

Using Volunteers for IT Work: Research Questions

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Abstract

Voluntary organizations (VOs) offer important services the private and public sectors cannot or will not provide. Unfortunately, VOs tend not to use information technology (IT) to the extent they could, and so don't receive the benefits IT offers. One problem is that many VOs must rely on volunteers for IT support. This paper examines the challenges using IT volunteers creates, including limits in availability, expertise, commitment, organizational knowledge, and equipment ownership. A framework for discussing the effectiveness of IT volunteers is presented. Research questions arising from the framework are identified.

Voluntary organizations (VOs), where most labor is given freely, are central to social and cultural life. VOs offer services the private and public sectors can't or won't provide. They define their missions not in economic terms (e. g., maximizing profit), but by values, be they social (e. g., a hospice serving the terminally ill), cultural (e. g., a community choir), educational (e. g., an adult literacy program), spiritual (e. g., a church), or political (e. g., a local group opposing a zoning change).

Volunteers do many different things for VOs, including IT work. This can be risky for the VO (Ticher, Maison, and Jones, 2002), since IT volunteers may, for example, lack expertise, not be available when needed, and ignore important tasks like data backup. However, many VOs, particularly smaller ones, do not have a choice. They use IT volunteers, or do not take advantage of all that IT can offer. In fact, many VOs do not integrate IT with their core business activities (Burt and Taylor, 1999). While IT management is difficult for larger VOs (Peizer, 2001), small VOs are even less likely to use IT (PSRA, 2001). They struggle with even basic hardware and software needs (Forster, 2003).

Little is known about what IT volunteers do, how well they perform, or even why they volunteer. CompuMentor (2001) offers VO leaders guidelines for recruiting and managing IT volunteers, but there is more to learn. Information systems (IS) researchers could help. This paper's goal is to identify questions that IS researchers could profitably study. Answers to the questions could help VOs use IT to pursue their missions more effectively.

The paper proceeds as follows. First, VOs and their environments are examined, to better understand the context in which IT volunteers operate. Second, attributes of volunteers are discussed, considering such issues as why they volunteer, what they want to

work on, and what constraints they face. Third, a framework is presented that helps organize about IT volunteering issues. Finally, some research questions are identified.

Voluntary Organizations

Febbraro, Hall, and Parmegiani (1999) suggest that VOs are (1) organized, (2) private, (3) self-governing, (4) voluntary, and (5) do not distribute profits. This does not cover all organizations that use volunteers. For example, while most of a hospital's work is done by professionals, volunteers may be used for specific functions, like offering patients emotional support. This paper was written with the definition from Febbraro et al. (1999) in mind, since we wanted to discuss situations where a wide range of IT tasks are performed by volunteers. This includes tasks that require significant technical expertise, like systems administration, which would be done by paid staff in most hospitals. However, the issues raised here also apply to the voluntary parts of professionalized organizations.

While organizations like Habitat for Humanity are large and well-organized, many VOs are small groups working in their local neighborhoods. They have few full-time employees; many have none at all. Small VOs typically have no IT staff (PSRA, 2001). Their budgets are limited, and they would rather spend what money they do have on their missions, not on IT.

Many VOs have small physical premises and little computer hardware. Some have *no* permanent space of their own. For example, a community chorale might rent a hall for rehearsals and performances, with all administrative tasks being done in members' homes. IT work is done with whatever computers, software, and network connectivity members

happen to have.

Norms of cooperation are more prevalent among VOs than private companies (Ticher et al., 2002). Certainly there are tensions between some VOs, such as rival religious and political organizations. Brown and Kalegaonkar (2002) show how goal fragmentation among nongovernment organizations reduces the sector's overall effectiveness. Nevertheless, cooperation is central to the basic philosophy of most VOs, while competition is central to the basic philosophy of most businesses.

It's important to understand the contexts within which VOs operate. They interact with various constituencies, including clients, members, funders, and regulators. Not all are relevant to every VO, of course. For example, a neighborhood association mainly serves its members, that is, the members are the clients. The VOs' funding comes from the members. In comparison, a hospice might receive most of its funding from external sources, serve clients for free or at low cost, and not have dues-paying members.

Some VOs are affiliated with larger organizations. Different central organizations have different degrees of control over individual VOs. For example, both Catholic churches and Unitarian Universalist churches are part of a central body, but a Catholic church is more constrained by its central organization than a Unitarian Universalist church is.

External agents can force a VO to innovate. For example, some funders require VOs to submit reports on the services they provide to clients. This can prompt VOs to do more data gathering and reporting than they might otherwise.

Support organizations are important to many VOs, helping them do things they have difficulty with on their own. Of particular interest here are nonprofit technology

assistance providers (NTAPs), organizations that help VOs use IT (McInerney, 2003). CompuMentor (<http://www.compumentor.org>) is an example. Created in 1987 and based in San Francisco, CompuMentor offers a broad range of consulting and other services. Through its Web site TechSoup (<http://www.techsoup.org>), CompuMentor helps VOs exchange IT advice, buy discounted IT products, and find IT services.

VOs' use of IT has been studied to some extent. Office automation (e. g., word processing) and communication (e. g., email) are common (Forster, 2003). Record keeping applications such as client management, fund raising, and volunteer tracking are also in general use (Forster, 2003). Many VOs have Web sites, using them for things like promotion, fund raising, advocacy support, and volunteer recruitment (Cukier & Middleton, 2003).

Custom database systems can have significant value for VOs (Ticher et al., 2002). However, implementing database systems that are sustainable over the long term is challenging (Duffy, 2000), requiring both technical and organizational sophistication. Further, keeping data up-to-date takes continuous effort, even as a VO's leadership and goals change.

Volunteers

Let's turn to the volunteers. What characteristics of IT volunteers influence their effectiveness? First, we should understand volunteers' motivations. People volunteer so they can express values like altruism, learn new things, form relationships with others, develop job-related skills, protect their egos (e. g., avoiding guilt), and enhance their egos (i. e., boosting self-image) (Clary, Snyder, Ridge, Copeland, Stukas, and Haugen, 1998).

Altruism is a particularly common motivation (Bussell and Forbes, 2002). Volunteer satisfaction depends on the match between their motives and the outcomes of their volunteering experience (Hynes and Nykiel, 2005).

Many volunteers have a limited desire to work on tasks not directly related to the goals of the VO. For example, someone working in a food bank might be more interested in packing food than entering data. This effect may be moderated by their reasons for volunteering. Someone volunteering to improve their job skills might be more willing to perform IT tasks than someone motivated by altruism. An interesting possibility is that IT tasks could be modified to better appeal to people with various goals. For example, a socially-motivated volunteer might be interested in IT tasks that are done socially.

Volunteers often share social norms of cooperation rather than competition. This may depend on their motives for volunteering, however. For example, two volunteers motivated by ego enhancement might not want to share social power. Cooperative norms are difficult to enforce, since volunteers can refuse to follow the VO leadership's instructions with little penalty. For instance, someone might simply refuse to document a business function she knows well, if that task doesn't match her motives for volunteering. People can also leave VOs at any time, taking their expertise with them. This can have dire consequences if, for example, the only person who knows an FTP password becomes disenchanted with a VO and leaves.

Most volunteers have other responsibilities besides their VO work. Even highly motivated people might only spend a few hours per week volunteering. This can lead to:

- Task fragmentation, where several volunteers are needed to perform a task that, in a business, one person would handle.

- Projects taking longer to complete.
- Expertise based on experience not accumulating very rapidly.

Volunteers bring many different skills to VOs. In classifying skills, we can readily identify technical expertise (i. e., ability to use IT in various ways), domain expertise (e. g., accounting knowledge, project management skill, writing ability), and organizational expertise (familiarity with the VO, including its goals, procedures, and resources). We will add relationship expertise to the list, that is, the ability to work with other people. This can strongly affect productivity (Goleman, 1995).

Of course, "expertise" is not really a unified concept. For example, someone might possess the technical skills needed to create a newsletter, but not to maintain a Web site. "Technical expertise" is a useful abstraction for this discussion, but is too coarse-grained to predict whether a particular person has the particular technical skills needed to work on a particular project.

Finally, a volunteer with expertise, motivation, time, and equipment might not be effective if he or she has poor work habits (CompuMentor, 2001). Someone who doesn't check email, keep commitments, or document work, might be more of a liability than a asset. An IT novice who makes slow progress with unsophisticated technology can often contribute more to a VO than an unreliable expert.

Framework

The issues discussed thus far can be arranged in the framework shown in Figure 1. It shows that IT effectiveness depends on the match between an IT task (an activity to meet an organizational goal), technology, and an IT volunteer. When the three mutually

support each other, the task can be performed effectively. This notion was derived from ideas about task/system fit (Vessey, 1991; Vessey and Galletta, 1991). The framework shows that IT tasks are performed in an organizational environment that influences goals, available resources, and other factors. The VO also exists in an environment, labeled "external" in Figure 1. It includes VO groups (e. g., a national organization to which local groups belong), funders, assistance organizations, and others.

Figure 1 identifies important attributes of each of the three central constructs: tasks, technology, and volunteers. The attributes are taken from the discussion above. IT tasks are defined by their skill requirements, time requirements, and other resources needed (e. g., money). Three types of skills are listed here: organizational, domain, and relationship. They were discussed above. Important IT volunteer attributes are skills (organizational, technical, domain, and relationship), motivation source (discussed above), motivation level, work habits, time availability, and equipment availability (recall that IT volunteers often use their own equipment). Finally, technology attributes include availability (what the VO has or can acquire), the types of tasks supported by the technology (e. g., word processors aren't useful for accounting), and the skills and time required to use the technology.

Research Questions

The framework shown in Figure 1 helps organize research questions about IT volunteers in VOs. The questions are grouped into the following categories, starting with "Volunteer" at the center of the figure and moving outward:

- The volunteers themselves

- The relationships between volunteers and tasks
- The relationships between volunteers and technology
- How organizational variables affect IT volunteers
- How VOs' external environments influence IT volunteers.

In cases where issues could fall into more than one category, the category that seemed the best fit was chosen. Recall that this paper is concerned only with IT volunteers. We omit issues that, while important, are not directly relevant to volunteering.

IT Volunteers

Researchers could ask questions about how people become IT volunteers, and what determines attributes like motivation and availability. Questions might be:

1. What motivates people with IT expertise to volunteer?
2. Do psychographic variables predict IT volunteerism (e. g., education, family background, and faith orientation)? Are IT experts who volunteer different from IT experts who don't? For example, do IT experts who volunteer value cooperation more than those who do not?
3. Do psychographic variables predict the attributes of IT volunteers, such as motivation type?
4. Are IT volunteers' motives and skills correlated? For example, do volunteers motivated by ego enhancement have poorer relationship skills?
5. Are IT volunteers different from volunteers without IT skills?
6. Do IT volunteers have good work habits (e. g., tracking commitments)? Can this variable be predicted? How can it be improved?
7. Are there typical profiles of IT volunteer expertise? Are some skills more

readily available among IT volunteers than among the general population of IT experts, and vice versa?

8. How much time do IT volunteers give (i. e., availability)? What predicts availability?
9. How can a particular VO estimate the IT capabilities of its volunteers? How can it find out if important skills are missing?
10. How can a VO persuade people with IT expertise to volunteer? To keep volunteering? For example, what IT volunteer recognition programs are effective?
11. How can a VO persuade volunteers that working on IT is a valuable contribution to the VO's goals?
12. How can volunteers be encouraged to follow good IT practices (e. g., improving data quality by tagging unexpected data values for later verification)?
13. How can a VO persuade volunteers with limited IT expertise to develop IT skills? If volunteers agree to this goal, how can training actually occur? Would an apprenticeship model match VO norms? Would a combination of classroom training and apprenticeship be more effective than either one alone?
14. Can a VO offer people technology training in exchange for IT work? Would these people work well with true volunteers?

Tasks and IT Volunteers

Besides volunteers themselves, there are questions about how the attributes of volunteers and tasks interact.

15. What tasks do IT volunteers perform? Are there some they prefer more than others? Are people with different attributes (e. g., different motivation types)

more willing to perform some tasks than others? Can tasks be changed to be more attractive?

16. Are volunteers more successful at some tasks than others (CompuMentor, 2001, lists tasks they believe are suited to volunteers)?
17. What skills do various tasks (e. g., maintaining a Web site) require of IT volunteers?
18. How should IT volunteers time be allocated across tasks?
19. Some IT volunteers work only a few hours per month, so tasks must be broken into small pieces and distributed to several volunteers. What issues does this introduce?
20. How can tasks be designed to reduce the need for skills few IT volunteers possess?
21. CompuMentor (2001) states that IT volunteers are best used for well-defined, short-term tasks that are not urgent. What should a VO do if it has tasks that do not fit these criteria, and it cannot afford to hire professionals?

Technology and IT Volunteers

22. Are there some features a system should have if volunteers are to use it effectively? For example, fine-grained permissions might be desirable, since tasks are often divided up into small pieces and distributed across volunteers.
23. The technical expertise available to a VO changes over time as volunteers enter and leave the organization. Are some technologies less vulnerable to these changes than others?
24. Do the technologies VOs are using, or want to use, match what their IT

volunteers know? What happens when they don't?

25. Ticher et al. (2002) suggest that some VOs have poor IT security practices.

What is the extent of the problem? What role do IT volunteers have in both creating and ameliorating security issues?

VOs and IT Volunteers

IT volunteers work within an organization, which they influence and are influenced by. What are some of the organizational issues that effect IT volunteers?

26. Are IT experts drawn more to some VOs than others?

27. What do particular VO strategies and tactics demand of IT volunteers?

28. What frustrations do IT volunteers have with VO leadership, and vice versa?

29. What do IT volunteers think about the organizational cultures of their VOs?

30. How should VOs track IT volunteers? What performance variables should they measure? How do IT volunteers react to measurement?

31. How often do IT volunteers become VO leaders? What happens when that occurs?

32. Do VO leaders budget for IT volunteer training?

33. Can VO leaders predict when an important IT volunteer is thinking of leaving? What can be done to preserve important information?

The VO External Environment and IT Volunteers

34. NTAPs could help VO leaders learn about the possibilities IT provides, as well as predict and overcome the problems that inevitably attend IT projects (Ticher et al., 2002). What do VO leaders need to know? How should this information be communicated?
35. What IT tasks should NTAPs help VOs with? What should they avoid?
36. Suppose an NTAP worked with open source developers to create software to serve many VOs. What skills would be needed to administer and use it? How many IT volunteers would have those skills? Could some of the tasks be taken over by the NTAP?
37. Could NTAPs partner with, for example, universities to offer training in various locations?
38. How can NTAPs attract and keep volunteers of their own? Some firms allow employees time off work to volunteer (Bussell and Forbes, 2002). Would companies offer IT expertise to NTAPs?
39. Can NTAPs and/or VOs trade volunteer time? For example, one VO might help another with systems administration, in return for accounting advice.
40. How do funders influence VOs' need for IT skills? How do VOs react?
41. Can funders help VOs acquire the skills they need to, for example, comply with reporting requirements? Should funders partner with NTAPs that already have support resources in place?

Conclusion

Voluntary organizations do important work, though it's difficult to estimate their full economic value. Many VOs are small, with tiny budgets, few if any full-time staff, and limited or nonexistent physical facilities. Although Ticher et al. (2002) recommended against using volunteers for IT work (and for good reason), many VOs have no choice. They either use volunteers, or do not take advantage of all that IT can offer.

Information systems (IS) researchers could help. They could study problems the use of IT volunteers creates, suggest solutions, and even be involved in implementing them. VOs have a potential advantage over commercial firms: their norms of organizational cooperation. Groups of VOs and NTAPs may be able to create IT support structures that are not feasible in the private sector. These structures could blur the boundaries between individual VOs, NTAPs, and even funders. For example, someone volunteering at a local library might work on an open source database project organized by an NTAP, and underwritten by a foundation. The volunteer would help other VOs besides the library, and the library would be helped by volunteers other than its own.

IS researchers are in a unique position. They possess both the technical skill and organizational insight needed to address VOs' problems. They could be important contributors to the design of nontraditional IT support structures. Researchers who take up these challenges will make valuable contributions to their societies.

References

- Brown, L. D., and Kalegaonkar, A. "Support Organizations and the Evolution of the NGO Sector," *Nonprofit and Voluntary Sector Quarterly* (31:2), 2002, 231-258.
- Burt, E., and Taylor, J. "Information and Communication Technology: Reshaping the Voluntary Sector in the Information Age?", Technical Report from Glasgow Caledonian University, 1999.
- Bussell, H., and Forbes, D. "Understanding the Volunteer Market: The What, Where, Who and Why of Volunteering," *International Journal of Nonprofit and Voluntary Sector Marketing* (7:3), 2002, pp. 244-257.
- Clary, E. G., Snyder, M., Ridge, R. D., Copeland, J., Stukas, A. A., and Haugen, J. "Understanding and Assessing the Motivations of Volunteers: A Functional Approach." *Journal of Personality and Social Psychology* (74), 1998, pp. 1516-1530.
- CompuMentor, *Working with Technical Volunteers: A Manual for Nonprofit Organizations*, CompuMentor, 2001, available at <http://www.techsoup.org/howto/Files/TechVolMan2001v1.2.pdf>.
- Cukier, W., and Middleton, C. "Evaluating the Web Presence of Voluntary Sector Organizations: An Assessment of Canadian Web Sites," *IT & Society* (1:3), 2003, pp. 102-130.
- Duffy, M. "What Do Nonprofits Use Databases For?" TechSoup, September 29, 2000, <http://www.techsoup.org/howto/articles/databases/page1036.cfm?cg=searchterms&sg=duffy>, downloaded September 4, 2005.
- Febbraro, A., Hall, M., and Parmegiani, M. "Developing a Typology of the Voluntary Health Sector in Canada: Definition and Classification Issues," Voluntary Health Sector Project, Ottawa, 1999. http://www.phac-aspc.gc.ca/vs-sb/voluntarysector/publications/typology_full/index.html as of July 30, 2005
- Forster, J. "Revolution or Evolution? A Longitudinal Study of Technology Use by Nonprofit Organizations, 2000-2002," Working paper, Bayer Center for Nonprofit Management, 2003.
- Goleman, D. *Emotional Intelligence*, Bantam, New York, 1995.
- Hynes, R. A., and Nykiel, A. I. "Maximizing Outcomes of Volunteer Programs Through a Functional Approach to Motivation," *Journal of College and Character* (2), 2005, <http://www.collegevalues.org/pdfs/Hynes.pdf>.
- McInerney, B., "Nonprofits, NTAPs, and Information Technology," N-TEN Research Report, 2003, <http://www.nten.org/reports>.
- McNutt, J., and Boland, K. M. "Electronic Advocacy by Nonprofit Organizations in Social Welfare Policy," *Nonprofit and Voluntary Sector Quarterly* (28:4), 1999, pp. 432-451.
- Peizer, J., "Rethinking Technology in the Non-Profit Arena: Strategic Differences and

New Models of Deployment," OSI Internet Program report, 2001,
<http://www2.soros.org/internet/ngomodel.html>.

Princeton Survey Research Associates, "Wired, Willing and Ready: Nonprofit Human Services Organizations' Adoption of Information Technology," 2001,
<http://www.independentsector.org/pdfs/wiredwillingready.pdf>, viewed 2/8/2005.

Ticher, P., Maison, A., and Jones, M. "Leading the Way to ICT Success," research report, Baring Foundation, 2002, available at
<http://www.baringfoundation.org.uk/publications.htm#ictsuccess>.

Vessey, I. "Cognitive Fit: Theory-Based Analyses of the Graphs Versus Tables Literature," *Decision Sciences* (22:1), 1991, pp. 219–241.

Vessey, I. and Galletta, D. "Cognitive Fit: An Empirical Study of Information Acquisition," *Information Systems Research* (2), 1991, pp. 63-84.

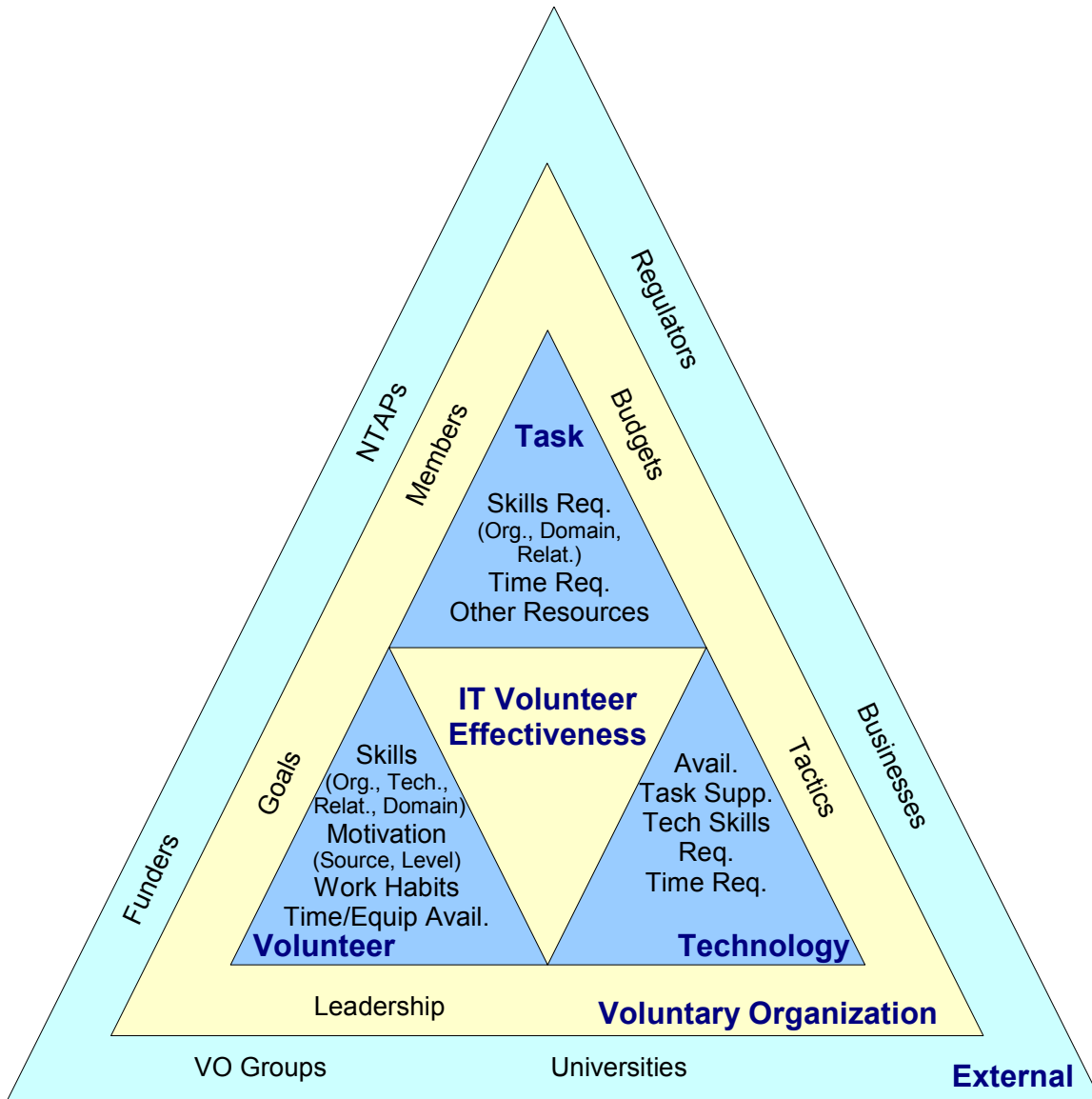


Figure 1. VO IT Volunteer Effectiveness Framework