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Guidelines on the use of electronic networking to facilitate regional or global research networks

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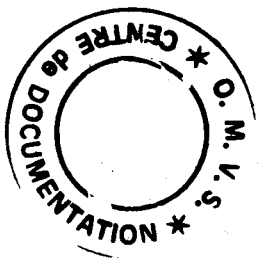
Résumé

Les développements récents des technologies de l'information et des communications (TIC — y compris le développement rapide de l'infrastructure des télécommunications et la croissance d'Internet) ont sensiblement réduit les entraves à la collaboration entre les chercheurs dans les pays en développement. Le maillage électronique offre aux chercheurs de n'importe où la possibilité de communiquer avec des pairs de leur domaine et d'accéder à des renseignements de recherche précieux sur Internet. Toutefois, si ce problème a été éliminé, il reste de nombreuses autres entraves à une collaboration électronique efficace. Ce document présente certaines des grandes questions dont il faut être conscient quand on parle de collaboration par voie électronique.

Abstract

Recent developments in information and communications technologies (ICT) — including the rapid spread of telecommunications infrastructure and the growth of the Internet — have dramatically lowered the barriers to research collaboration in the developing world. Electronic networking offers the potential for researchers anywhere to communicate with peers in their field and to gain access to valuable research information via the Internet. However, while the problem of access is a substantial hurdle which has been overcome, there are many other barriers to successful electronic collaboration. This paper highlights some key issues to be aware of in fostering electronic collaboration.



Introduction

"For 25 years, IDRC has invested funds, time and intellectual attention to the development of networks. Over the past decade, it has allocated approximately 30% of its budget to network arrangements in all sectors, within and across all regions, both alone and in association with other donors and institutions. The aim has been to foster interdisciplinary research, improve policy development, link diverse user groups, strengthen national research systems and encourage comparative analysis. IDRC's substantial experience with networks, some of which is formally documented in evaluations and staff papers, has led it to recognize that networks are an important way to organize resources for development-related research. The viability and usefulness of networks are increasing due to wider access to improved communication and information-management technologies."[1]

Historically, difficulties with communications between researchers have impeded both the speed and effectiveness of research networks. Typically, regional or global networks have had to rely on annual conferences and the dissemination of information via print media to share information between researchers. As a result, regional or global research collaboration, while expressed as a goal, has been extremely difficult to implement in practice. This is particularly true in developing countries where postal and telephone infrastructure may not be entirely reliable.

The rapid growth of the Internet and recent improvements in telecommunications infrastructure in the last few years have brought profound changes to most of the developing world. In a few short years, access to electronic mail and the Internet has become a practical possibility for almost any researcher with access to a computer and a telephone line. The use of electronic mail and the Internet for access to information, dissemination of information, and collaboration is typically referred to as electronic networking.

Benefits of electronic networking

While there are many benefits to electronic networking, it is important to recognize that it is not a substitute for face-to-face meetings or for more traditional means of gathering and disseminating information. Electronic networking is a tool for enhancing the effectiveness of face-to-face meetings and for complementing existing methodologies for gathering and disseminating information. Information resources

[1] Bernard, Anne K. September 1996. IDRC Networks: An Ethnographic Perspective. Evaluation Unit, Corporate Affairs and Initiatives Division.

should be seen in the context of a continuum which comprises a spectrum of information resources from paper (hard copy) to multimedia resources.

Having said that, there are clear benefits to the use of electronic networking which are summarized below.

Time and logistics

Perhaps the most important feature of electronic networking is its ability to allow people to share information dynamically. Not only can researchers share information almost immediately with their peers, but they are not bound to communicate at specific times as would be necessary in a telephone conference. Users can access their correspondence at their convenience. This is especially important in situations where networks span several time zones and when busy schedules make coordination difficult.

Access to information is substantially quicker via electronic networks as well. Research papers which were once hard to find and slow to obtain are now often available within minutes via the Internet. Information dissemination is quicker and more effective. A paper published on an Internet website immediately benefits from having a global audience.

Multi-stakeholder involvement

Electronic mail and the Internet are rapidly spreading to nearly every sector of society. This includes government at the local, regional, and national level; educational institutions; industry; and the public at large. Thus, it is becoming more and more feasible to establish multi-stakeholder consultations and discussions in a manner which is both effective and relatively inexpensive. This does not mean that electronic networking is an effective tool for grassroots consultations yet — but even the potential for that is foreseeable in the near future.

Cost saving

While there is an up-front cost to establishing electronic networks, the benefits rapidly outweigh the costs, especially in the area of regional and international communications. Electronic mail is dramatically less expensive than either telephone or fax and the access to information is typically much less expensive. Not all information accessible via the Internet is free but much is available at no charge or at very low cost. An unforeseen development of the economics of the Internet has been a reduction in the cost of historically expensive information resources. Many publications that charge for their printed versions provide the same information free or at reduced rates on the Internet.

Prerequisites for electronic networking

Connectivity

Access

A connection to electronic mail and the Internet is the basic requirement for electronic networking. While access to these services in many parts of Africa is still expensive compared to North America, trends indicate that these costs will diminish sharply over the next couple of years as telecommunications infrastructure rapidly becomes more pervasive. New technologies such as wireless and satellite communications will ensure that even remote areas may gain access to these resources.

However, physical access to telecommunications infrastructure is not always enough. It can sometimes be as much a political issue as one of infrastructure. Management and administrative staff within organizations (more typically bureaucratic organizations) may feel threatened by the introduction of electronic mail and the Internet. It may be perceived as a mechanism for undermining both authority and existing administrative procedures. Great care needs to be taken to ensure organizational buy-in to electronic networking as well as buy-in from the researchers themselves. Failure to obtain commitment from organizations can result in requests for access being blocked or else restricted to the point of services becoming unusable.

Training

Equally important to the success of electronic networking is adequate training, not just in understanding the use of electronic networking tools but also in the strategic use of those tools.

Support

Yet another critical component of fostering an electronic network is the provision of technical support to researchers until they are confident in overcoming technical problems that may arise in using electronic mail and the Internet.

Commitment

Once access is established for members of a research network, the single most important ingredient to ensure its success is commitment from members of the network to the concept of electronic networking. Without this fundamental buy-in,

any electronic network is doomed to failure. The reason for this is that it requires more effort than any organization currently expends to share information within the context of an electronic network. The benefits of such information sharing are extremely powerful, yet it is important to realize that this sharing constitutes a new kind of work not currently being undertaken by partner organizations.

Having obtained commitment from partner institutions, what are the roles of research partners within an electronic network and what responsibilities do they carry? The roles can be divided into three categories:

Consumer

As information consumer, the researcher has access to the wide range of information and resources available on the Internet. While it takes time to develop the information searching skills required to efficiently locate relevant information via the Internet, few would deny the tremendous value of such information.

The responsibility of the researcher as information consumer is to develop the skills required to both locate and critically evaluate sources of electronic information.

Producer

The Internet offers tremendous potential to researchers who are dealing with the question of information dissemination. As mentioned above, publishing research material on the Internet can instantly make research material available to a global audience.

The responsibility of the researcher as information producer in this context is to ensure that information made available electronically is well presented, easy to find, and consistently up-to-date.

Collaborator

Perhaps the most exciting concept made possible by electronic networking is that of online collaboration. Currently, this is most typically achieved through electronic mail and electronic mailing lists. It is possible to create private lists for collaboration within a specific group of people. It is also possible to participate in public, thematically based lists that are open to anyone. There are two features that are key to successful collaboration via electronic mail. They are:

Concrete goals

Any meeting benefits from having a solid agenda. This is particularly true of electronic collaboration. It is not sufficient to create the space in which to collaborate One must have a concrete purpose specified in as much detail as possible and a timetable for achieving it (if feasible).

Active facilitation

Because the skill of participants in electronic networks varies substantially and because different people will have more or less time to participate depending on their schedules, it is absolutely essential to have someone dedicated to facilitating the electronic collaboration. The role of the facilitator is to:

- stimulate discussion;
- regularly summarize debate;
- draw in inactive participants; and
- assist participants who are new to electronic discussion.

Cost of access to ICTs in Africa

The average cost per month in Africa for five hours of Internet access is US $60.[2] This average has not changed substantially in the last two years. However, general quality of access (speed and reliability) has increased, and there is every indication that access costs will decrease sharply in the next couple of years due to the rapid spread of telecommunications infrastructure throughout the continent. In West Africa, costs are typically slightly lower than the continent's average, a notable exception being Bénin with an average cost of US $100 per month.

While the general cost of access is high in comparison to those in North America or Europe, even the most expensive Internet connection in Africa has the potential to save money and increase efficiency for most organizations over a relatively short period. This certainly true for any organizations that communicate internationally, whether by phone or fax.

Other issues

The rapid evolution of Internet-based information services has brought about a number of problems, particularly for the information consumer. Some of these are:

Too much information

The Internet has become a vast mine of information and the tools to quickly and effectively search that information have not yet evolved. Carrying out research on the Internet requires patience and ingenuity.

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[2] Based on Mike Jensen's Continental Connectivity Indicators at http://www3.sn.apc.org/africa/afstat.htm

Quality of information

Unlike print publishing, publishing information on the Internet is extremely inexpensive. While this is a positive force for democratizing information, the absence of significant financial commitment has resulted in an environment where less care is sometimes taken to ensure the accuracy of the information published. Information found on the Internet needs to be carefully evaluated for its authenticity. Beware of information sources that come from organizations or institutions with which you are not familiar and always cross-reference sources when possible.

Updating information

When accessing the Internet for the first time, many people fail to recognize that it is not a static information resource, but a dynamic one. The task of creating a website is not a one-time affair but a continuing commitment to information sharing. Websites that are not up-to-date are seldom re-visited and this will have a significant impact on the effectiveness of information dissemination via the Internet. Conversely, as an information consumer, it is important to check whether information you find is obsolete or not.

Conclusion

Electronic networking offers the potential for researchers to collaborate in ways that were previously unimaginable. However, it is unlikely to reduce the workload of researchers. While electronic networking may increase the effectiveness of a research network by more than 100%, it is also likely to increase the workload of researchers. This additional work can be offset to a degree by dedicating resources to facilitating networks. However, the end result is that by increasing access to research peers, correspondence increases and correspondence takes time — as does electronic publishing and Internet-based research.

In summary, electronic networks offer tremendous benefits. But being well-prepared for their use and committing of adequate resources for their support will ensure that maximum benefit is derived from their use.