access, whether all community members have the same level of access etc..

Let your **audience's needs** and **context** drive the choice of technology; don't let the technology drive the shape of the community.

The importance of technical choices

In your opinion, what should be the main characteristics of the tools you choose for your online community?

Please write your answer in the input box and press “Check Answer”.

Main groups of online community tools

As we said, the main types of online community tools can be described using two main aggregations:

- **e-mail based vs web based tools**; and
- **synchronous vs asynchronous tools**.

Before we explore these categories in detail, we must say that since technology is constantly evolving, these tools and categories are not static.

One result of this constant evolution is **convergence**, the “coming together” of different tools and technologies.

For example, in the past, mobile phones and personal computers were separate technologies which were used to perform different tasks. Now, some mobile phones can be used to access the Internet as well as for making phone calls.

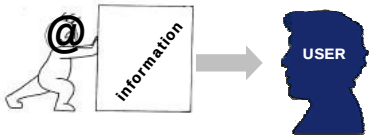
E-mail based tools vs web based tools

Let's have a look at the main features of e-mail based and web based tools.

E-mail based tools

Tools such as e-mail itself, listservs, e-newsletters and site update alerts deliver information and communications straight to users.

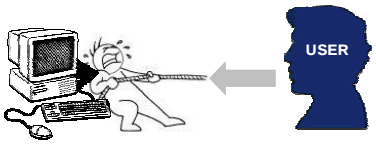
They are often called "**push**" **technologies**, because they *push* the content directly to users.



Web based tools

Tools such as portals, online databases, forum and blogs require the user to go to a Web site to look for information, or to perform a specific task.

They are often called "**pull**" **technologies**, because you need to *pull* users to your site in order for them to access the content.



E-mail based tools vs web based tools

E-mail is the best known example of **pushing information** into the users' view. This application brings the information directly to the users, rather than they having to fetch it themselves.

Publishing information on a **web** page is the opposite. It is available to the users but it is not delivered to them, and it requires willingness on their part *not* to ignore it.

Push and **pull technologies** are often used to support each other.

For example, e-mail alerts (*push*) can drive users to a Web site (*pull*); mailing lists (*push*) can be managed via a web interface (*pull*).

E-mail based tools vs web based tools

This "push/pull" distinction is not restricted to the world of electronic communications.

Traditional knowledge communities have always been confronted with the challenge of opting for direct or indirect delivery, or a combination of both.

The choice of e-mail/web and push/pull technologies will ultimately depend on your audience's needs and specific context. The following sections explore some general points about which tools work well, and which less well, in particular contexts.

E-mail based tools vs web based tools

Example of push/pull technologies in a traditional community

• in online communities you can make **direct deliver** using **e-mail**, **indirect deliver** trough **web pages**, and a **combination of both** in a **mailing list archive on a web page**;

• in a traditional knowledge community, such as an academic one, you can make **direct deliver** using **correspondence or meetings**, **indirect deliver** trough journals, and a **combination of both** trough **transactions and letter publishing**.

Community	Direct delivery (push)	Indirect delivery (pull)	Combination
Online	Electronic Mail	Web Page	Mailing list archive on Web page
Academic	Correspondence, meetings	Journal	Transactions, letter publishing
...	...	...	...

E-mail based tools

Let's see in detail the characteristics of most common e-mail based tools.

Electronic mail was the first practical Internet application, and it is still the most important and widespread.

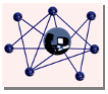
An online community may exist and flourish solely on the basis of electronic mail services, isolated from the world of web pages and instant messaging, but no online community could survive in isolation from electronic mail.

Electronic mail messages are the building blocks of online communities and networks, **because they allow and foster interaction in a easy, fast and economic way.**

E-mail based tools

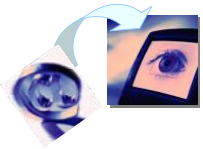
The main e-mail based tools are:

• **e-mail itself**, used to communicate one-to-one by community members, or through multiple-address messages, using "carbon copies", "blind copies" or other multiple addressing features available;



• **mailing lists**, managed with the help of dedicated programs that provide administrative functions as well as message forwarding to all members of the list and archiving;

• **newsletters**, sent to all addresses on a subscriber list, are used to provide information focused on a specific topic and to **promote and support content** published online; and



• **automated mail alerts**, commonly used to inform the users when web pages are modified or a new page is added to a Web site.

E-mail based tools

STRENGTHS

E-mail based tools **strengths** are the following:

- **flexibility**, since it's not necessary to be online at the same time, users with limited time don't have to struggle to schedule times to communicate with other users;
- **immediacy**, near real-time communication is possible if all parties are able to be online at the same time;
- capability of **delivering information automatically** to users;
- **cost-effectiveness:** users are not required to be connected to the Internet all the time. They can download mail and disconnect before reading and composing messages; and
- **accessibility**, e-mail based tools do not require the use of high-end equipment.

E-mail based tools

In your opinion which are the weak points of e-mail based tools?

- ☐ Connectivity costs
- ☐ Speed and quality of access
- ☐ Need to organize and keep track of messages
- ☐ Security risks

Please select the answers of your choice (2 or more) and press Check Answer.

E-mail based tools

WEAKNESSES

E-mail based tools **weaknesses** are the following:

• the "push" aspect of e-mail is a strength, but can also be a weakness. E-mail requires a relatively **high level of effort from users**, they need to decide which messages are relevant and manage and organize them. Because it is so easy to push messages out, users may be faced with mountains of useless and unwanted information, and overlook messages which are both useful and wanted; and

• e-mail based communication is, in general, quite **insecure.** It is possible for messages to be intercepted and read by other parties. It is possible to encrypt messages, but this poses an additional burden on the user.

Web based tools

Let's now explore web based tools.

The Web is very good for **storing**, **finding** and **delivering** information, far better than offline technologies like e-mail.

Some common web based tools for online communities are:

- ordinary **web pages**;
- web based discussion **forums**;
- **online directories**;
- tools which allow the development of Web sites directly from a web browser and with no knowledge of HTML (**blogs**, **wikis, content management systems**);
- scheduling tools such as **calendars**; and
- online **decision support tools**.

And many other tools derived from them.

Web based tools

STRENGTHS

Web based tools are good for:

- document storage and delivery;
- archiving;
- collaborative work;
- dissemination;
- delivering multiple/multimedia formats; and
- security.

See next slides to learn more about these strong points

Web based tools

Document storage and delivery

It would be difficult to build an online community just by publishing static documents on a Web site; the interactivity aspect of communal action and learning would be lacking or poorly served. At the same time, communities are likely to produce bodies of knowledge that are best kept in the form of "documents". **The Web is very effective for storing, ordering, indexing and delivering documents, and can be an essential support asset for mature online communities**, even those based primarily on electronic mail tools**.**

Archiving

The Web's capacity to **interact with other programs** makes it a very effective way to **maintain archives, in particular electronic mail archives.** Again, the Web offers an important support asset for e-mail-based communities, adding value to the exchanges that took place in the past by making them accessible today. Mail archives can constitute important bodies of knowledge. As in the case of documentation, the Web provides us with the tools to index, search and order archive items in useful ways (for example, by *threading* discussions, making them easy to follow later).

Collaborative work

A Web site is like a meeting point which users come to in their own time, and are met by a familiar environment which they share in common. **Because of the Web's ability to deliver practically any computer functionality to remote users, it is a very effective tool for collaborative work.** Users may be presented with tools that allow them to modify a database, react to existing items of information, edit documents already in storage, and so on.

Web based tools

Dissemination

The Internet is still not quite as universal as television, but it is a much more **flexible and powerful tool for delivering specific information to diverse audiences.** In addition, it can accommodate a much wider variety of delivery formats.

Delivering multiple/multimedia formats

Although e-mail can transport anything that can be contained in a computer file, it cannot compete with the ability of the Web to deliver non-textual information. The modern web browser is not only very good at displaying richly formatted text, it is just as good at displaying pictures, playing videos and music, and running programs that interact with the user to generate complex objects in any format. **If there is a consistent need to share or deliver non-textual information, it can only be properly addressed by a Web site.**

Security

The Web provides very robust data security and protection, without the need for user intervention. Using a technology called SSL (Secure Sockets Layer), data can be encrypted before being sent through the internet. A **Web site that can be made secure without burdening the user has a definite advantage over regular e-mail.**

Web based tools

WEAKNESSES

The weak points of these kind of tools are:

• **connectivity costs:** working with content stored in a Web site requires that users remain online for the entire time. Where connectivity costs are high, heavy use of web based tools is not appropriate; and

• **speed and quality of access:** even if cost is not a major issue, web based tools may be extremely slow and cumbersome to use if users are dependent on poor quality or slow connections.

In both cases, making extensive use of web based tools may foster inequalities across your online community by giving advantage to members with high-level access, and placing obstacles in the face of members from resource poor contexts.

Convergence

While the broad aggregations of tool previously described are useful to have an idea of what is available, you should always take into account the phenomenon of **convergence**, which has resulted in an increasing number of tools being available via a web interface.

E-mail is the most notable example: while it remains an independent service that can exist separately from the Web, the fact is that today **most e-mail is read through the Web**.

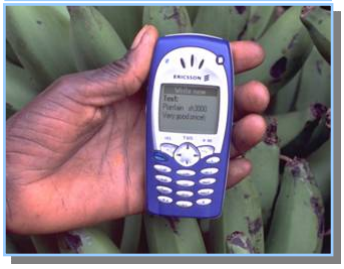
Web mail has opened the world of e-mail to millions of users, many of whom are in developing countries and rely on Internet cafés for access.

Convergence

Convergence is an important concept for those working in agriculture and rural development.

As you will see in the following examples, the compatibility between different ICTs (such as e-mail and mobile phones) offers possibilities for bridging the 'communication gap' in areas where telecommunications infrastructure is weak.

Accessing Market Information by Mobile Phone



Convergence | **Accessing Market Information by Mobile Phone**

The Kenya Agricultural Commodity Exchange (KACE) Limited has developed a Market Information System designed to help farmers, especially smallholder poor farmers in remote rural areas, to access better markets and prices for their produce. As part of this, KACE has partnered with a mobile phone company to provide a service where people can access market information like commodity prices in different markets, who is buying or selling what commodity, at what prices, where and when, as well as access extension messages, using mobile phones and Short Messaging Service (SMS). This information service is made possible by combining several ICTs: computer databases, the Internet, and mobile phones.

A similar service exists in **Uganda.** In 1999, the International Institute of Tropical Agriculture (IITA) established a National Market Information Service in Uganda. This service collects market data on 19 different agricultural commodities from 19 market centres across the country on a weekly basis, and from the country's main wholesale markets on a daily basis. The information is processed, compiled in databases, and disseminated through various radio stations, national newspapers and by e-mail and fax to major trading companies, government departments, agricultural development agencies and famine early warning agencies.

	Kampala						
	Kisenyi	Ovino	Nakawa	Arua	Gulu	Hoima	Iganga
Matoke		200	200	500	370	200	360
Fresh Cassava		300	300	400	128	250	300
Sweet Potatoes		300	300	400	225	300	280
Irish Potatoes		400	400	650	600	300	500
Beans	700	700	800	500	800	950	700
Beans Other	900	700	800	600	750	1,000	700
Cassava Chips	300			350	280	350	280
Cassava Flour	400	400	400	500	680	400	350
Groundnuts	1,500	1,500	1,600	1,400	1,500	1,200	1,400

Since 2003, the National Agricultural Advisory Services in Uganda has established localised market information services in a pilot project. These services are designed to meet the information needs of grassroots agricultural actors, especially local farmers and small-scale traders. Data on prices, traded volumes, market flow, growing conditions and other relevant information is collected from villages and market centres in several districts and, together with relevant national and regional information, is disseminated in local languages by local FM radio stations. The projects can receive and disseminate instant reports through SMS on changing market prices.

Find out more: http://www.foodnet.cgiar.org

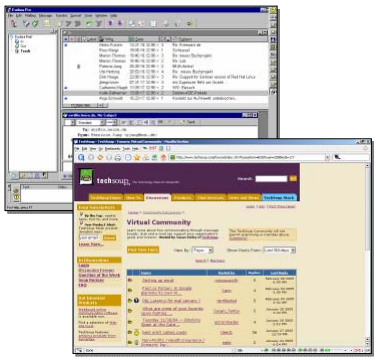
Synchronous vs Asynchronous tools

Let's now have a look at the other group of technical options, exploring the main features of **synchronous** and **asynchronous** tools.

Synchronous tools
Tools such as instant messengers, Internet Relay Chat (IRC), and virtual whiteboards **require** the parties who are communicating to be **online at the same time**, just as both parties to a telephone call.

Asynchronous tools
Tools such as e-mail and web based discussion forums **do not require** people who are communicating **to be connected at the same time**. This kind of communication, just as postal letters do, allow a "conversation" to be spread out across time.

Asynchronous tools



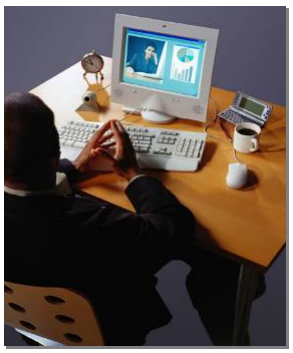
The most common **asynchronous tools** are:

- **e-mail based tools**; and
- **web based tools**, such as web based discussion forums and bulletin boards.

These tools and their main strengths and limitations are outlined next.

Synchronous tools

Common **synchronous tools** for online communities are:



- **instant messengers and IRC**, tools which allow people to have text-based conversations online in real time (some tools also allow the exchange of documents and graphics, and even the holding of "voice" conversations);

- **virtual conferencing programs**, which include tools such as whiteboards and other shared applications, allow all participants in the online conference to see the same screen live at the same time; and

- **online video conferencing tools**, which use the Internet to translate live sound and images.

Synchronous tools

STRENGTHS

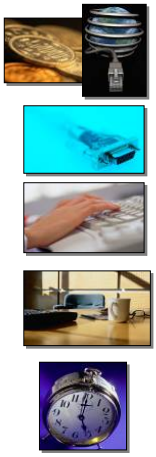
The most obvious advantage of synchronous communications is **immediacy** and the **ability to sustain interpersonal and group "conversations"**. It is the closest approximation to meeting someone or a group of people face-to-face. Tools with voice services are in this respect even better, and cheaper, than the telephone.

Furthermore, this kind of tool is particularly good for:

- **quick consultations** and **decisions**; and
- providing a useful **supplement to asynchronous tools** (for example, documents can be distributed to a group by e-mail – and quick consultations on changes done using synchronous tools).

Synchronous tools

WEAKNESSES



- The fact that these tools require users to be simultaneously connected is a weakness in terms of **costs** (because online time is costly) and **fruition** (because participants are spread out across time zones).
- tools which rely on the use of graphics or video may be **inaccessible to users with poor bandwidth**;
- text-based tools can place non-native speakers and people who type slowly at a **disadvantage**;
- our availability status needs to be advertised for colleagues to contact us, resulting in a trade-off against **our privacy** (this means for example, that we are granting others the ability to keep track of our working or waking hours, and of how often we are at our desk).
- synchronous tools allow **little time for reflection and for editing** of what is written (unlike e-mail messages which we can write, edit, and think about before sending).

Synchronous tools

These pairs of statements relate to the **strengths** and **weaknesses** of types of tool. Match each statement on the left with a statement on the right.

a	Problematic for users with poor or limited connectivity.	A strength of e-mail based tools.	1
	Generally less secure than web based tools.	A limitation of synchronous tools.	
	Good for quick consultations and decision making.	A limitation of e-mail based tools.	
	Allow users to reflect on and edit messages before sending them.	A strength of synchronous tools.	

Click on each option, drag it and drop it in the corresponding box.

When you have finished, click on the Check Answer button.

Change is the only constant

Technological changes cannot be predicted, but we can prepare for them by adopting tools that will not tie us too tightly to any particular tool, technology or standard.

Even if we cannot predict **exactly** what new technologies will be developed and how existing tools will evolve, there are certain broad trends which we can bear in mind in our planning.

One trend, previously mentioned, is that Internet tools are tending to evolve towards **convergence**.

Summary

The tools you choose for your online community can actively help or hinder your community interaction. Make sure that your community's needs drive your choice of tools – not the other way round.

Tools can generally be grouped into e-mail based ("push" technologies) and web based ("pull" technologies) tools, and into synchronous and asynchronous tools.

If you want to learn more...

Synchronous vs Asynchronous Interaction
http://www.webcrossing.com/WebX?50@209.KKfVaUbGsAZ.3@.f6ede4f

Synchronous-Asynchronous
http://mitpress2.mit.edu/e-books/City_of_Bits/Electronic_Agoras/SynchronousAsynchronous.html

Synchronous and Asynchronous Communication Tools
http://www.centeronline.org/knowledge/article.cfm?ID=2587

Electronic Agoras
http://mitpress2.mit.edu/e-books/City_of_Bits/Electronic_Agoras/index.html

What types of virtual communities can I build and what tools are available?
http://www.fullcirc.com/community/communitytypes.htm