THE IMPACT OF INFORMATION AND COMMUNICATIONS TECHNOLOGY ON VOLUNTEER MANAGEMENT

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Introduction

The advent of computers and the information technology that accompanies them has clearly had a huge impact on the way organizations of all types and sizes do their work (Kuutti, 1996; Stanback, 1987). What has become known as the Information and Communications Technology (ICT) "revolution" has improved efficiency and effectiveness in most sectors of the economy (OECD, 2000, 2002; Thompson, 1998; Warren & Weschler, 1999). By allowing organizations to create and analyze important new information, it has also changed the way major decisions are made (Rocheleau, 1999). In both business and government, the growth of the Internet and its related software has spawned new ways of conducting business (OECD, 2000, 2002; Langford & Harrison, 2001; Nahar, Najmul, & Tepandi, 2000; Rocheleau, 1999; Segil, 2001; Warren & Weschler, 1999; West, 2000).

Information and communications technology use

- Most volunteer programs in Canada are at a basic level in the use of information and communications technology, using their Web sites primarily to host information about their programs.

- Online matching services are still not a major source of recruits for most volunteer programs.

- Lack of money was the biggest barrier to increasing the use and effectiveness of information and communications technology in volunteer programs.

- The top improvements that managers of volunteer resources wanted were: more interactive Web sites, more training, more volunteer management software, and more volunteer Internet access points.

Little research has been conducted on the impact of the ICT revolution on the voluntary sector. The research that does exist, however, suggests that the sector lags behind business and government in ICT applications but is progressing rapidly, especially in Canada (Parmegiani & Sachdeva, 2000). An area that has received even less attention is the impact of ICT on volunteering and the management of volunteer programs.

This report summarizes the results of the first Canadian study of the use of computers and information technology in volunteer programs. More specifically, it looks at:

- how much and what kind of ICT is used by managers of volunteer resources;

- factors associated with different patterns of ICT use;

- the extent to which managers of volunteer resources are satisfied with ICT use in their volunteer programs; and,

- what would lead to better use of ICT in the recruitment and management of volunteers.

The research process

We asked managers of volunteer resources, volunteers, and prospective volunteers to respond to questionnaires dealing with ICT-related matters. These questionnaires were based on earlier interviews, pilot tests, and a review of the relevant literature. The questionnaires were completed in the fall and early winter of 2001–2002.

The data for this report came from two groups of respondents. The first group — the "regional group" — consisted of managers of volunteer resources who were members of Volunteer Victoria, a volunteer support and referral organization covering the Capital Regional District of Victoria, B.C. We mailed 250 questionnaires to this group and 129 were returned for a response rate of 52%. The second group — the "national group" — consisted of managers of volunteer resources from across Canada who were on the Internet mailing list of Volunteer Canada, a national association promoting and supporting voluntarism on behalf of volunteer centres across the country. We sent 1,100 surveys to this group by e-mail. Of these, 365 were returned for a response rate of 33%. In total, we received information on ICT use from 494 managers of volunteer resources.

It should be noted that these respondents cannot be considered a representative sample of all volunteer-using organizations in Canada. The regional group all came from a middle-sized city in one part of the country. Moreover, not all of Victoria's voluntary organizations belong to Volunteer Victoria. The national group, reflects most of the provinces (but not the territories), and was restricted to managers who use e-mail. In spite of these limitations, the total sample represents a diversity of nonprofit organizations in terms of their location, organization

Table 1

Geographic distribution of the national sample

	Frequency	Percent
British Columbia	55	16
Alberta	45	13
Saskatchewan and Manitoba	34	10
Ontario	167	49
Quebec	21	6
Atlantic Provinces	20	6
Total	**342**	**100**

Table 2

Characteristics of participating organizations

	Regional n	National n	Total n	Total %
Organization budget size				
Less than $50,000	18	51	69	14
$50,000-250,000	34	82	116	24
$250,000-500,000	15	42	57	12
$500,000-1,000,000	16	69	85	18
Greater than $1,000,000	37	121	158	32
Total	**120**	**365**	**485**	**100**
Organization type				
Social services	49	119	168	34
Health	38	105	143	29
Other	15	43	58	12
Environment	3	44	47	10
Arts and culture	8	18	26	5
Education	11	7	18	4
Sports / recreation	3	15	18	4
International aid	0	9	9	2
Religious	0	5	5	1
Total	**127**	**365**	**492**	**100**
Program size (*number of volunteers*)				
Less than 10	9	22	31	6
11-25	22	40	62	13
26-50	22	43	65	13
51-75	10	24	34	7
76-100	18	44	62	13
101-200	25	69	94	19
Greater than 200	18	123	141	29
Total	**124**	**365**	**489**	**100**

size (as reported by the size of the budget), mission, and number of volunteers (see Tables 1 and 2).

As Table 1 shows, nearly half (49%) the respondents in the national group came from Ontario. Organizations of all sizes, from large to small, were included in the sample. While organizations in the social service and health fields were dominant, responses were also received from many other types of organizations. The size of the volunteer programs was also quite diverse, with a somewhat larger representation from organizations that had over 200 volunteers.

Findings

ICT use by managers of volunteer resources

Overall use

For the purposes of this report, Information and Communications Technology (ICT) is broken into three categories:

1. Hardware — the equipment or machines that facilitate information and communications processing, including personal computers, fax machines, cellular phones, and handheld computers.

2. Software — the programs that are used to run the hardware. The most unique for volunteer programs is specialized volunteer management software for keeping track of volunteers, volunteer positions, schedules, etc.

3. Internet and applications — the network infrastructure that is used to facilitate communications via e-mail, Internet searching, and the transfer of information using Web sites.

Figure 1 shows what types of ICT respondents were using in the fall and winter of 2001–2002.

Respondents in both the national and regional groups were fairly well equipped with the basic ICT tools. While they were not big users of cellphones and hand held computers such as Palm Pilots, the vast majority had access to personal computers (89% of the national group and 94% of the regional group) and fax machines (87% of both groups). Only a comparative few used specialized volunteer management software to recruit, assign and track their volunteers (29% nationally and 15% regionally). The majority of managers had access to the Internet (95% nationally and 90% regionally), e-mail accounts (100% nationally and 72% regionally) and made use of organization Web sites (90% nationally and 78% regionally). The regional group fell behind the national group only in its use of specialized software and its use of some aspects of the Internet. This is probably because the national group, comprising an electronic distribution list, was biased in favour of the more technologically sophisticated members of the voluntary sector. The regional group may be more typical of the majority of organizations in the sector.

Figure 1

ICT use in national and regional groups
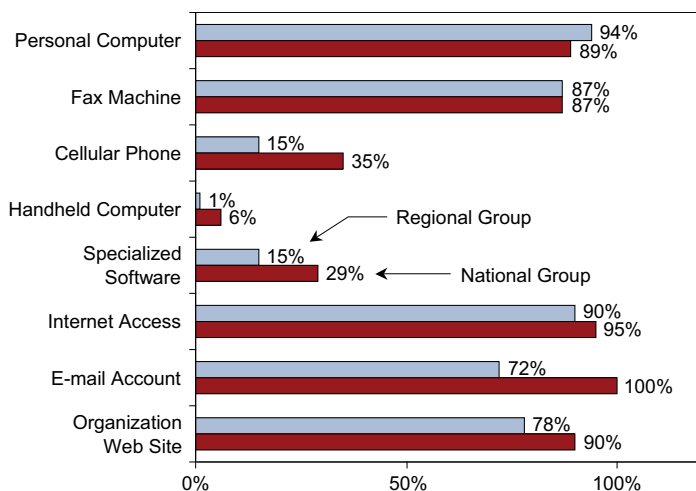
Web site use

As use of the World Wide Web continues to grow in Canada, so does its value for volunteer programs. Over the past five years, businesses have been discovering the potential of "e-business." More and more businesses are using the Web to inform their customers about their products and to do business transactions with customers, suppliers, and other stakeholders. In the case of volunteer programs, phenomenon could be called "e-connectivity."

There are three levels of e-connectivity. Level 1, the most basic, is called "information hosting." This level consists solely of providing information about an organization's volunteer program on the Web site. This can range from basic information and links to other relevant Web sites to more detailed content on available openings for particular volunteer positions, and downloadable application forms that can be mailed back or brought in by prospective volunteers.

Level 2 is called "interactivity." This level consists of various kinds of two-way communication carried out within the online environment. This may include allowing potential volunteers to apply for positions online and using online "listservs" (an e-mail-based group discussion tool) so that managers and others can send messages back and forth to all of the volunteers on the list. Online discussion groups serve a similar purpose, but deal with specific topics. Online surveys can be used to poll volunteers on matters concerning them.

Level 3 is called "horizontality." At this level organizations collaborate by sharing useful organizational information through linked databases. For example, a prospective volunteer could apply to multiple organizations by submitting a single application that is automatically distributed to all the organizations that are linked together.

Figure 2 provides detailed information about the level of e-connectivity of the volunteer programs in our study. Table 3 shows how many fall into each broad level of e-connectivity.[1]

Most volunteer programs from both the regional and the national groups were still at Level 1, using their organization's Web site primarily to host information about their volunteer programs and, to a much lesser extent, their volunteer positions. Level 2, interactivity, is still in its infancy in volunteer programs. Only about one-third of our sample used Web sites for online volunteer applications, listservs, discussion groups, or surveys of volunteers. Even fewer organizations (4% overall) were at Level 3, sharing databases with other agencies.

E-mail use

The top four uses of e-mail among our survey respondents were as follows (see Figure 3):

Figure 2

E-connectivity in national and regional groups

	Frequency	Percent
Level 1: Information hosting	233	67
Level 2: Interactivity	107	31
Level 3: Horizontal level	8	2
Total	**348**	**100**
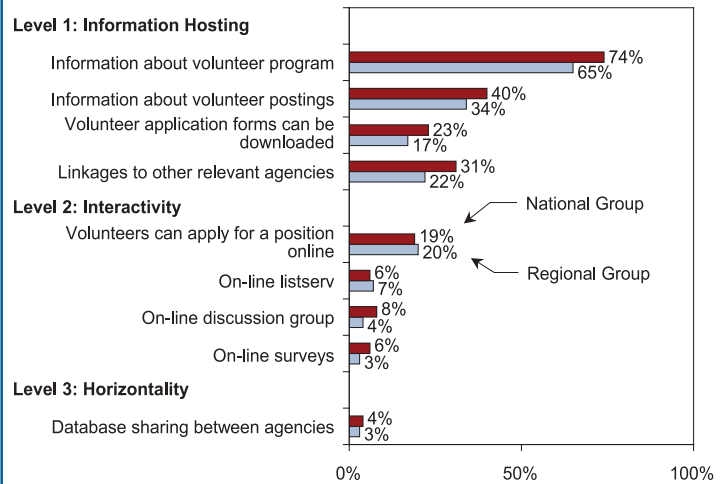
Table 3

Levels of e-connectivity

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[1] Organizations were judged to be at level 1 if their Web sites had any one of the information hosting features, level 2 if they had level 1 plus any one of the level 2 features, and level 3 if they had level 1 and 2 as well as the horizontality feature.

- sharing information with colleagues in other organizations (86% nationally and 85% regionally);
- sharing information with management and staff within their own organization (82% nationally and 80% regionally);
- notifying volunteers of events and meetings (74% nationally and 71% regionally); and,
- communicating with volunteers about their position or work schedule (64% nationally and 67% regionally).

Respondents tended to use e-mail more to share information internally and externally with staff and colleagues than to communicate with volunteers.

Online recruitment of volunteers

One of the innovations brought to the world of volunteer management by the ICT revolution has been the emergence of online recruitment services. It has long been a challenge for many volunteer programs to locate and attract potential volunteers. Agencies have depended on such methods as advertisements in the media, word-of-mouth, and the use of central volunteer bureaus, which build files of volunteer opportunities and help to match prospective volunteers to the best opportunities for them.

Volunteer matching is ideally suited to computerization. As a result, a number of such programs have emerged. Two of the better known and more widely used programs are the VICTA program, developed in 1996 by Volunteer Victoria and adopted by about 50 volunteer centres across North America; and, the Volunteer Opportunity Exchange (VOE) started in 1998 by Volunteer Canada. The former contains only volunteer opportunities offered by the locally-based members of the volunteer centre that adopts it (in the case of this study, Volunteer Victoria). The latter contains volunteer opportunities from across the country and is open to volunteers everywhere. Our research sought to find out the extent to which these online volunteer recruitment services were being used, and how satisfied managers of volunteer resources were with them.

VICTA

Seventy-seven respondents (60% of the regional group) reported using VICTA in the year prior to answering the questionnaire and said that, on average, they obtained 10% of their volunteers through the service. Specifically, 20% reported obtaining no volunteers through VICTA; 33% said they obtained between 1 and 10 volunteers this way; 36% obtained between 11 and 50; and 11% obtained between 51 and 100.

VOE

Three hundred and six respondents (66% of the national group) said they were registered with the VOE. Of these, 88 (29%) said that they had posted one or more volunteer positions on it in the previous year. Seventy percent of organizations that posted positions on the VOE reported receiving fewer than five inquiries; 80% reported making fewer than five placements.

In general, while online volunteer matching services are still not a major source of recruits for most volunteer programs, the locally-based systems offered by volunteer centres appear to be used more frequently

Figure 3

E-mail use in national and regional groups
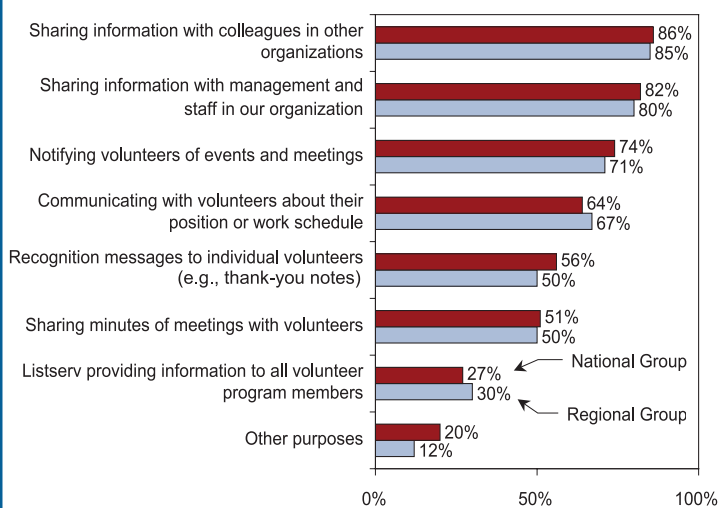
by both organizations and potential volunteers than the national system.

Factors associated with ICT use in volunteer programs

There is considerable variation in ICT use among the different kinds of voluntary organizations represented in our study. What accounts for this variation? While a one-time questionnaire study such as this does not permit us to make any statements about causes, it is possible to identify factors that may be associated with ICT use patterns. Further research could explore whether these factors have a cause-and-effect connection to ICT use or whether they are due to some other influences.

Factors that may be related to ICT use patterns can be grouped into three categories:

1. Individual characteristics of managers of volunteer resources

For example, are male managers more or less likely to apply ICT than female managers? Are there differences associated with the level of formal education achieved by managers of volunteer resources? How about the amount of prior experience they have with computers or, the amount of time they have been in the profession?

2. Organizational characteristics, such as size and mission

Are larger organizations or organizations based in certain sectors such as the arts or social services more or less likely to differ in their ICT use patterns?

3. Volunteer program characteristics

This refers to the overall size (number of volunteers) of the program and its relative size within the organization (as measured by the size of its budget relative to the overall organizational budget). There are also factors within volunteer programs that may affect use patterns, such as how much of the program's budget is allocated to ICT, how much technical support is provided for ICT and the extent to which there are explicit policies and guidelines established for ICT use.

Details on how the above factors were defined and measured can be found in Appendix A.

Individual characteristics

Education and prior experience with computers and related skills do not appear to be strongly related to ICT use. However, there were differences in the use patterns of men and women, and in the use patterns of experienced and inexperienced managers. Male managers were more likely to have access to all four types of ICT tools (PC, fax, cellular phone, and handheld computers). Female managers and managers with less job experience, on the other hand, were more likely to use online recruitment systems to recruit volunteers. This suggests that women and relative newcomers to the profession of volunteer management were more willing to try innovations like online recruiting systems.

Organizational characteristics

Organizational factors were either difficult to establish or less noteworthy than individual factors. We looked first at how ICT use patterns varied between organizations in the different sub-sectors of the nonprofit world. Although there were insufficient numbers in each sub-sector to permit statistical tests of the differences, there were some obvious variations. Organizations in the international aid and sports and recreation sub-sectors used the most (all four) ICT tools while those in the arts and culture and environment sub-sectors used the fewest (only one). Arts and culture organizations were also the least likely to use e-mail to communicate. Faith-based and education groups were more likely than other types of organizations to use the Internet to communicate.

Managers of volunteer resources in large organizations (those with annual budgets of more than $250,000) used e-mail for personalized messages (e.g., recognition and scheduling) rather than for distributing information (e.g., minutes) more often than those in smaller organizations. It is possible that managers in large organizations use e-mail to manage relationships because time pressures prevent them from using the more personal communication methods, such as the telephone or face-to-face meetings.

Volunteer program characteristics

While the size of the volunteer program (number of volunteers it services) was not, by itself, associated with any ICT use patterns, it was associated with use patterns when combined with other factors. For example, organizations that allocated more than 10% of their budget to the volunteer program and had more than 75 volunteers demonstrated more Web site interactivity than organizations that allocated the same proportion of their budget to the volunteer program but had fewer than 75 volunteers. Also, organizations with ICT policies and guidelines that had more than 75 volunteers had Web sites that were less interactive. This suggests that those who work in environments with formal rules and controls that cover the use of ICT are more wary about using it in new and different ways.

The strongest correlate of ICT use was the size of the volunteer program's budget relative to the size of the organization's total budget. Volunteer programs that received more than 10% of their organization's total budget had more interactive Web sites and more ICT tools, and used ICT to communicate more personalized messages. This suggests that the size of the volunteer program budget reflects the importance that the organization's leadership places on its volunteer program. A program that is considered important receives more funding and is thus more likely to get the most out of whatever ICT has to offer.

Perceived barriers to ICT use

Respondents were asked to identify what they perceived as the main barriers to increasing the amount and variety of ICT use in their volunteer programs (see Figure 4). The most commonly reported barrier was "not enough money," identified by 38% of the national group and 43% of the regional group. Second was "other priorities for my time come first" (23% nationally, and 22% regionally). Interestingly, few respondents reported lack of knowledge or training in ICT matters as barriers. This suggests that many would be willing to make improvements to the way they use ICT if they had the time and money.
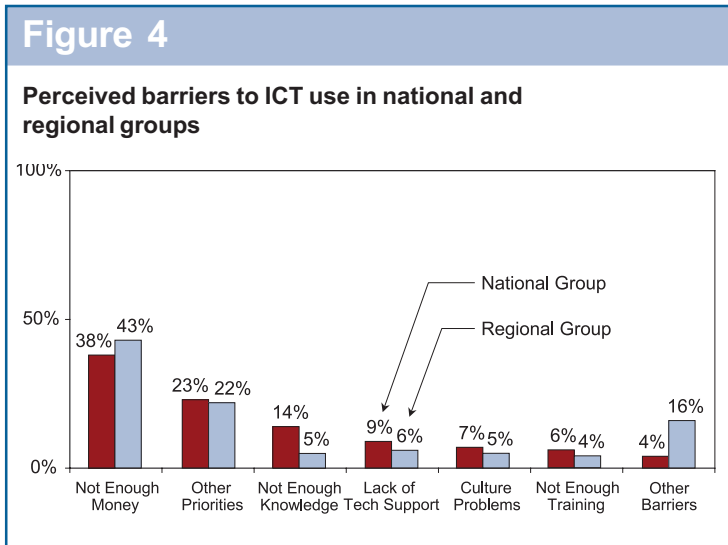
Satisfaction with ICT

We asked respondents about their general satisfaction with ICT use and about their satisfaction with e-mail, the Internet, and Internet recruiting services. We also asked them to indicate how much and what kind of impact they thought ICT has had on their programs in terms of cost, efficiency, productivity, and quality of service delivery.

Overall satisfaction with ICT

Though none of the respondents was profoundly dissatisfied with the amount of ICT used in their volunteer programs, 90% of the national group and 83% of the regional group reported that "there are improvements I would like to make." Only 10% of the national group and 17% of the regional group indicated that they were "completely satisfied with how ICT tools are used." Clearly, the status quo is not a preferred option for most respondents.

Satisfaction with e-mail

In terms of its overall usefulness, 95% of respondents in both groups said that e-mail was "useful" or "very useful." When asked what they liked about it, they identified its speed, convenience, and efficiency. Only 58%, however, said that it was a useful tool for managing relationships with volunteers and others. It appears that respondents saw e-mail more as an informal information-sharing tool than as a means to build or solidify relationships through personalized communication (e.g., as a way of recognizing volunteers, or building commitment or team spirit).

Figure 4

Perceived barriers to ICT use in national and regional groups

Satisfaction with the Internet as a source of information

Over half of our respondents (57% nationally and 59% regionally) reported that when they search the Internet, they found the information they needed more than 75% of the time. A higher percentage of national managers found the information they needed 50% or more of the time (86%) compared to regional managers (74%).

Satisfaction with online volunteer recruitment services

There were considerable differences in respondents' satisfaction with online volunteer recruitment services. Of the respondents in the regional group who reported using VICTA, 57% thought it was a "good" or "excellent" service, 27% thought it was "fair," and 16% rated it "poor." One-third felt that it had resulted in an increased number of prospective volunteers applying to their organization and only 2% felt it had decreased their number of applicants compared to the earlier non-computerized system. The rest reported no change.

Respondents in the national group who reported using VOE were asked to rate their satisfaction with it on a ten-point scale where 1 was "not satisfied at all" and 10 was "extremely satisfied." While the average satisfaction level was 5, over one-third of respondents (35%) rated it 1 or 2 and only 6% rated it 8 or higher. As for its success in producing volunteers, 86% of respondents reported placing fewer than five volunteers as a result of using the VOE system.

There were also some interesting associations between satisfaction with online recruitment services and the backgrounds of respondents. In the previous section, we noted that less experienced respondents reported using online recruitment systems more often than those with more experience. Similarly, we found that respondents with less job experience were more satisfied with their online recruitment experiences. These differences may suggest how the experience can play a key role in shaping the uptake and interpretation of new technological experiences. Relative newcomers may be more willing to give

innovations a try and may be less critical of them when they do so.

Perceived impact of ICT on volunteer programs

To get some idea of the impact of ICT on volunteer programs, we asked respondents to rate the extent to which ICT use in their volunteer programs had resulted in cost reductions or increases in efficiency, productivity, or service quality. They rated these items using a four-point scale that ranged from "not at all" to "a large extent."

Overall, the results suggested that the impact of ICT on efficiency, productivity, and service quality was greater than the impact on cost. Approximately two-thirds of respondents reported that ICT had a moderate to large positive impact on efficiency (84% nationally and 70% regionally), productivity (80% nationally and 67% regionally), and service quality (63% nationally and 60% regionally). However, national and regional respondents differed on how much ICT usage had resulted in cost reductions in the volunteer program. About half of the national respondents (51%) and two-thirds of the regional respondents (65%) reported that there were few or no cost savings.

How can ICT use be improved?

Respondents were given a list of 10 possible changes they could make in applying ICT to their volunteer programs. The results are shown in Table 4. Respondents in both the national and regional groups chose the same changes as their top four, but ranked them in slightly different order.

The top four areas for ICT improvement were:

- interactive Web site;
- more volunteer Internet access points;
- more training; and,
- more volunteer management software.

Two of these — more interactive Web site and more volunteer internet access points — relate to enhanced

Table 4

Possible improvements to volunteer programs through application of ICT

	National %	National n	Regional %	Regional n	National rank	Regional rank
Interactive Web site	56	(207)	50	(51)	1	4
More volunteer Internet access points	56	204	70	71	2	1
More training	52	188	63	64	3	2
More volunteer management software	50	181	53	54	4	3
More technical assistance	32	115	36	37		
Newer computer	38	138	38	39		
More affordable technology	35	129	22	22		
More volunteer e-mail accounts	39	143	18	18		
Internet access	8	29	13	13		
Other	10	35	22	23		

usage (e.g., taking more advantage of the communications interactivity that is available through the Web and the Internet). The other two have to do with customizing applications to meet the needs of volunteer programs.

Nearly one quarter (22%) of respondents in the regional group checked "other" changes. Their comments were concentrated in two areas: (a) upgrades to existing ICT applications such as more efficient interfaces and upgraded computers and software programs; and, (b) improvements that target volunteers such as providing computers for volunteers and increasing the ICT skill level of volunteers through training.

Conclusion

This study suggests that Canada's volunteer programs are not laggards in the hardware and connectivity aspects of ICT. For the most part, volunteer organizations are using ICT to varying degrees, just like organizations in other sectors of the economy, and managers of volunteer resources are doing a fairly good job of using the new technology.

There is, however, room for improvement. Volunteer programs lag in their use of the Internet. Web sites and e-mail provide new tools that could be helpful to these programs (e.g., volunteer recruitment via the organization's own Web site or through third party services such as VICTA and the VOE). Managers of volunteer resources could also be making better use of Web sites to increase levels of "connectivity" in vertical relationships with their volunteers and clients, and horizontally with other volunteer agencies. They could also use e-mail to enhance relationships with their volunteers through more personalized communication on matters such as recognition for good work, scheduling, feedback on events, etc. Most respondents indicated a need for specialized software to help them more effectively manage their volunteer resources.

Are volunteer programs doing a poor job if they are not applying all the latest "bells and whistles" from the world of ICT? Absolutely not. Many volunteer programs are small enough that face-to-face communication and telephone conversations are all that is needed for smooth and satisfying volunteer experiences. But when programs grow to the point where "high touch" is not enough and face-to-face interaction with everyone is no longer possible, ICT can be very useful.

Any lag in the application of ICT to volunteering is not necessarily the fault of managers of volunteer resources. We are still in the infancy of the digital revolution and, just as in other sectors, managers of

volunteer resources are subjected to forces more or less beyond their control. Chief among these is a lack of funds available to the volunteer program and the related problem of lack of time to learn about and implement changes.

The issue of funding for volunteer programs is an old one for volunteer managers, especially in larger organizations in which the volunteer program is not a top priority. There is a great temptation to think that volunteers are "free" and, therefore, volunteer management should cost very little. The notion of investing in something like ICT to create more effective volunteers who will in turn contribute to the effectiveness and efficiency of the whole organization does not come easily to many CEOs.

Organizations that want to enhance their volunteer programs through better use of ICT should consider the following:

- Managers of volunteer resources should, if possible, work with their CEOs in seeking government support to acquire and upgrade ICT tools and learn how to use them.

- Managers of volunteer resources should support the Voluntary Sector Initiative (VSI) because one of its chief components is the Joint Table on Information Management and Information Technology, which seeks to promote the enhancement of ICT capability in the sector (see http://www.vsi-isbc.ca/eng/joint_tables/im_it/index.cfm).

- Existing specialized volunteer management software should be reviewed and evaluated. Most of the relatively small number of regional managers of volunteer resources who use specialty volunteer management software reported using only two types: "Volunteer Works" and "Selston." A comprehensive list

of 24 existing specialized volunteer management programs and links to more detailed descriptions of them can be found on the Web site of the Nonprofit Information Technology organization (see http://www.npinfotech.org/tnopsi/volunter/volindex.htm).

- There is a need for increased research on development of new technologies such as Internet applications that better incorporate the needs of managers of volunteer resources and volunteers. This should be part of a clear, multi-stage plan for ICT development that fits the needs of many types of volunteer organizations.

- Individual volunteer programs should keep track of the degree of connectedness of their volunteers. Many more volunteers may be ready and willing to communicate through their computers and the Internet than is assumed.

- It is also worth looking into ways to help volunteers become more effective users of ICT by providing them with training and access to equipment and physical space where they can use computers in the organization.

- In the light of the finding that existing ICT policies and guidelines could be inhibiting new applications from emerging, it might be worthwhile reviewing them to ensure they are not unintentionally restricting innovation.

- The potential of online volunteer opportunity matching systems such as VICTA and the VOE appears not to have been reached as yet. Clearly, changes are needed in systems such as the VOE to improve ease of operation and awareness of their availability. Managers of volunteer resources also have a responsibility to review their volunteer recruitment, selection, and placement practices to see if more use can't be made of these potentially valuable sources of volunteers.[2]

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[2] For more information, please see *Virtual volunteering: Current status and future prospects*, available online at www.nonprofitscan.ca

Appendix A: Measures of ICT Variables

ICT Tools (Hardware)

ICT tools (hardware)			
One Type PC or Fax Machine or Cellular Phone or Handheld Computer	**Two Types** PC and Fax Machine or Cellular Phone or Handheld Computer	**Three Types** PC and Fax Machine and Cellular Phone or Handheld Computer	**Four Types** PC and Fax Machine and Cellular Phone and Handheld Computer

Web site

Interactivity of organization's Web sites	
No interactive features includes:	**Interactive features includes:**
■ information about volunteer program; ■ information about volunteer postings; ■ volunteer application forms can be downloaded; or, ■ linkages to other relevant agencies.	■ volunteers can apply for a position online; ■ online listserv; ■ online discussion group; or, ■ online surveys.

Email Usage

E-mail volunteer program managers' use to communicate with volunteers	
Impersonal communication includes:	**Personalized communication includes:**
■ sharing minutes of meetings with volunteers; ■ notifying volunteers of events or meetings; ■ listserv providing information to all program members	■ recognition messages to individual volunteers; ■ communicating with volunteers about their position or work schedule

Online Recruitment Use

Volunteer program mangers' use of online recruitment system	
■ Yes	■ No

Potential Factors That Might Influence ICT Use

Individual Level					
Sex	Male		Female		
Education	Some University Education or University Degree			No University Education	
Computer Skill	Poor	Fair	Good	Excellent	
	Weak (poor to fair)		Strong (good to excellent)		
Computer Experience	Less than 5 years More than 10 years	5–10 years	11–15 years less than 10 years	greater than 15 years	
Job Experience	Less than 5 years	5–10 years	10–15 years	greater than 15 years	
Organizational Level					
Organization Type	Arts and Culture	Environment	Education	Religious	
	Health	International Aid	Social Services	Sports/Recreation	Other
Total Budget Size of the organization	Less than $50,000	$50,000-250,000	$250,000-500,000	$500,000-1,000,000	
	Greater than $1,000,000		Less than $250,000	Greater than $250,000	
ICT Policies and Guidelines	Yes			No	
Program Level					
Percentage of total budget allocated to the Volunteer Program			Less than 10%	Greater than 10%	
Technology Support			Yes	No	
Percentage of Volunteer Program Budget Allocated to ICT			Less than 10%	Greater than 10%	
Volunteer Program Size	Less than 10	11-25	26-50	51-75	76-100
	101-200	Greater than 200	Less than 75 Volunteers	Greater than 75 Volunteers	

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