Information Technology Assessment of AIDS Project Worcester

Sponsored by: AIDS Project Worcester

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Abstract

AIDS Project Worcester (APW) is a nonprofit organization dedicated to improving the quality of life for individuals and families affected by HIV/AIDS. The project team assessed the Information Technology system in place at APW, and provided recommendations regarding changes that need to be made to the IT system, along with a 3-5 year technology replacement plan and training materials for the staff.

Acknowledgments

We would just like to take this section to acknowledge all of the people who helped us throughout the IQP process.

First of all, and most importantly, we would like to thank the employees of AIDS Project Worcester. They provided us with an amazing IQP experience, accepting us as one of their own in our time there. The coffee was always hot, and there was always a place for us to work. Everyone was eager to help us reach our project goals, cooperating whenever we asked.

We would also like to thank our faculty advisor, Professor Corey Dehner for her support throughout the entire process. She tolerated our countless late-night emails, gave us helpful feedback, and always pushed us to be the best project team that we could be.

Executive Summary

AIDS Project Worcester (APW) is a not for profit organization dedicated to improving the quality of life for individuals and families affected by HIV/AIDS (Human immunodeficiency Virus/Acquired Immunodeficiency Syndrome). The project team has assessed the effectiveness of the Information Technology (IT) system in place at APW as well as the IT training needs of APW staff

Methodology

To complete the assessment, the project team inventoried all of the hardware and software owned by APW. In the process, the project team used interviews, focus groups, and surveys to reach out to the employees of AIDS Project Worcester and evaluate what training the employees need to operate more efficiently, as well as deduce their specific technology needs.

Findings

During the project team's time at APW the results of the IT assessment showed there needs to be significant upgrades to the infrastructure. Most of the computers are six to seven years old with inadequate RAM and obsolete processors. These problems inhibit employees from completing necessary tasks. Some computers use 80% of the total RAM before opening any programs, this makes the computers respond slowly and often freeze. The project team also found that to make the best use of the technology at hand the employees need training on fundamental computer skills and programs.

The project team has determined that most of the twenty-four desktops at APW will need to be replaced. The computers will be replaced either all at once through a large grant, or slowly, three to four computers at a time depending on excess funds and grant money.

The project team helped to train the employees in basic computer skills and programs. At the beginning of the project, the team sent out a survey to determine the skill level of the employees at using various programs and overall computer skills. The project team also held focus groups to get a better understanding of the skill level of the employees and to see what they wanted to be trained on. Using the information gathered from the surveys and the focus groups the project team decided what the topics of the training sessions would be. Some of the topics that were taught to the staff included Outlook, Excel, PowerPoint, and how to properly save to the network servers.

The work that the project team has completed will help APW use its available technology in a more efficient manner as well as provide recommendations that will allow technology to better aid all employees in their work.

Conclusions and Recommendations

The first aspect of the Information Technology assessment was determining if AIDS Project Worcester met the technology threshold. The project team defined the technology threshold as computers less than three years old, Internet access, email, an internal network for file sharing, and printers. As a result of the inventory, the project team found that the computers being used by APW were older than three years, therefore falling short of the technology threshold. While APW does have Internet access, they rely on a DSL connection, which is too slow for their everyday needs. APW does have a sufficient internal network for sharing files, as well as printing, and every employee has an individual email address.

In order to meet the technology threshold, the project team recommends that APW apply for technology grants, such as The Verizon Foundation and The Bill and

Melinda Gates Foundation which can provide APW with grant money exceeding $5,000 that can be used new computers When receiving grant money, it is recommended that APW follow the replacement plan laid out by the project team (page 33). The project team also recommends that APW always be actively searching for new grant opportunities.

The second aspect of the IT assessment was the employee surveys and interviews. Based on the responses from the surveys and interviews, the project team determined that the employees would greatly benefit from training on the software used to complete their jobs. Some of the employees struggle using the technology available to them, often causing them to give up on using technology all together. With proper training, their workload could be significantly decreased, allowing each employee to service more clients.

Regardless of how much technology APW has or how well designed their IT system is, it is all basically useless if the employees do not know how to properly and effectively utilize it. Throughout the project, the project team has been offering training sessions open to any employees that wish to attend. The sessions have been focused directly on the tasks that the employees must complete on a regular basis. The feedback from these training sessions has been exceptional; the employees have reported significant increases in their program literacy and basic understanding of how to operate their computers.

The project team recommends that APW offer training sessions on a regular basis for those who feel like they could use extra assistance. According to the surveys and interviews conducted by the project team, there are a few employees who consider

themselves to be very comfortable using a computer and the job related software. If they

are willing, these employees could host training sessions for employees who need help.

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1 Introduction

AIDS Project Worcester (APW) is a non-profit organization that helps clients that are infected with the HIV/AIDS virus deal with the social, stigmatic and economic ramifications of the disease. APW also provides free health services to patients including: sexually transmitted infection (STI) testing, mental health counseling, support groups, therapy, and substance abuse counseling. As of 2008 APW serves 513 clients, 96% of which are living below the poverty line. APW receives 97% of its funding from the Ryan White CARE Act, a statute first passed by Congress in 1990 (AIDS Project Worcester, 2008).

APW's mission is "ending the HIV/AIDS pandemic and fostering wellness through service, advocacy, prevention, education, and collaborative initiatives. [They] empower and enhance the lives of people infected and affected by HIV/ AIDS by fighting stigma and discrimination and through individualized services and best practices in a supportive, multicultural setting" (AIDS Project Worcester, 2012). In order to reach their goal, AIDS Project Worcester must conduct itself in the most efficient and effective manner possible. Achieving this can be greatly assisted by implementation of a properly designed and efficiently functioning Information Technology system. Studies have shown organizations that appropriately utilize a well-designed IT raise an extra 2.5% from fundraisers (Gopalan, 2009).

The objective of this project was assessing the information technology needs of AIDS Project Worcester. To begin, the project team took an inventory of the technologies currently being utilized by APW. With this inventory, the project team determined which components needed to be upgraded, for example servers, hardware,

and software. The project team then, drafted a technology replacement plan, detailing the upgrades that need to be made to the infrastructure every year for the next 3-5 years to keep the IT system working effectively. From there, the project team reviewed purchasing options with APW, based on available funding.

Regardless of how well designed an IT system is, it is still useless if the employees do not know how to take advantage of what their IT system has to offer. To determine the continuum of employee IT program skills and proficiency, the project team surveyed and interviewed APW employees. The project team used this information to determine the overall technology needs of the employees. With these needs in mind, the project team developed user-friendly training manuals to help employees troubleshoot any problems that may arise.

Consequently, the project team performed a complete and extensive assessment of the needs of AIDS Project Worcester, keeping the best interests of APW at the forefront of the research goals. At the conclusion of the project, it is the team's intent that the employees are able to complete their designated tasks with more efficiency and ease, therefore increasing the overall productiveness of APW. The more efficient APW is, the more time and resources can be provided to their clients.

2 Literature Review

1. Introduction

If a new or restructured IT system would benefit APW, it must be implemented correctly as well as be economically feasible for APW. A well functioning IT system can improve the efficiency of an organization and its employees, and in the case of APW this can mean saving money that can be used to server clients (Hackler Saxton, 2007). Gregory Saxton, an Assistant Professor of Communication at the University of Buffalo, and Darrene Hackler, an Associate Professor of Government and Politics at George Mason University, have conducted research on information technology innovation in the non-profit sector. Hackler and Saxton define information technology is defined as "applied computer systems, including computer hardware, software programs, computer networking, and consulting services to support the use and implementation of information technology" (Hackler Saxton, 2007).

In the first section of the background chapter the project team discusses the special needs of nonprofit organizations. In the next section we describe the benefits of information technology to non-profits. Finally, the project team describes the Ryan White CARE Act, the primary funding source for APW and what the data reporting requirements of the Ryan White CARE Act means for APW's networking needs.

Special Needs of Non-Profit Organizations

What is a non-profit organization?

APW is a registered 501(c)(3) non-profit organization (NPO) as defined by the Internal Revenue Service (IRS). In order for an organization to receive 501(c)(3) classification, it must be organized and operated for exempt purposes. In this case, APW is classified as a charitable organization. The IRS defines a charitable organization as an

organization that provides resources to the poor, the distressed, or the underprivileged. The IRS places the following restrictions on charitable organizations:

1. May not make lobbying a large part of their activities.

2. May not campaign for or against political candidates.

3. May not be operated or organized to benefit a private party, and any earnings may not benefit any private shareholder (I.R.C. § 501(c)(3) (2012)).

APW meets the aforementioned IRS restrictions.

NPOs have very different goals from for-profit corporations, but both NPOs and corporations strive for efficiency in operations. Corporations want to increase their bottom line while NPOs try to increase services to clients.

Utility of Information Technology
Having a well-functioning information technology system, including employee proficiency, can increase the efficiency and effectiveness of a NPO.

Gopalan, a doctoral candidate at Georgetown University wrote his thesis titled "The Effect of Technology on Non-Profit Organization Efficiency," suggests that nonprofits do not have to invest in new technology, but only have to promote a more technology friendly environment (Gopalan, 2009). Promoting a technology friendly environment can be done by hiring employees who are enthusiastic and educated about technology, and by providing training for those who are not. Filing more forms electronically also promotes a technology friendly environment (Gopalan, 2009). Gopalan found that if technology is embraced as described a nonprofit would increase its operational efficiency. In a study conducted by Gopalan, he found that NPOs that electronically file their government tax forms raise 2.5% more from fundraisers than

NPOs that do not (Gopalan, 2009). This study looks at when NPOs where first allowed to file electronically, which was in 2003. The study is dated, but technology has only grown and NPOs such as APW should be encouraged to utilize it effectively. Gopalan also noticed the NPOs that adopted the electronic filing earlier, where the NPOs with a more technology friendly environment.   If APW can get its employees to embrace the available technology, APW will increase its operations efficiency by maximizing the utilization of the technology.

Technology can be used to increase the buying power of NPOs through electronic filing and purchasing (Friedman, 2005). The Georgia Center for Nonprofits (GCN) is an advocacy group consisting of about 1,200 organizations that are dedicated to helping NPOs in the state of Georgia. The GCN helps NPO consultants develop purchasing strategies based on the needs of the NPO. The GCN also provides various types of research for its members (Georgia Center for Nonprofits, 2007). The GCN can provide a format for NPOs like APW to increase buying power.

According to the GCN every dollar spent on items such as office supplies equates to eleven dollars that must be raised. The GCN found that smaller nonprofit organizations lack the purchasing power of larger corporations because smaller NPOs cannot negotiate lower costs. Large corporations have the ability to buy computers in bulk, meaning which often translates to reduced prices per machine. Small organizations do not have this luxury, and end up paying full price for the products (Georgia Center for Nonprofits, 2007). The GCN argues that to counteract this purchasing imbalance, nonprofit organizations should implement a system for making electronic purchases. The GCN started a pilot program of the Nonprofit Market Place (NPM). The NPM is a program that

allows nonprofits in Georgia to use their buying power collectively so they can leverage the same lower costs that usually only large businesses can obtain. During the pilot program the Atlanta Community Food Bank saved 50% on office supplies, and all fees for DHL deliveries were eliminated.

This purchasing system developed by GCN allows supervisors to approve purchases electronically, and has the potential to eliminate time-consuming paperwork. In a study by *Purchasing Magazine*, a trade publication serving the information needs of purchasing professionals, the author explained that approximately one third of a purchasing manager's time is consumed by paperwork (Georgia Center for Nonprofits, 2007). This elimination of paperwork provides the employee with more time to devote to other important tasks, ultimately making the workplace more efficient (Georgia Center for Nonprofits, 2007).

A study conducted by Rita Mano, Senior Lecturer in the Department of Human Services for the University of Haifa and researcher on IT efficiency, concurs with the GCN's conclusions, noting that information technology could increase efficiency in a non-profit organization under the correct conditions. In "Information Technology, Adaptation and Innovation in Nonprofit Human Service Organizations," Mano states that without proper training, the addition of improved information technology may not improve organization performance (Mano, 2009).

Employee Training and Funding
Information technology has the potential to change the way non-profit organizations operate, but only if the staff is properly trained on the technology at hand. Non-profit organizations tend to spend most of the information technology budget on hardware, software, and maintenance (Hackler Saxton, 2007). Most non-profit

organizations have little money to spend on training. The limited resources become an issue when organizations acquire new equipment and the employees are not trained to use it (Hackler Saxton, 2007).

Some technology may be easy to acquire because companies such as Microsoft give software away to nonprofit organizations that qualify. Microsoft gives away free software to 501(c) (3) NPOs, like APW (Microsoft, 2012). The software donated includes ten title groups with fifty licenses along with no more than five server title groups (TechSoup Global, 2012). Microsoft defines title groups as software packages that can include multiple programs. An example of this is Microsoft Office; a title group that contains programs such as Word, Excel, and PowerPoint (TechSoup Global, 2012).

2. Steps To Assess IT Needs at Nonprofit Organizations

When assessing IT needs the project team needs to take into account current technology, the organization's technology compared to the most current technology available, and any IT plans for the future. Experts have different approaches to assessing a NPO's technology needs but most encompass analyzing the NPOs specific technology needs, current trends in technological innovations and funding sources.

Lientz, a professor at the Graduate School of Management, University of California, and Chen, an IT consultant, developed a four-step system for assessing information technology in "Assessing the Impact of New Technology in Information Systems" (1981). These steps are:

1. Definition of what the organization does and wants to do in terms of information services, and the current information services environment.

2. Analysis of technology trends and forecasts in the areas of hardware, software, and communications, and assessment of this technology in terms of price, timing, size, speed, and reliability.

3. Assessment of step 1 and step 2 at the project level, and at the organization level.

4. Further refinement and assessment of the above as it relates to specific application areas (Cited by Huff Munro, 1985).

Mark G. Friedman, a doctoral candidate at Union Institute, a private 4-year college in Cincinnati, Ohio, conducted research on 24 grassroots NPOs. All organizations studied identified money as a major barrier to effectively using information technology (Friedman, 2005). Consequently, Friedman identified seven steps that an NPO must take to have an effective IT system. The steps according to Friedman are:

1. Reaching the technology threshold

2. Obtaining designated technology funding

3. Receiving specific non-profit technology assistance

4. Tailoring the use of technology to meet the specific needs

5. Develop a technology plan

6. Finding innovative uses for information technology

7. Cooperating to acquire resources

(Friedman, 2005)

Friedman plan is more comprehensive and thus offers a fuller evaluation of a NPOs IT system. More specifically, Friedman's plan includes steps to acquire funding and resources while Lientz and Chen's system only looks at current technology and the

forecast of future technology needs. Lientz and Chen's plan is outdated because, at the time of publication, the Internet was in its infancy and today the Internet is a prerequisite for any organization. Friedman's steps are more comprehensive in evaluation as well as providing ways to improve the current IT system of an organization. The following sections will detail Friedman's seven steps in more depth.

Reaching the Technology Threshold

The technology threshold is reached when the majority of staff have computers less than three years old, internet access, email, an internal network for file sharing, and printers. Friedman suggests that NPOs try to reach the technology threshold and adapt their current infrastructure to meet their specific needs (Friedman, 2005).

Obtaining Designated Technology Funding

It is difficult for small non-profits to spend money prospectively, when funding and resources are being spent on more immediate needs. Organizations are hesitant to spend money on the future because NPOs are uncertain what new technology to purchase and if the new technology will work. With these new purchases they are also concerned with the added cost to their budget. Therefore dedicated funds to a technology budget through grants or donations will help reduce the financial of purchasing new technology (Friedman, 2005).

Receiving Specific Non-Profit Technology Assistance

NPOs require IT assistance tailored to their specific budget and technology needs. *Circuit Rider* is a term used for an organization that provides nonprofits with technology services such as project implementation, technology planning, training, and support at little to no cost to the NPO. Circuit Rider organizations lower the overhead cost of NPOs

by offering low or no cost services to maintain information technology systems (Friedman 2005).

Tailoring the Use Of Technology To Meet The Specific Needs

Once an organization has reached the technology threshold, the focus must shift from acquiring technology to adapting on-hand technologies to organization needs. For example, when an NPO has met its technology threshold and needs to increase its visibility; the organization should switch its focus to utilizing the technology it has to gain public awareness. This organization could use the technology that they already have to create a webpage allowing the public to view the information they wish to display (Friedman, 2005).

Developing a Technology Plan

Technology planning plays an important role in helping to identify and recommend types of information technology that should be implemented and in developing IT replacement plans. An independent technology consultant often carries out this task. Technology planning also includes creating a plan to get funding for future technology upgrades. This planning puts a commitment on the organization to ultimately implement these changes to the technology and use them to benefit the organization (Friedman, 2005).

Finding Innovative Uses for Information Technology

Once the newly implemented information technology is applied the organization can utilize the technology to their specific needs. This can include sending email as opposed to written letters, and using electronic calendars (Friedman, 2005).

Cooperating To Acquire Resources

NPOs that cooperate to acquire resources can spread the cost across multiple organizations. One use of such cooperation could be coordination among numerous nonprofits to hold an IT training session where the cost for hiring the trainer and necessary supplies could be distributed across the participating organizations. For example, if APW wanted to hold a technology training session, they could reach out to All Care Pharmacy, an NPO that shares building space with APW, to share the cost of the training. Spreading the cost across two organizations allows both to receive the benefits of a professional trainer while reducing the cost of the seminar (Friedman, 2005). Cooperating with other organizations to pool resources can save APW money that they receive through the Ryan White CARE Act, the major source of the agencies funding.

3. Ryan White CARE Act

Who Was Ryan White?

Ryan White was a student that contracted the Acquired Immunodeficiency Syndrome at the age of thirteen from a tainted blood fusion administered to treat his hemophilia. White was discriminated against due to his disease and was kept home from school due to his poor health. After a year and a half he and his family demanded that he be allowed to attend a local school; however the school refused his admittance due to their fears and lack of knowledge of his condition. His family brought the school to court and eventually won the case allowing his attendance to the school (Encyclopedia Britannica, 2012).

The Ryan White CARE Act

The CARE (Comprehensive AIDS Resource Emergency) Act, first passed by Congress in 1990, provides financial assistance to organizations that care for HIV/AIDS

infected patients. The CARE Act has five parts, parts A, B, C, D, and F, that are designed to help people from different communities and populations who are affected by HIV/AIDS.

Summary of Ryan White CARE Act Part A-D

Part A has eligibility requirements for grants in urban areas. A city becomes eligible if there are more than 2,000 reported cases of HIV/AIDS in the past five years, and have a population of at least 50,000. Part A provides resources that include outpatient services, mental health services, medical nutrition therapy, hospice care, health insurance assistance for people with low income, substance abuse care, and oral health services (HRSA, 2012).

Part B provides grants to all 50 states and US territories. These grants designate funds for HIV/AIDS medication, purchase of health insurance, and treatment monitoring (HRSA, 2012).

Part C provides outpatient health care for patients living with HIV/AIDS, and services including, but not limited to, counseling, primary care providers, lab, x-ray and other diagnostic tests, medical and dental supplies, medical case management, electronic medical records, patient education when needed, transportation for care provider, other clinical or diagnostic services regarding to HIV/AIDS (HRSA, 2012).

Part D provides family centered care for women and children through outreach programs, education, and family advocacy. There is currently no Part E to this statute (HRSA, 2012).

Ryan White CARE Act Part F

The special project of national significance (SPNS), part F, provides funding to create better treatment models and to collecting electronic patient data collection

mechanisms. Grantees are required to report innovations in HIV/AIDS treatment so that these advances can increase the knowledge and skills of all care providers (HRSA, 2012).

AIDS Project Worcester receives funding under Part F of the Ryan White CARE Act. In compliance with Part F APW submits monthly reports using the Genuine 2 program and CAREWare. Genuine 2 is a program that takes information from their client database and creates a document that is subsequently submitted to the state government. CAREWare is a similar program that is provided by the federal government used to report client service information (Akstin, Rodriguez, 2012). The CARE Act gives all grant recipients access to the 340B Direct Purchasing Option. The 340B Direct Purchasing Option is a program in which organizations that benefit from the CARE act, like APW, may purchase pharmaceuticals directly from their manufacturers. This is an enormous money saver for places such as AIDS Project Worcester. Having access to discount/wholesale price pharmaceuticals offers a dramatic benefit to APW's clientele as 90% of them make less than $10,000 per year (Akstin, Rodriguez, 2012).

4. Gaps in Research

The work done by Friedman was only based on his research of 24 NPOs. His research cannot be applied to all NPOs due to the small sample size, but it provides a useful procedure for the AIDS Project Worcester team to utilize.

Hackler and Saxton used snowball sampling; therefore their data cannot be generalized to all NPOs because they did not use random sampling. Hackler and Saxton asked Gifts In Kind International to perform a survey for the purpose of understanding the technology needs of NPOs. Gifts In Kind is the third largest NPO in the United States. It partners with other companies to provide products and services to other NPOs. Gifts In Kind used a snowball sampling method as their primary method of gathering

participants in their survey (Hacker Saxton, 2007). Snowball sampling works by existing

subjects gathering people they know to be future subjects for the study (Changing Minds,

2012). This method was used because Gifts In Kind thought that snowball sampling

would reach out to a greater diversity of NPOs. Therefore, these NPOs would not be

included in the study. Gifts In Kind used snowball sampling because not all NPOs are

required to fill out the 990 tax exemption form such as churches and NPOs that have a

budget under $25,000. Due to the described sampling method the results from Hackler

and Saxton may not be generalizable (Hackler Saxton, 2007). All of these works provide

a good framework for the procedure of assessing information technology; however APW

requires its own specific implementation method.

3   Methods

1. Introduction

The main goal of this project was to identify the Information Technology needs of AIDS Project Worcester (APW). There have been several needs identified by the project team and by APW that were addressed. The project objectives were:

1. Perform an IT assessment and evaluate APW's current IT infrastructure

2. Report IT recommendations to APW based on the IT assessment

3. Create a replacement plan for outdated technology for the next 3 years

4. Propose/create an IT training manual for APW employees

5. Start performing tasks needed to upgrade/ maintain technology systems

To accomplish the identified tasks, the project group conducted interviews, focus groups, surveys, as well as observing the needs of the employees of APW. The information gathered from the interviews and focus groups was instrumental in determining the needs of APW and giving the project a defined direction. The project aims to improve the operating efficiency of the IT system as well as the employees while increasing usability.

In section 7.1, the project team discussed the overarching research question. In section 7.2, the project group discusses the plan for the proposed IT assessment of APW and APW's current IT infrastructure. In section 7.3, the project team outlines the proposed technology replacement plan for APW. In section 7.5, the project team discusses the training manuals that have been created. These manuals cater to the needs

of the employees. In section 7.6, the project team outlines steps the team made to implement the recommendations.

2. Perform an IT assessment and evaluate APW's current infrastructure

Identifying the IT needs of AIDS Project Worcester

At the onset of our IQP, the project team conducted a preliminary inspection of APW's hardware, software, networking capability, security practices, and backup procedures to gain an elementary understanding of the organization's IT needs. The findings from this inspection formed the basis of the recommendations for APW, detailed in appendix E (9.5). The project group systematically walked around the office and take visual inventory of all the hardware currently utilized by APW by visiting each employee desk, each computer, and the on-site network hardware, which is stored in the server room. Once the project team has compiled information about APW's hardware, the team created a database including computer make and model, RAM, processor speed, hard drive size, operating system and installed software. The project team located all software and licenses that APW owns and compiled them so that they are easily accessible to APW staff.

In order to assess networking capabilities the APW project team preformed speed tests. The project team contacted the Internet provider to ascertain how much bandwidth (data transfer speed) APW is provided.

The project team assessed current maintenance protocols by interviewing APW's IT consultant and by interviewing and holding focus groups with current APW employees.

Interviewing the IT consultant was helpful, as he provided insight into the inner workings of the systems. All three team members participated in the interview with the consultant (see appendix B for questions). The interview was conducted in a semi-structured fashion, where the team had a defined set of questions that needed to be answered, but the order and wording of the questions was not rigid.

Focus groups provided a better understanding of the employee's computer literacy, as well as where network security is lacking. The team conducted two focus groups, incorporating able to include all 24 APW employees. The focus groups were organized to be informal, allowing for a comfortable atmosphere and casual, but informative, conversation about employees' daily computer use. The team will also posed questions regarding computer maintenance practices, for example, how often computer hard disks are defragmented, backed up, and updated. The purpose of disk defragmentation is to compact the data on the hard drive and makes the computer run more efficiently. The backup procedure are used to failsafe data loss on individual computers and the server. (See focus group questions Appendix C).

Interviews and focus groups were performed to help assess the security protocols. APW has expressed a need for an increase in their IT security. This includes virus protection and firewalls. Virus protection is necessary because viruses can slow down computers, steal information, and corrupt data.

3. Create a replacement plan for outdated technology

Using the findings from the IT assessment the project team created an inventory replacement plan. This replacement plan outlines the necessary upgrades to keep APW's information system up to date with modern day computing standards. The team investigated financially feasible options to replace hardware.

4   Findings and Discussion

The project team has identified the IT needs of APW. In this section, the project

team's findings are listed and then broken down into greater detail. In the hardware needs

subsection, the project team has analyzed data taken from the hardware inventory at

APW. In the section focusing on current utilization of available technology, the project

team discusses how effectively the employees of APW use the available technology. In

section 9.3, the project team discusses the issues with the project team's data collection.

The needs of APW have been identified as:

1. Organize the server room into a usable space

On the initial walkthrough, the project team noticed that a simple organization of

the server room would allow a much improved working environment; for example

organizing software licenses.

2. Utilize Current Technology

The goal of the many of the survey and focus group questions was to learn if the

employees at APW were fully and correctly utilizing the technology available to them.

After analyzing the compiled data from the surveys and discussing comfort levels about

certain programs during the focus groups, it became clear that not all of the employees

utilize and are proficient with all of the programs they use on a daily basis. Microsoft

Office programs and Google Chrome are used most often as shown in Figure 1. From the

survey a majority of the employees said that they would attend training sessions and use

training guides if they were offered to them, as shown in Figures 2 and 3. Properly saving

documents and Microsoft Office programs were the main focus of the training sessions

and guides.

Properly Saving:

APW has a network drive that is accessible to all employees, however not all of the employees utilize this. The benefit of a network drive is that it backs up all files saved on it daily so that no files are lost. This is important to the employees because the hardware that most of the employees use is old and therefore prone to crashing. If a computer crashes and the files are not saved to the network drive then all of the files could be lost. Therefore, the project team hosted a training session to show how to save to the network drive and the importance of doing so.

Microsoft Excel:

Excel is a program that if used correctly can provide a useful tool for organizing and presenting data. It can take data from a table and make a chart or a graph that can show trends in data. Excel also allows for functions to be entered into cells to make tasks such as accounting and timesheets easy and less time consuming. As shown in Figure 1, 60% of the employees use Excel often, but due to the low number of responses and feedback from the focus groups, the project team decided that a training session on Excel would be to the benefit of APW.

Excel can be a difficult program to learn and we were happy that during the Excel training session, the employees brought questions for us to answer. For example, when a large number is entered in a cell, Excel fills the cell with "#". We were able to show everyone how to fix that problem. After the presentation an employee told us how much more confident they are using Excel after attending our training session.

Microsoft Outlook:

All of the employees at APW use Outlook for their email, however not all of the employees are comfortable using it. As shown in Figure 4, when asked if the employee is

comfortable using Outlook to organize their schedule, only half of the employees felt

comfortable with Outlook. When employees were asked how often they use Outlook to

organize their schedules, 64% responded with not at all (see Figure 5). While talking to

some employees about why they do not use Outlook to organize their schedule the

general response has been because using Outlook requires too much time. The project

team showed the employees how to properly use the calendar and other aspects of

Outlook. The Outlook calendar provides a useful tool to set meetings and keep an

organized schedule. Using the Outlook Calendar does not require much time, and it can

be linked to a smart phone.

After our Outlook training sessions, we had multiple employees come up to us

and ask us to show them how to link their work calendar to their smartphone. We also

noticed that more employees started using Outlook's meeting invitations. We were

excited so many people using the meeting invitations because we identified this as a very

underutilized feature of Microsoft Office that can provide a great benefit to APW and its

employees.

Microsoft PowerPoint:

As seen in Figure 1, 36% of the employees use PowerPoint as a part of their work.

However, requests from the employees during our focus group demonstrated that the

employees were not as proficient as they would have liked to be. During our focus groups

some aspects of PowerPoint were highlighted as training needs including transitions,

importing pictures, slide layouts and themes. The project team conducted two

presentations on PowerPoint, one about how to make a PowerPoint and all of the

specified training needs, and another one about how to conduct a good PowerPoint presentation.

One time after we finished our Power Point training session, we received an email from an employee thanking us for the information and help that we provided in that session. She told us that she had just used what we taught her in our Power Point training to create a presentation. We were so excited to see this email because it let us know that we were actually able to help someone and make a difference. We were also asked by a group of employees to help make a Power Point about HIV/AIDS prevention. One morning we sat down with the employees and showed them in more detail how to use Power Point as well as how to effectively present it. During this time we were not always the teachers because these employees also taught us a thing or two about HIV/AIDS prevention.

Microsoft Access:

At APW client records are recorded in Microsoft Access databases. Nearly a third of the employees use Access as a part of their work. These databases are important because the information they contain is used so that APW can receive money from the Ryan White CARE Act.

Overall, the project team found that the employees of APW were not taking advantage of the full capabilities of the available technology. From the surveys and the focus groups the project team analyzed what the most important training topics would be to help the employees most. The goal was to give the employees a better understanding and comfort level of each program so that productivity would be as great as possible.

These topics were then used as the focus of the training manuals created by the project team.

Create Training Manuals

Using the data acquired from the APW employee needs assessment; the project team created training guides, along with hosting seminars and individual help sessions. In order for APW to take advantage of its IT system all of the employees must have a basic understanding of how to operate programs necessary to complete their jobs. Some of these programs include but are not limited to:

- Microsoft Word
- Microsoft Excel
- Microsoft Outlook
- Microsoft Power Point

The project team hosted training seminars and resource guides for APW employees to enhance their technical abilities. Some of the seminars included a Microsoft Outlook workshop to teach the employees the fundamentals of Outlook.

3. Create Redundancy in Information Technology Knowledge

The only person who knows how to operate and maintain the IT system is the IT consultant. If something were to happen where he was unable to provide his services, there is no one else with the knowledge of the computer infrastructure to keep the system running. APW needs a team of employees who are trained on how to operate/maintain the IT system. To operate or maintain the IT system a person must know how to back up data, add accounts to the network, manage accounts, and troubleshoot problems.

4. Identify Outdated Hardware

The project team inventoried all of the computers, monitors, and printers at APW. This list was used to analyze APW's current hardware and compare it to what is available

in today's market. The project team found that most of the computers in use at APW are more than five years old, and, as a result, the computers do not have enough Random Access Memory or an adequate processor. Internet speed is also an issue that the project team has found.

Inadequate Random Access Memory:

Most of the computers at APW have inadequate amounts of Random Access Memory (RAM). RAM allows the computer to run multiple processes at the same time. The computers at APW barely have enough RAM to run Windows 7. This is an issue when employees need to open a program, for example, Microsoft Word to write reports, the computer will become slow and unresponsive, inhibiting productivity.

Slow Processors:

The processor is the next area of analysis for the computers at APW. The vast majority of the processors have single cores clocked at 1.9 Gigahertz (GHz). To put this in perspective, a brand new Dell Vostro (a low end, present day workstation) has a dual core processor clocked at over 3 GHz, meaning that the new Vostro can run two separate processes at 3 GHz. Contrast this with APW's computers, only able to run a single calculation at 1.9 GHz.

Slow Internet:

The project team also found the Internet speeds at APW to be inadequate for the employee's needs. The Internet speed at was found to be too slow to foster a productive work environment. At the outset of our IQP term, APW contracted Verizon DSL for their Internet needs. The project team conducted some Internet speed tests using a free utility on the Internet, www.speedtest.net. The fastest recorded download speed was 2 megabits,

and the fastest upload speed was recorded at 0.7 megabits. These speeds are inadequate for timely work because webpages take too long to load. On behalf of APW, we researched alternate Internet providers and found Charter provides services to other businesses in the area.

From the focus groups, the main complaint was that the computers were too slow. Faster processors and more RAM will eliminate this problem for the most part unless there is a slow Internet connection. Once these hardware issues are addressed the employees will be able to work more efficiently and get tasks done at a faster rate.

5. Create a Replacement Plan

For AIDS Project Worcester to perform at its highest efficiency there needs to be an upgrade to their current technology. Their current computers lack hardware necessary to meet computer standards in today's businesses. One of the project goals of the APW IQP team was to create a replacement plan so that APW can know what needs to be done to upgrade their current technology.

For APW to fully utilize a replacement plan most of the computers would have to be replaced at one time so that all of the computers are less than three years old, which would meet the technology threshold set by Friedman. After this big replacement five computers should be replaced every year, so there will be no computer at APW more than three years old.

The cost to make this happen would be around $18,000. After this initial cost, APW would need $2,000 per year to replace five computers every year. There are organizations that donate to NPOs such as the Verizon Foundation and the Bill and Melinda Gates Foundation. If APW receives grant money, the project team has some recommendations that APW should buy with the money:

5 laptop computers:

The directors are often working out of office and they need access to a computer wherever they are at. Laptops will allow the directors to be mobile, and have access to email while out of office. The laptops should have no less than 4 GB of RAM and no less than an Intel i3 processor.

A server rack:

There are rack servers that are sitting on the ground in the server room. This does not allow proper airflow through the servers and promotes collection of dust. The server rack will help prolong the life of the hardware, and organize the server room.

A portable projector and screen:

AIDS Project Worcester needs a projector and a portable projector screen for presentations to clients and employees.

5 manageable network switches:

Speed and network security

A RAID networked storage system:

AIDS Project Worcester needs a protected back up system for employee and client data. A RAID networked storage system will provide redundant storage for employees' files, so that, in case of computer failure, there is no data loss.

The project team has written a proposal that can be attached to any grant request from the agency in order to try and receive money to help with this replacement plan. With this plan in place the agency will be able to perform at its highest effectiveness.

5 Conclusion

The project team has shown that a technology friendly environment and employee training can improve the IT system of an organization (Gopalan, 2009). At the onset of this IQP, the project team set out to perform an IT assessment of AIDS Project Worcester. The project team was able complete the assessment and provide APW with detailed findings as well as provide some training for the employees. During this IQP, the project team hopes to have left some of its knowledge behind so that the employees will be able to better serve their clients.

6 Appendices
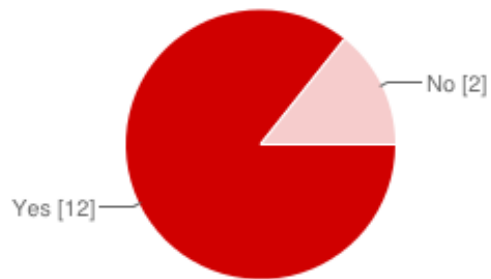
1. Figures

6.1.1   Figure 1

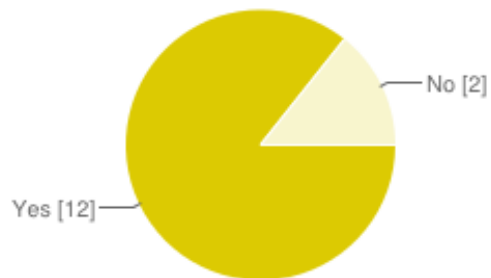**What programs do you use most often?**
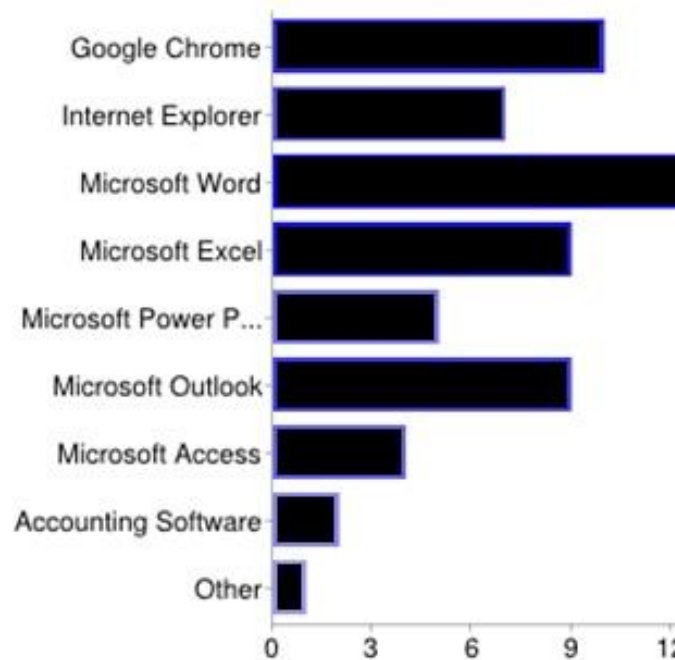
Number of responses

6.1.2   Figure 2

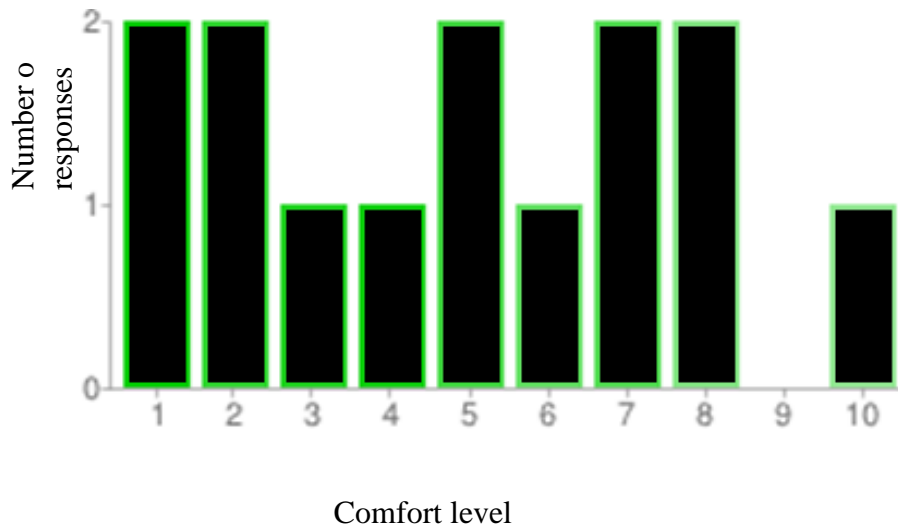**If training seminars were held for programs such as Microsoft Word, would you attend?**

No [2]

Yes [12]

[Number of responses]

6.1.3   Figure 3

If training manuals were created for programs such as Microsoft Word, would you make use of them?
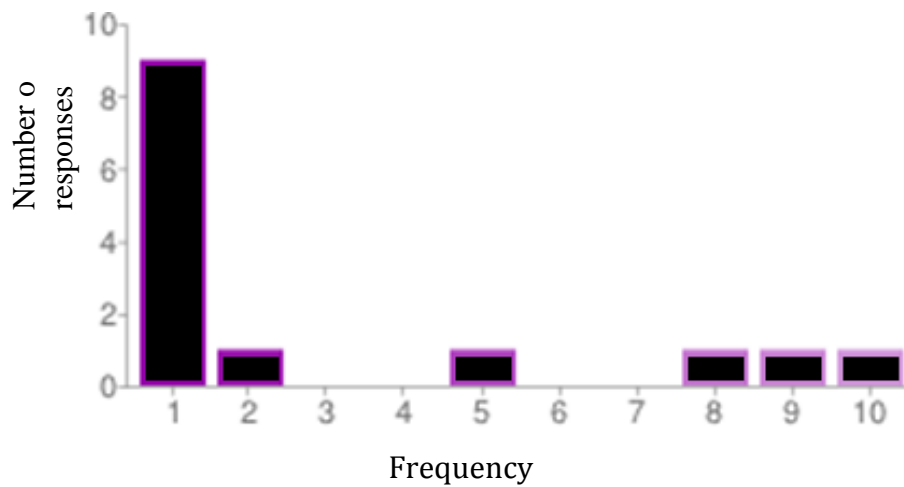

No [2]

Yes [12]

[Number of responses]

6.1.4 Figure 4

How comfortable do you feel using Outlook to organize your schedule?

Comfort level

6.1.5 Figure 5

How often do you use Outlook to organize your schedule?

Frequency

2. Appendix B

Interview Questions – Jonathon (IT consultant)

- What are you currently working on at APW

- How long will it take to finish

- What do you see as the most important changes that need to be made on the IT system

  - Short term and long term

- Are there any issues in particular with the IT system that you would like us to help look into for you

- What are your future plans for the IT system at APW

  - How do you plan on fulfilling these plans

- What problems have arose in the past that you had to fix

  - What are the problems that occur the most

- What are some possible problems that you could see happening in the near future

- How often do you have to come in and work on the IT system

- What is your vision for APW's IT system

Interview Questions – Upper Management

- What are some IT aspects that you see need to be addressed for APW to run more efficiently

- What are the funding options available to upgrade the IT system

- Do you know or would you like to learn how to maintain the IT system

- What is your goal for the IT system

- Do you think the employees at APW are comfortable using their computers

  - For example: using Microsoft Word, navigating Windows

  - Do you have any thoughts on the contents of an IT training program that could be particularly helpful to your employees?

3. Appendix C

Questions for Focus Group

- What tasks do you perform on your computer on a daily basis?

- Is there a problem with the computers freezing, and if so is there a pattern?

- What does everyone think about using Outlook to organize his or her daily schedule?

- What type of examples should we include in our Microsoft Office guide?

- Who has a smartphone and would like to know how to sync Outlook's calendar and mail to it?
- Is there easy access to printing?
  - If so elaborate
- Are there any other IT needs that you feel needs to be addressed?
- Topics to cover
  - Saving data to the server
  - Why doesn't the staff use Google Chrome
  - Would videos or paper format be better for the guides

4. Appendix D

Survey Questions

Questions are on a scale of one to ten. (Ten being very confident. One being not confident. Five being not sure)

- How confident are you in your ability to use Microsoft Office on a scale of 1 to 10(Word, Excel, Power Point)

- How confident are you in your ability to navigate windows on a scale of 1 to 10(Internet browser, ability to find programs)

- About how many hours a day do you use your computer

- If training seminars were held for programs such as Microsoft office, would you

  attend

- If training manuals were created for programs such as Microsoft office, would

  you make use of them

5. Authorship

Section	Major Writer	Major Editor
Abstract	RF	MB
Executive Summary	RF/MB	EM
Introduction	RF/MB	EM
Literature Review	EM	MB/RF
Methodology	RF	MB/EM
Findings and Discussions	MB	RF/EM
Conclusions and Recommendations	RF	MB/EM
Interview/Focus Group Questions	EM	MB/RF
Survey Questions	EM	MB/RF

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