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Because Excel will Mind Me! The State of Constituent Data Management in Small Nonprofit Organizations

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ABSTRACT

The value of constituent data to the non-profit sector is higher than ever (Hagen, 2006). Yet for small nonprofit organizations in particular, collecting, maintaining, accessing, and summarizing constituent data remains a daunting and frustrating task. This research examines why this is so. Using case studies of two small nonprofit organizations, we identify challenges faced by these organizations in managing their constituent data. Analyzing these challenges and working with the nonprofits to address the challenges have resulted in a set of recommendations we offer for MIS researchers to become more engaged in serving this sector.

Keywords

Data management, nonprofit, constituent relationships, service learning

INTRODUCTION

The nonprofit sector in the U.S. is a key provider of public services and significant contributor to the economy. The demand for services of nonprofit organizations has increased as the demand to fill gaps caused by cutbacks in government spending has increased (Hackler and Saxton, 2007). As a result, the number of charitable nonprofits has increased to nearly a million organizations.

While the demand for and impact of nonprofit organizations continues to increase, the amount of government funding for nonprofits has been on the decrease. This fact, combined with recent scandals involving high-profile nonprofit organizations, has increased the pressure for nonprofit organizations to be more fiscally accountable for how funds are used (Hackler and Saxton, 2007).   Thus the requirement for reporting on organizational activities is on the increase. Decreased government funding (Finn et al., 2006) and increased competition between nonprofit organizations has also led to the need for nonprofits to seek additional financial resources from private citizens and groups. To facilitate this, calls have been made for nonprofits to exploit Internet and social networking technologies for building and sustaining their customer and donor base (Abuhamdieh and Kendall, 2007).

These factors point to the need for nonprofits to give increased attention to managing their organizational data. Indeed, the Government Accountability Office (GAO), in a recent report to the House of Representatives, recently noted that it is essential that nonprofits maintain "accurate and reliable data" and that the sector needs to "improve data quality without unnecessary or duplicative…administrative requirements" (GAO, 2007). Yet studies report that nonprofit organization data management-related difficulties are prevalent, preventing many nonprofits from efficiently providing services, from understanding and reporting on their effectiveness, and from embracing potentially helpful new technology (NTEN, 2007; Collins, 1998).

Research in data management and data quality principles is well established in the literature (Hoffer et al., 2007; Mosley, 2006; English, 2005; Middlemiss, 2005; Watson, 2005; Goodhue et al.,1988).   However there are relatively few published articles investigating data management in the context of small for-profit, public, and/or nonprofit organizations (Nord et al., 2005; Fitch and Shaffer, 2007). Hence, we feel, a disconnect on both ends of the spectrum– a lack of awareness by small nonprofits of the importance of focused data management and data management principles on the one hand, and a lack of understanding by IT professionals of the information needs and environmental constraints of small nonprofits on the other hand.

Our research addresses this disconnect. Using case studies of two local nonprofit organizations, our research explores the state of data management in small, nonprofit organizations, and advances suggestions to bridge the gap between the lack of awareness and understanding by small nonprofits and MIS professionals. The paper is organized as follows: we first summarize what is currently known about the state of technology and information management in nonprofit organizations. Then using the two organizations studied in the present research, we identify challenges faced by small nonprofits in managing constituent data and the ways these challenges are currently being addressed in both organizations. We believe there is an important role to be played by universities in assisting nonprofits with effectively using technology-supported information management techniques; therefore, we conclude our paper with opportunities for MIS curriculum, service, and future research to improve the state of information management in this vitally important sector of society.

LITERATURE REVIEW

MIS research and textbooks describing data management principles abound in the literature (Hoffer et al., 2007; English, 2005; Middlemiss, 2005; Watson, 2005; Goodhue et al., 1988). These principles include creating sound, flexible, and well-documented database designs; centralizing classes of data to reduce data duplication and to facilitate timely and easy access to data; documenting of data definitions and metadata to facilitate ease of maintenance and sharing of data between systems; securing access to data; checks and controls to ensure data integrity; data backups; data standards; etc.   Most graduates of MIS programs will have taken courses during their matriculation that teach data management principles in some depth. These graduates will typically choose employment in commercial, for-profit business organizations or federal/public-sector organizations, leaving an important sector of U.S. organizations lacking knowledge in data management principles.

The GAO (2007) notes that 1.8 million American organizations are classified as "tax exempt" or nonprofit; of these, approximately one million are recognized as public charities, otherwise known as 501(c)(3) organizations. As with for-profit organizations, the nonprofit organizations are accountable to a variety of stakeholders or constituents for how their public and private funds are spent, and this push for accountability continues to increase (Gutierrez and Zhang, 2007; Thatcher et al., 2006). The stakeholders include a variety of federal government organizations (e.g., IRS, FTC, etc.), grant-awarding foundations, oversight boards, state and local governments, as well as the public at large (GAO, 2007; Gutierrez and Friedman, 2005).   Yet, the GAO (2007) notes that nonprofit organizations, particularly smaller ones , have difficulty in addressing the reporting requirements of this wide range of stakeholders. Underlying this difficulty is the inadequate management of the nonprofit organizations' data.

In addition to the need to address stakeholder accountability requirements, data is needed by nonprofits, as with for-profits, to provide their services. However literature suggests a two-fold problem in this regard. While larger for-profits have staff well-educated on the value of effective data management to improve the efficiency and effectiveness of the products and services they provide, many nonprofits are less aware of this important outcome of effective data management (Thatcher et al., 2006).   Secondly, even amongst those nonprofits with an awareness of the potential for effective data management to improve their organizational performance, the lack of expertise, financial resources, training, and flexible, easy-to-use software packages has resulted in data distributed across a variety of office desktop tools and slips of paper, thereby increasing the complexity of finding, much less managing, organization data. Dederich et al. (2006) surveyed 378 social change and campaigning organizations and found that inadequate data management of this type was the greatest impediment to effective organizing (Dederich et al., 2006). Tsai (2007) observes the data silos phenomena as well in the small, for-profit business sector, but argues that the issue in this context is less attributable to a lack of financial resources but to the familiarity of these tools to most employees of small organizations. As calls continue for more nonprofits to exploit the internet for building and sustaining customers and donors (Abuhamdieh and Kendall, 2007) the challenges they face in managing distributed and duplicate data will become even more prevalent.

The literature gives guidance as to the type of data of key importance to nonprofit organizations and therefore in need of increased data management focus: data on the organization's constituents (Dederich et al., 2006; Hagen, 2006; Fitch and Shaffer, 2007; Gutierrez and Zhang, 2007).   Constituents include persons who have any type of relationship with the organization in helping it to carry out its mission. Constituents can range from volunteers to donors, other organizations, clients, contacts, external funders, employees, etc. Managing constituent data includes not only maintaining basic contact information about each constituent, but it additionally includes maintaining data that allows the nonprofit to manage relationships with its constituents. Consistent with the trend in commercial organizations to become "customer-centric", Hagen (2006) advocates for "constituent-centric" nonprofits, with databases organized to allow for the capture, maintenance, and analysis of relationships between the constituent and the organization. Systems that access constituent-centric databases should incorporate constituent-related data from wherever it is initially stored, and be easy to use by any nonprofit staff (including volunteer staff) that has the need to access the data.

In sum, while existing literature has given us guidance in the principles of data management, the growing need for non-profit organizations to put increased focus on data management, and the type of data most critical for nonprofits to manage, little has been done in MIS research to understand the slow adoption of data management practices in nonprofit organizations. And little has been offered by MIS research to assist this sector in the adoption, implementation, and diffusion of these practices. Our research seeks to fill this void in MIS research. In particular, we seek to:

- Validate the current state of constituent data management in small nonprofit organizations

- Identify the contextual factors of small nonprofits that give rise to the constituent data management state discovered

- Recommend ways to address high-priority constituent data management issues given the contextual constraints of small nonprofit organizations

- Identify implications of our study to other nonprofits and university MIS programs

RESEARCH METHOD

We use an exploratory case study approach (Yin, 1994) to investigate the aforementioned research issues. A case research methodology is appropriate for this investigation as we seek to describe, understand, and explain the challenges of nonprofit data management, and as context is a central factor in our understanding of the issues. The cases were selected from a convenience sample of recommendations from several professors in the business school of the authors' institution. The two organizations chosen are both small nonprofit charitable organizations, yet represent diversity in services, structure, staff, and technology infrastructure. Each organization is described next, followed by a discussion of the data management-related issues uncovered in both organizations.

CASE DESCRIPTIONS

Women's Job Training Center

The Women's Job Training Center (WJTC) is a social service agency providing job training to women in the local area. According to the mission statement the purpose of the organization is to ". . . provide women in need development of life skills and employment education classes in a Christian context where women mentor women." The heart of operations at WJTC is a 14-week training course held twice a year. Women who are accepted into the program attend daily classes at no cost to themselves. Topics covered by the course range from Interviewing Skills, Money Management, and Computer Training, to Health and Nutrition, and Bible Study.

WJTC course material is designed to support women who have had personal difficulties, or seasons of instability, move from dependency to self-sufficiency. WJTC accepts approximately 12 students per semester, although there is some variance in class sizes. Since their first class in 2004, WJTC has graduated 78 women from their program.

Volunteers provide much of the labor for the classes. Each class day a volunteer group, usually from a local church, provides lunch to the class members and teachers. The teachers themselves, most of whom are professionals in their respective fields, also donate their time. Additionally, the program facilitates mentoring by pairing each student with a volunteer mentor in the community. The mentor meets with the student on a weekly basis for support and encouragement during the program and after the student graduates.

The Director and Assistant Director are the only current full-time staff at WJTC, and they have recently hired a third staff member who is part-time. They also have up to three social work interns from a nearby university, who contribute from 5 to 20 hours per week. A weekly volunteer performs bookkeeping duties and the board of directors provides oversight. WJTC has an annual operating budget of less than $250,000 per year.

Food for the World Organization

Food for the World Organization (FWO) trains individuals to work with communities in developing countries using sustainable farming techniques, and provides opportunities for increased awareness of methods of conserving and sharing resources to those in the local community.

Central to its operations is FWO's internship program. FWO accepts six interns each year. The internship consists of structured training in a diverse range of relief and development principles with an emphasis on sustainable agriculture production. Each intern assumes responsibility for one of FWO's six enterprises: pecan orchard, local education, livestock,

vegetable garden, fair-trade gift shop and urban gardening. Following the year-long internship, many FWO alumni will go on to work with sustainable agriculture and other relief and development efforts in developing countries.

The six intern-run enterprises serve a dual purpose of providing hands-on learning and leadership opportunities while also generating income for the organization. Livestock operations provide products for sale to the general public. A vegetable garden provides produce to its 60-member food club for a small membership fee plus a weekly charge. Local Education programs include on-site tour and educational opportunities for local primary and secondary school students as well as the general public. A small suggested donation per visitor supports the operation. Likewise, pecan sales, sales from the fair-trade gift shop, and some urban gardening operations provide income. However, external fundraising and donations comprise 50-60% of the annual operating budget, which is close to $250,000.

In addition to interns, FWO employs four full-time staff: Executive Director, Development Director, Education Director and Farm Manager.   A part-time office manager and two work-study students support the office administrative functions, and a varying number of residential volunteers (usually 5-8) support the enterprise operations. Community groups such as service clubs, church groups and student groups also provide volunteer labor to the farm operations on a regular basis.

DATA MANAGEMENT ISSUES

Similarities exist between WJTC and FWO with regard to data management, both in the nature of constituent data needed, and in the current methods utilized for storing that data. We will describe the strategic nature of constituent data, specifically the significance of constituent relationships and their types, followed by a discussion of the common contextual challenges to these small nonprofits in managing their information needs.

Strategic value of constituent data

Constituent data must be both accurate and accessible in order for small nonprofits to operate effectively and ultimately, to continue fulfilling their missions.   Like most nonprofits, both organizations depend on funding from external sources to operate. Fundraising and support-raising is the lifeblood of small nonprofits, and the nature of the constituent data currently stored at FWO and WJTC reflect this primacy. One of the primary sets of fundraising constituent data that both operations attempt to maintain and utilize is a collection of data they refer to as their "mailing list." This list serves primarily as a set of constituents who are donors or potential donors and is used for a variety of strategically important fundraising tasks. FWO sends a quarterly newsletter via postal mail to everyone on its mailing list; WJTC sends weekly email updates to their supporters. Both make annual or semi-annual appeals for financial support in which typically each person on the mailing list receives a mailed appeal. Thus, in maintaining the mailing list, they store data about donating individuals and organizations and strive to keep accurate records about those constituents for future communication.

While fundraising is critical to the livelihood of the nonprofit, broader community support is equally important to the accomplishment of mission. Volunteers, churches, schools and civic organizations within the community all donate time and resources to support WJTC and FWO. These constituents also require consistent communication for continued support and relationship building that is central to the success of any nonprofit. Because they usually fall into more specialized categories of interest or involvement, WJTC and FWO track these constituents separately from the fundraising-oriented mailing list, according to categorical role (ex., church, volunteer, etc.). This is a characteristic example of the recurrent data silo phenomenon in the nonprofit and will be explored further in the discussion of contextual challenges.   Here it is important to note that the nonprofits are endeavoring to collect data beyond basic contact information and donation histories of their constituents for the purpose of communication. Both organizations understand that continued communication is critical to maintaining the interest and continual support of a constituent, and both understand that this communication is dependent upon quality, functional data management.

Importance of constituent relationships

While the two organizations recognize the strategic value of their constituent data, the staff at WJTC and FWO also recognizes their need to capture more data about each constituent organization and individual. Most significantly, they desire information about constituent relationships. Relationship data desired by these organizations falls into three categories: relationships between the constituent and the nonprofit, relationships between the individual constituent and his or her family members, and relationships between the constituent and other constituents.

Relationships between the constituent and the nonprofit organization

The first type of relationship information, a constituent's relationship with the nonprofit, refers to the various ways that constituents interact with the organization. Some of the key constituent-organization relationships identified by both WJTC and FWO include donors, volunteers of varying types, and clients. A constituent's relationship with the nonprofit may be categorized by the different roles simultaneously such as a constituent who is a donor, general volunteer, and teacher of the organization, or a constituent who is a client and general volunteer of the organization. Storing information about all of these areas of involvement and making it easily available provides the nonprofit with a broader understanding of the constituent's level of engagement with the organization. This is consistent with the idea of being a constituent-centric organization (Hagen, 2006).

In the case of constituents who are clients, another important relationship links the nonprofit's clients to the services provided by the nonprofit . This often involves the collection of sensitive client information as well as the establishment of client cases (Fitch and Shaffer, 2007; Gutierrez and Friedman, 2005). The management of the client services relationship is important to the internal management of activities directly related to the nonprofit's mission. However in light of the currently lower volumes of client data compared to other types of constituents, both organizations in the current study desired to focus initially on the collection and analysis of information related to donor and volunteer relationships. For example, FWO would like to know "What are the most successful points of entry for new donors?"; WJTC would like to know "Which churches have provided the most volunteer resources?" The ability to answer these types of business questions, as well as provide future support for client services management, could be achieved by centrally storing data about multiple areas of constituent involvement with the organization in a central repository. Currently, however, the nonprofits are unable to store this type of data in a manner which supports the broader relational focus of the organization and its mission fulfillment.

Constituent family member relationships

Similarly, information about family member relationships of constituents is also of strategic interest to the nonprofits. This is a natural extension of the first relationship point, in which the nonprofit desires a more complete picture of the constituent. Effectively capturing and managing family member information would enable the nonprofits to better target and serve parents of local school children with selected activities, for example, or to simply cultivate a more robust sense of relationship between the organization and the constituent which often correlates with a deeper constituent investment in the nonprofit's mission. Both FWO and WJTC express the desire to collect information about constituents' family members, though neither currently do so in a manner that makes the data easily accessible.

Relationships between constituents

The final piece of relationship data of strategic importance to FWO and WJTC is relationships between existing constituents. Knowing how a constituent relates to other constituents in the community lends insight into that constituent's interests as well as avenues for future community partnerships. Fitch and Schaffer discovered a similar need to capture constituent relationships in their research in social work information systems (2007). Their study proposes a data structure which stores each individual involved in a case as a separate entity, regardless of the nature of the individual's relationship to an individual in another case. This model offers the opportunity for increased accuracy of basic information about the individual client, as well as providing the ability to report on all of the different cases in which an individual may be involved. However most of the relationships discussed in Fitch and Schaffer's study centered around family relationships between individual constituents.

An example of a constituent-to-constituent relationship which is common to both FWO and WJTC is that of a constituent's church membership, which involves a relationship between an individual constituent and an organization constituent. As faith-based organizations, this affiliation plays a significant role in understanding the nonprofit's constituents. By identifying an individual's church membership, the nonprofits know more about that person's involvement in the community and his or her past exposure to their organization or other constituents. The church membership relationship may even be predictive of the individual's likelihood to donate or support them in the future. On the other side of the relationship, many local churches are also constituents of the nonprofits, as many churches are financial donors and regularly supply volunteers for various service projects. The ability to identify which individual constituents are also members of their constituent churches would provide tremendous strategic advantage to the nonprofits. Knowing this information would reveal potential opportunities for developing deeper relationships with a church which already has a number of involved members, and for exploring partnerships within the community towards the furthering of its mission. Church membership is only one example. Similar desired relationships might be identifying constituents who are board members at another local community institution, participants in community service groups, or patrons of local arts.

Relationships between constituents are distinct from family relationships in that both parties in the former are constituents of the nonprofit organization. Contrast this with family member relationships, where one individual is the constituent, and family members' data exists primarily to enhance the understanding of the constituent.

Although the nonprofits are extremely motivated to track all three types of constituent relationships, currently very little data and thus, information, of this nature is available to the nonprofits in a useable form. The individuals we interviewed expressed a strong desire for information beyond what is currently available to them, namely relationship data. Two reasons exist for the current lack of this data. First, some of the desired information requires data they do not currently store, and for which a change in process would be required to collect the data. For example, in order to track the more successful points of entry for a donor, the nonprofit must first effectively track how each constituent initially comes in contact with their organization. Second, the organizations may already possess data needed to inform them of some relationships, but do not have a means of bringing it together in a centralized place for reporting and decision-making. For example, FWO would like to know which of their constituents has been on their mailing list for at least three years and never donated. They already own the data to answer this question, but lack an effective reporting or querying tool to generate the answer easily. The same is true for family data and other segmented data which the nonprofits store in isolated silos. Possible reasons for why both nonprofits experience these limitations are explored in the next section.

Context of small nonprofits and effects on data management

WJTC and FWO demonstrate a solid understanding of the importance of their constituent data as a valuable organizational resource by regularly backing up the data they store, and implementing permissions and controls to govern who in their organization can access and modify this information. . However, our research indicates that neither organization utilizes effective methods for constituent relationship data management. We will now discuss observed contextual factors that have shaped the current data management environment in the two nonprofit organizations. We begin with the tools the two organizations currently use to manage constituent data.

Context: Distributed constituent data

Ultimately, both WJTC and FWO want to manage constituent relationships and other specialized information, but lack a tool to make the data available to them in a useful format. Instead, staff at WJTC and FWO depend upon a variety of tools (from email clients, to databases, to spreadsheets) to manage their constituent data, which places a number of limitations upon its usefulness.

Email clients

Employees at both organizations store some constituent information in the contact manager of their email client, primarily Outlook or Outlook Express. This data is typically the source of address data for mass emails. Staff members at both organizations utilize their email client contact managers for convenience in emailing, without acknowledging the duplication of data stored in these address books which are not shared between staff. All of the data stored in contact managers is also stored elsewhere either in databases or spreadsheets resulting in redundancy and inconsistencies.

Databases

WJTC uses MS Access to track constituent information, including volunteers, teachers, clients, and donors. The database, which a volunteer set up for them, employs one table and one form. However, the database does not maintain information about donations made by constituents. Donation data is stored exclusively in QuickBooks, the program WJTC uses for recording financial data and bookkeeping.

FWO also uses QuickBooks; however unlike WJTC, FWO stores only deposit summary data in QuickBooks and utilizes a specialized donor management program for donation details. The specialized donor management program tracks data on donations and constituent information for donors as well as maintaining their mailing list. However, information about other types of constituents (e.g., volunteers, teachers, clients, etc.) is not typically maintained in this specialized program. Although the program is a dedicated application for donor management, the specialized program presents a number of challenges. The built-in reports do not meet FWO's information needs, and the custom reporting tool built into the application is bulky and difficult to navigate. Even with the help of technical support from the vendor, they have been unable to obtain reports they require for decision-making. Further, the system structure does not allow for easy exporting of custom data to an Excel-friendly format (.csv, etc.) so that they might analyze their data in a more familiar environment. Ultimately this makes FWO unable to fully utilize their mission-critical data.

Excel

For both FWO and WJTC, Excel consistently proves to be the tool of choice for managing all other data. Indeed they are not unique among nonprofits in their heavy dependence on this application (Dederich et al., 2006). Both nonprofits store data concerning different types of constituents in various spreadsheets dedicated to a single constituent type. WJTC uses separate spreadsheets to manage data on the students they teach in job training courses, as well as volunteers assigned to mentor the students. Spreadsheets also store the number of hours worked by volunteers. FWO maintains additional, separate spreadsheet files for board members, visitors, churches, etc. Table 1 summarizes the distribution of constituent data for WJTC and FWO.

Type of information	Where stored (WJTC)	Where stored (FWO)
Basic contact information	Access database, Outlook	Donor management tool, Outlook
Individual Donors	Access database, QuickBooks	Donor management tool
Client information	Excel	Excel
Client outcome assessment	Excel	n/a
Volunteer information	Access database	Excel
Volunteer applications	n/a	Word / hardcopy
Volunteer hours	Excel (summary only)	Excel
Visitors	n/a	Excel (summary only)
Relationship and communication data on individual donors	n/a	Excel

Table 1. Constituent Information Distribution at WJTC and FWO

The inevitable end result of the nonprofits' segmented data storage has been redundant data, limited data sharing among staff, limited ability to depict constituent relationships, and difficulty in accurately aggregating data from its various sources for reporting. WJTC and FWO clearly feel the pain of these weaknesses in their data processes and the limiting factors it places on their ability to maximize the strategic value of their constituent data. In light of their frustrations, why haven't they adopted one of the many low-cost donor management tools for nonprofits? Recently WJTC recognized their need for a more robust data management tool and purchased an off-the-shelf donor management package. However, at the time of this research the box of software remained unopened. We suggest this phenomena signals the difficulty of an in-house data transition for the small nonprofit, primarily due to lack of guidance and available skills to assist with implementing and customizing the packaged solution. Additionally, a known "best-of-breed" packaged tool does not seem to exist for organizations of this size. Most of the packages familiar to FWO and WJTC are tailored to nonprofits with much larger numbers of constituents and larger technology budgets. Faced with these difficulties and their limited access to a data management resource, the nonprofits return to the familiar confines of Excel for most of their data management needs.

When asked why they find themselves dependent upon Excel in spite of its recognized limitations, one staff member at FWO noted that the primary reason is ease of use. Excel is readily accessible and familiar, already installed on all the workstations in the office, and usually does not require extensive training for use. He acknowledged that the organization might benefit from using a relational database tool, such as Access, but that no one there had the available time to explore the options and handle implementation. A director at WJTC concurred. She depends on Excel, in her words, "because Excel will mind me!" Ease of use is clearly a high priority for data management in small nonprofit environments where technical support for data management is scarce and the principal goals of the organization necessitate that already scarce resources be diverted elsewhere.

Context: Limited Available Resources

Funding and Technological Infrastructure

Asking small nonprofits why they continue to use inadequate tools to manage their data will likely result in a one-word answer: "money." The absence of consistent funding for IT at the small nonprofit level imposes constraints on the resources they can acquire. Both WJTC and FWO acquired the hardware component of their technological infrastructure through grants and/or donations, and received software donations through the nonprofit provider, TechSoup (www.techsoup.org).

External funding for IT is more readily available for WJTC than FWO. The direct connection between technology and mission at WJTC makes the organization a more likely candidate for receiving grant money to fund technology projects. As a result, WJTC has a computer lab, equipped with new computers for their students to learn basic word processing skills. The lab computers, along with those used in staff offices are the result of a technology grant the organization received in 2006. In total, WJTC has 15 desktop computers primarily in the computer lab and two laptops for the Director and Assistant Director. All are Dell machines fitted with 1GB RAM and run Windows XP Professional. A Windows 2003 server with 2 GB RAM stores all the shared company data and manages network access.

In contrast, the primarily agricultural nature of FWO's mission makes technology funding from external sources more difficult to obtain. At the beginning of this research, the organization operated with five and six year old computers, many running the Windows 98 operating system. However, they received a donation of three-year-old Dell computers from a local university in 2007. Their current configuration is 7 desktops and 3 laptops. All the machines operate on Windows XP Professional, have at least 1GB RAM, and are connected on a peer-to-peer network. In addition, FWO has targeted one of its older machines with 1GB RAM to become a Windows server. Although funding for IT is limited, we conclude that the infrastructure at both organizations is sufficient to support a better constituent data management tool than those currently in place.

Technological awareness and abilities

As with similarly sized for-profit businesses, neither organization can justify the cost of an in-house IT staff person. Furthermore, funding constraints prevent both groups from hiring an external IT provider to support the infrastructure. This leaves both organizations dependent upon the working IT knowledge of the staff they employ, or the volunteers they attract (see next section). As would be expected, the background and training of the individuals in roles of leadership at the organizations are in the mission-relevant fields of social work, education, or agriculture, rather than technology.

Staff at WJTC and FWO have varying levels of ability with regard to technology. The staff members at WJTC are competent, able users in the systems they know within the parameters of their day to day operations. However, they are not confident in troubleshooting software and hardware issues when they arise. With regard to data management, they are enthusiastic about improving the state of their data management and willing to devote time and energy to efforts that might improve it. However, they have limited awareness of methods and technologies that might be appropriate in moving them in this direction. As a result, WJTC relies upon volunteers for most of their IT needs.

The atmosphere at FWO is different. FWO prefers to handle maintenance of all types of technologies from farming equipment to IT equipment in-house whenever possible. Most of the full-time staff members are comfortable performing hardware and software installations and upgrades, running cables and configuring IP addresses. They also have some awareness of means of improvement to their data management processes. However, handling IT projects takes time, and this is where FWO experiences need. They don't have time to initiate all the projects they would like. The day to day operational demands easily overwhelm, and technology is simply not the top priority. Like WJTC, FWO also looks to volunteers to fill in the areas of IT support where they lack the time or expertise to manage their needs.

Dependence upon volunteers

For general IT support, both the organizations depend heavily upon volunteer efforts to keep them in operation. For example, both nonprofits have a volunteer who maintains their website. FWO maintains connections with various educators at the local university and community college who send students to them for projects, such as network configuration, server installation and website development. Most of the individuals who volunteer at FWO only do so for a short period of time, for one semester, or through the completion of one project. While this provides valuable support to FWO, the ever-changing set of contributors supplies less continuity to the support function. In addition, before the initiation of this research, FWO never had a volunteer focus on supporting applications or data management.

WJTC has a more consistent volunteer technology resource. A local technology provider to small businesses essentially adopted WJTC as a client, pro bono. The provider acquired and installed all of the new equipment made possible by the recent technology grant, set up their backup system, and provides ongoing support for their infrastructure and invaluable expertise for them in terms of technology planning. However, the provider does not handle data and applications for WJTC, leaving them responsible for determining which software packages they purchase and ultimately how they are used.

In the end, though both organizations have volunteer IT resources from the community, none provides them with support in data management. Furthermore, neither organization participates in any networking or associations of small businesses related to technology, which might supply access to relevant training or industry information about data management. This leaves FWO and WJTC without any likely means of becoming informed about data management principles or possible avenues for improvement. Table 2 contrasts the resources available to the two organizations.

Issue	WJTC	FWO
External funding for IT	More easily accessible due to direct connection to mission	Fewer opportunities
Currency of infrastructure	Typically just below current releases	Usually several releases behind current
Installation and maintenance of IT	Relies exclusively on external support	Prefers in-house self-support when possible
Technological awareness	Relies on external support for awareness of available technologies	Staff maintain awareness of some available technologies
Availability for IT projects	Available to take on new IT projects with external direction	Time constraints on staff limit focus on new IT projects
Dependence upon volunteers	Web site design and updates, hardware and software installation, maintenance, network and server configuration	Web design and updates, network and server configuration
Availability of volunteer IT personnel	Consistent volunteers	Regularly-changing volunteers from a variety of sources

Table 2. Available Resources

In summary, the nonprofits in this study have inadequate processes and tools for managing their constituent data. Funding and technological infrastructure, staff awareness and ability, and availability of external resources are factors that appear to contribute to the current state of data management tools and practices in these two nonprofits. We have determined that the technological infrastructure is not a limiting factor to effective data management at the organizations, as both have an infrastructure capable of supporting better data management systems than those which are currently in place. While funding may prevent the organizations from purchasing a better tool for data management, both organizations have access to low-cost relational database tools. We conclude that in most cases funding is a contributing, but not a limiting factor to effective data management in small nonprofits with regard to technological infrastructure and software tools for managing data. The most prohibitive constraint is the limited ability of the nonprofits to gain access to data management principles and expertise, which funding could provide either through hiring or training internal staff, or by securing the services of a consultant or technology service provider. Given the scarce nature of IT funding in small nonprofit organizations, we anticipate the need for assistance in these areas to persist. Our recommendations address this need and offer ideas for solutions.

RECOMMENDATIONS

Improve data management through a centralized constituent database

Centralizing constituent data would resolve many of the aforementioned issues WJTC and FWO face by giving the nonprofits a more complete picture of the constituent and the constituent's relationship with the organization. For example, at WJTC, centralizing data management would allow them to view in one place details about a constituent's volunteering hours, donation history, and involvement as a resource for students. The ability to access the fuller constituent picture that these details provide would enable WJTC to more strategically interact with their constituents by acknowledging participation in the past and requesting involvement in the future. Ultimately, this will position them to better fulfill their organizational mission.

Likewise, a centralized system which supports multiple concurrent users would give the staff the ability to simultaneously access constituent data and contribute to its accuracy. By enabling multiple users to share the same data, the ownership of a constituent's information moves from an individual employee of the nonprofit to the nonprofit itself, and the accuracy, and by extension the value, of the data to the organization increases exponentially.

The authors recognized the need for (1) an effective tool for nonprofit constituent data management, that would (2) give similar ease-of-use and flexibility that the nonprofits were accustomed to with MS Office tools, (3) would be based on languages/databases with readily-available expertise, and (4) would offer ease of portability to other packages and tools if or when the nonprofits so desired. To address this need, the authors have developed a prototype of a constituent management system with a graphical forms-based interface that utilizes an Access database. The system allows for the centralized constituent data management described above with the potential to reside on a server for multiple concurrent users. It also provides a means of storing the strategically important additional relationship data the nonprofits require, and enables them to produce the reports they desperately need to better understand their constituents.

Specifically, the system accommodates the entry and querying of the three different types of relationships identified above as crucial to the mission of the nonprofits: relationships between both the constituent and the nonprofit (e.g., identifying them as donors, teachers, board members, mentors, etc.), relationships between the individual constituent and his or her family members, and relationships between the constituent and other constituents (e.g., indicating that a constituent is a colleague of another constituent, a member of a church, a teacher at a school, etc.). The unique nature of this third relationship requires special accommodation in the data model and user interface. Rather than restricting the related constituent to being a pre-defined attribute of the primary constituent (ex., providing a "church membership" data entry field on the constituent record), our model provides the ability to store an unlimited number of relationships for a given constituent. The user interface enables the relationship to be bidirectional, so that creating the relationship from primary to related constituent also creates a reverse relationship from related to primary constituent. The data model provides the ultimate flexibility in recording and identifying an unlimited number of relationships on a constituent. The user interface presents all the information in a constituent-centric manner for the user, with easily accessible links to relationship-enabling information, such as volunteer hours and donations data.

A copy of the data model upon which the system is based is included in Appendix A. Fitch and Shaffer (2007) propose a similar model; however our model expands the Fitch and Shaffer (2007) model by the inclusion of constituent relationships with the organization, and the inclusion of volunteer hour tracking. As noted earlier, both organizations in this study desired to focus initially on collection and analysis of information related to donors and volunteers, and their relationships. Therefore, the data model in Appendix A is not yet fully developed for client services.

Improve data collection processes

Once provided with a tool for accessing and managing constituent data, ensuring the accuracy and dependability of this data will require FWO and WJTC to establish standardized procedures for collecting data and performing timely data entry. The nonprofits need data collection processes that facilitate the capturing of data at the constituents first point of contact with the organization. For example, FWO has numerous points of entry and involvement with the wider community. An individual may first encounter the nonprofit by inquiring about a certain seasonal production item, such as their locally produced honey or pecans. If a data collection process was in place which required data entry of that individual into the constituent database in order to complete the order processing, then the organization would be confident that they have that person's record from there forward. In another scenario, some constituents first contact the organization not as patrons but as inquisitive visitors with the potential to grow into active constituents. With a more robust, uniformly accessible system of data management in place, processes of data collection could be developed to collect data on visitors as well, and the ability to accurately identify the processes for recurrent points of entry would add further strategic value to the data.

In order to sustain utilization of the data management tools recommended above in the changing environment characteristic of most small nonprofits, and in order to become informed about methods for improving processes around data collection and storage, small nonprofits need access to expertise in data management. Concluding that educational institutions are perfectly positioned to meet this need, we now offer suggestions for partnerships between nonprofits and educational institutions.

Nonprofit partnership with educational institutions

Though the nature of the need is different, both of the organizations presented in this case study need external resources to achieve their goals for improved data management. Community educators are well positioned to serve as a link between local students and small nonprofits in a manner that provides valuable benefits to both. Nonprofits would receive technological assistance, development, and training at little or no cost, while educational institutions would be able to provide

students with exposure to real-world information systems and the challenges faced in their creation, implementation and maintenance. Connecting these two groups addresses the disconnect between small nonprofits and IT professionals identified in our introductory comments by providing data management expertise to nonprofits and exposing future IT professionals to the challenges of real organizations before they enter the workforce.

Incorporating such service learning opportunities offers a number of advantages. MIS programs continually seek the best methods for preparing students for employment in an ever-changing and diverse field. Service learning provides critical value to the curriculum by offering students the opportunity to address real-world projects and experience the inherent challenges of project management. Students find a stronger sense of motivation to perform when they know an organization will depend upon the success of their efforts (Wei et al., 2007). Specifically targeting small nonprofits for MIS service learning projects in data management provides students with an understanding of how significantly data permeates the operational challenges of even the smallest organizations. We believe that students will find a deepened a sense of meaning in serving an organization with limited options for meeting its data management needs.

Smaller nonprofits are particularly well-suited to student projects, because the smaller scale and low-volume environment fit more easily into a regular academic term. The relatively low-technology environment most likely to be found at most nonprofits would also expose students to a different infrastructure configuration than they may see in academic labs or their own home network, yet one which they are likely to encounter upon entering the workforce. Such exposure would provide greater depth of understanding into the factors that affect the computing environment.

As noted in our research with WJTC and FWO, in the initial stages of a partnership between small nonprofits and educational institutions, a new data management tool may likely be high on the list of the organization's technological needs. Students assigned to this type of project would have the invaluable experience of evaluating packages, hosted solutions, and custom solutions in a real-world scenario. Analyzing the cost of various factors and the tradeoffs in functionality between the different options would provide the students with the opportunity for analyzing feature requirements and "fit" with the organization. When the nonprofit is ready to adopt a new database system, handling the data conversion is another invaluable experience for students of information systems, which is difficult to simulate in the classroom alone. The smaller number of users and lower volumes of data make these projects not only feasible for a student group but ideally suited for them.

When a nonprofit already has a manageable system in place, students can provide assistance with customizing or extending the existing tool, or creating forms or reports they require but have been unable to implement themselves because of the aforementioned lack of expertise. These development projects provide opportunities to expose students to the systems development life cycle and the various methods for managing development. Students could also provide ongoing support to existing systems by providing training to new employees, improving the technical awareness of existing employees and auditing systems for continual effectiveness. Students and nonprofits alike will also benefit from student projects devoted to analyzing processes and recommending changes to the methods by which nonprofits collect data.

Educators play a key role in fostering a challenging learning experience for the students, and in the success of the partnership with the nonprofit. By establishing continuity of the relationship between the nonprofit and the school, the educator will ensure that the ever-changing group of students continually meets the ongoing needs of the nonprofit. Any student-based project or development process will inevitably be slower for the nonprofit than utilizing professionals would be. Yet, the relationship with the educator may help the nonprofit come to rely on the services from students, and believe that the value of the work outweighs the cost of waiting. As stated above, the unique characteristics of many small nonprofits allow, and in some instances demand, them to be more flexible in seeking technological assistance.

Information systems educators could offer networking opportunities to broaden support for small nonprofits in the local area. For example, quarterly gatherings would provide opportunities for information sharing among colleagues in the nonprofit sector. This would allow data owners to learn about similar organizations' methods and strategies for managing their data. Also, topical speakers, such as representatives from nonprofit technology assistance providers (NTAPs), could provide information on relevant technologies for organizations with small operating budgets. Beyond data and information management, representatives from other departments within the business school and across the university could discuss other topics important to the nonprofits, such as marketing and accounting, or social work, environmental science, and engineering. Facilitating these connections would broaden the educators' exposure to area nonprofits with similar areas of interest and reveal further educational opportunities. The overall effect of increased involvement by the university would deepen community support as well as provide relevant knowledge to the nonprofit organizations. The authors' university is beginning to engage in such cross-disciplinary assistance to local nonprofits through the initiation of a Center for Nonprofit Studies. It is the intent for this Center to provide training for future leaders in the nonprofit sector, as well as provide an

infrastructure for ongoing student support of local small nonprofit agencies in areas such as accounting, marketing, management, and information systems.

Finally, partnerships and initiatives such as the Center described above have an added advantage—the access to a network of nonprofit agencies for MIS research. MIS researchers have begun to call for increased research into technology issues in the nonprofit context. Gutierrez and Zhang (2007) have called for increased research of IS issues in the nonprofit sector in order to assist nonprofits in using IT as a competitive tool, to examine applicability of IS theories to the nonprofit sector, and to potentially inform issues shared with for-profit businesses. Mathieson (2006) has outlined an extensive list of forty-one potential research questions that would improve our understanding of IT volunteer relationships with nonprofit organizations, and improve our understanding of designing support structures to support volunteer organizations. In the current research, the authors have begun to examine issues of managing constituent data using nonprofit organizations served by faculty and students in the Center for Nonprofit Studies at the authors' university. In addition to continuing this line of research, future research is being planned with these and other local nonprofit organizations to enhance our body of knowledge in topics such as IT project initiation, IT acceptance, and impact of IT on organizational outcomes.

Universities partner with Nonprofit Technology Assistance Providers

Nonprofit technology assistance providers (NTAPs) such as NPower (www.npower.org), may also play an important role. Other MIS researchers have advanced this suggestion in previous research (Mathieson, 2006). These organizations offer technology services including technology planning and hosted application solutions to nonprofits at a discounted rate. Yet, even here small nonprofits experience a disadvantage as NTAPs are often unable to service the smallest of nonprofits. The demand for their services is high, and the funding constraints referenced above mean smaller nonprofits are less likely to afford their services, even at the often-lower cost. A possible solution would involve NTAPs partnering with universities to expand their reach to smaller nonprofits. This partnership may be as simple as providing a referral service to the universities interested in working with small nonprofits. It could also manifest itself in greater participation by NTAPs, educational institutions and small nonprofits in the major professional conferences of the other respective groups in order to foster information exchange. Such collaboration could help increase the awareness of best practices and best-of-breed products, increase the rate of diffusion of good data management practices and again address the division between small nonprofits and current and emerging IT professionals.

Organizations such as WJTC and FWO would greatly benefit from the improvements in tools, processes and expanded partnerships described above. Table 3 summarizes our recommendations.

Recommendation	Benefits
Centralized constituent database	Reduced errors in constituent information
	Improved knowledge of constituent relationships
System supporting multiple concurrent users	Improved data sharing among staff
Strengthen processes for data collection	Increased quantity and value of constituent data
	Identification of common "points of entry" and other constituent trends
Small nonprofits partner with educational institutions	Real-world learning opportunities for students
	IT projects provided at no cost to the nonprofit
	Expansion of MIS research into the nonprofit sector
Educational institutions facilitate networking opportunities	Increased knowledge of available data management solutions
	Opportunities for further educational and professional partnerships
NTAPs partner with educational institutions	NTAPs expand their reach to smaller nonprofits

Table 3. Recommendations

LIMITATIONS

Because our study is limited to two small nonprofit organizations with specific services located in the southwest region of the U.S., generalizability of the data management issues to other populations such as large nonprofit agencies with multiple affiliates cannot be made. Surveys of a random sample of heterogeneous nonprofit organizations would shed light on the applicability of the data management issues to the broader category of nonprofit organizations. The authors have taken a step in this direction by conducting a survey of data management issues faced by a broader segment of nonprofit organizations, chosen by students in database classes at the authors' university. We hope to share preliminary results of this survey at the conference.

Generalizability of the proposed data model to other domains is also a limitation as the current study is limited to the workforce training and agricultural domains. Future research is suggested to apply the proposed data model to other nonprofit service domains.

A third limitation of the current research is the lack of information on the impact of our proposed recommendations, including the constituent data management system, on organizational outcomes. While both the organizations are willing to use the constituent management system developed for this research, neither has yet to begin using the system in a full implementation. This has been due to development resource constraints at the authors' university. However, additional resource has been secured and the authors hope to share additional progress on the development and impacts of the system at the conference. In addition, a long-term plan has been developed utilizing the Center for Nonprofit Studies to ensure ongoing IS student resource to support current and future nonprofits.

CONCLUSION

This paper has reported on research that identifies challenges faced by nonprofit agencies when managing constituent data, and how a partnership between the university and the nonprofits resulted in the development of constituent-relationship management system that is expected to improve the state of data management in both organizations, and ultimately increase effectiveness for both organizations. We have contributed to the MIS body of knowledge by (1) describing contextual factors that impact data management in small nonprofit organizations, (2) developing a robust data model for the management of nonprofit constituent data, including the critical but often omitted constituent-to-constituent and constituent-to-organization relationships, and (3) providing guidance on areas that can be addressed within MIS programs to prepare students to serve this sector during and after their matriculation in the program. It is our hope that this research spurs partnerships between the academic community and nonprofits in other locations, as well as greater collaboration between Universities in supporting this important sector of our society.

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Appendix A. Constituent Relationship Management Data Model

Constituent Management Partial ERD
NOTE: not all entities are included below