

First United Methodist Church of Pittsburgh

Student Consultant, Chung-Wai Lau
Community Partner, Rev. David Keller

1. Consulting Situation

A. About the Organization

First United Methodist serves local residents of Shadyside, East Liberty, Squirrel Hill, Oakland, and other locales around Pittsburgh. Located at 5401 Centre Avenue Pittsburgh, PA 15232, the church has been in existence since 1796 with approximately 600 members in its congregation. The mission of the church is *to provide services of faith and charity to those who are in need*. Reverend David Keller is the Executive Director and Head Minister of the church, and Reverend Patricia Mollick is the Associate Minister. The church has a website and the URL is <http://www.gbgm-umc.org/fumcpittsburgh/>.

1. Programs & Services

- Worship Services – the church offers worship services on Sunday afternoons held in the main sanctuary, as well as a contemporary worship service on Wednesday evenings held in the Chapel. Average attendance for Sunday services is 500 and 100 on Wednesdays.
- First Charities – a free-meal program serving lunch to about 150 of the homeless and the poor on Saturdays.
- Religion School – the church offers classes on Sunday mornings in their Learning Center to educate children about Christianity. Average attendance is 10 children every Sunday.
- Other – various programs and services such as performing baptisms and weddings, giving people advice, managing donations, etc.

2. Staff Members - the church has three full-time staff members:

- Rev. David Keller – Pastor, Executive Director, Head Minister
Rev. Keller leads the church's worship services. He's also responsible for making daily managerial decisions regarding the church, contributing content for their weekly newsletters, and reporting to the church's Board of Directors.
- Rev. Patricia Mollick – Pastor, Assistant Minister
Rev. Mollick assists Rev. Keller with the church's worship services, as well as contributing content for their newsletters and consoling people.
- Nancy Kostovny – Secretary
Ms. Kostovny is responsible for keeping track of the congregation members' information, delivery of church documents, production of the newsletters, and other clerical tasks.

The church also has many part-time staff members that have various roles in the church such as accounting, cooking, teaching, etc. There are also many volunteer workers that help around with various tasks such as preparing the weekly newsletters and the monthly book of religious excerpts. There is also a volunteer committee consisting of four members that help the church with technology issues.

2. Finances

The church's main source of finance is from donations made by the members of its congregation and from its Board of Directors. Every year, each family makes a pledge for a certain amount and they keep track of how much of the pledge is realized. The Board of

Directors supervises how this money is to be spent. Most of the money goes towards paying utilities, its staff members, and food for the poor and homeless. Many of its ministries depend on volunteers and donation of resources from people.

B. Current Technology Situation

1. Usage of Technology

The church has been using computers for almost four years. When the usage of computers and the Internet became popular, they decided to incorporate this new technology with their work in order to facilitate their daily routines and help better serve their congregation. The Board of Directors approved the purchase of three computers for the church. Since then, new computers were obtained via donations from members of their congregation. Recently, two computers were donated for their learning center.

The church relies on technology for various tasks. Rev. Keller, Rev. Mollick, and Ms. Kostovny go online often to send e-mails and obtain information relevant to the church. The church regularly sends e-mails to the members of its congregation pertaining to future events regarding the church, and exchange ideas with ministers from other congregations. They also download information pertaining to Christianity such as documents written by fellow ministers. They also use computers to compose documents such as their weekly newsletters and monthly collection of articles. Ms. Kostovny's computer contains databases that store information about their congregation. The accountant uses Peachtree to keep track of the church's invoices.

There are two ministries that directly incorporate the usage of computers. Religion school on Sundays relies on computers to educate children on Christianity. The church owns many Christianity related software such as games, Bible CD-ROMs, animations, etc. Wednesday worship services rely on computers to project Powerpoint slides that contain information regarding to Christianity, such as verses from the Bible, hymns, etc.

2. Technological Environment and Management

The church has a total of nine computers. Members of their congregation donated some of their computers within the past four years. Two computers recently donated for their learning center, are being used once a week in Sunday school. Most of the computers are running either Windows 95 or 98. They all have Microsoft Office 97. A detailed description of their computers is available in Appendix A.

The computers used to be networked, but their network went down after their server crashed. Internet access is established via one phone line that's shared with the fax machine. When someone needs to go online, they would check to see whether anyone else is online and then they would dialup to their Internet Service Providers. The church pays for two America Online accounts for Rev. Mollick and Ms. Kostovny. Rev. Keller uses Telerama, his personal ISP.

The church doesn't have a staff member that's responsible for managing their technology. When computer problems arise, they would consult their volunteer committee, or ask members in their congregation to assist them with the problems. There is nobody assigned to assess the technological needs of the church and convey those needs to the Board of Directors for appropriate funding.

3. Problems With Technology

Since the church has nobody designated to monitor their usage and need for technology, they feel that improvements can be made in their technical environment. The recent crash of their server resulting in the loss of their network and the donation of the new computers motivated them to

seek outside consultation on their technology. Since the members in their technology volunteer committee don't have enough time to fully assess the needs of the church, and outside consultants cost a lot of money, they decided to consult Ms. Schroerlucke for help and I had the privilege of being assigned to work with the church. During the first few weeks of the consulting period, the following problems were discovered and addressed to me by Rev. Keller.

- Improving Utilization of Recently Acquired Computers
The new computers for the learning center are being used once a week on Sundays for 3 hours in the morning. They have limited software that came with the computer, and the church has outdated software for these computers. The individual who donated the money in order to purchase these two computers would like the computers to be put to better use. The church is stuck on how to utilize these new computers more efficiently to improve their learning center. If this trend continues, the church will be less able to attain proper funding for their ministries in the future.
- Reestablishing Their Network
The network has been down since the server crashed and it has hindered their ability to share computer files and documents with each other. Currently, they're putting small documents onto floppies to transfer them between computers. Large documents that won't fit on a floppy get transferred over e-mail and may take hours to complete over the modem. They would like their network to be up again so they can share files with each other more efficiently.
- Expanding Internet Access
Some of the children in the religion school don't have regular access to the Internet at home. The computers in the learning center don't have any means for connecting to the Internet because the phone line that's designated for the fax and Internet access don't reach the learning center. The computers in their office are using the fax line to access the Internet. The church would like it so that the computers in their learning center are able to connect to the Internet, so they can provide their children with Internet access.
- Impractical Information Systems – The church currently stores its congregation information across three different databases; Microsoft Access, CCIS, and Clarisworks. The database files are located on the secretary's computer. These database files aren't backed up regularly. Most of the membership information is stored on CCIS, but the church's license limits them to running the software on one computer. The Access database contains only one table with lots of columns with no relational schema and the secretary finds the Access database system hard to use. Clarisworks is used to keep information such as attendance and contact information for visitors that aren't members.

C. The Consulting Situation

Community Partner:

My community partner is Rev. David Keller. He is the Executive Director and Head Minister of First United Methodist Church. Rev. Keller leads the church's worship services, and is also responsible for making daily managerial decisions regarding the church. He also contributes content for their weekly newsletters. Rev. Keller is the primary person who reports to the church's Board of Directors. He also performs weddings, baptisms, funerals, etc.

Rev. Keller uses his computer primarily to compose documents pertaining to the church, such as articles for their weekly newsletters, details about the church's upcoming events, and columns for

their monthly booklets. He also uses the Internet to send e-mails to his congregation and fellow ministers, as well as browsing online resources pertaining to Christianity. He uses Powerpoint to create slides that are used for Wednesday worship services, Excel and Clarisworks to keep track of information regarding the church's expenses, and information about the members and visitors of the church.

1. Consulting Activities

The consulting activities focused on reestablishing their network, improving their Internet connectivity, and improving their information systems. There wasn't enough time during the consulting session to extensively deal with improving their information systems. Rev. Keller chose to focus on these issues because they require the most technical knowledge in order for it to be realized. Since I've had prior experience in these areas, I agreed to what he wanted to work on.

- Increasing Capacity for Communication with Computers

Communication with computers has paved a new way for people to become more productive and better interact with each other. Having the proper resources for communications with computers will allow the church to reach out to more people, aid the staff in being able to communicate and share resources with each other more effectively, and encompass this resource with their learning center. As documented before, the church doesn't have a persistent sharable Internet connection, resulting in conflicts between staff members when they need to go online. Resources such as documents and databases aren't sharable amongst its staff members because their network went down. They would also like their learning center to be equipped with Internet connectivity. Establishing these two resources will increase the church's capacity for communications with computers as well as enabling them to provide the children of their religious school with Internet access.

During the consulting session, Rev. Keller and I discussed different options for improving Internet connectivity and he chose to go with DSL. We also consulted on the equipment that we would need in order to have DSL be accessible by the computers in the office and the learning center. He chose to have a wireless Ethernet hub so that there would be minimal manual labor needed for the learning center computers to be networked. During the course of our consulting period, the church acquired a laptop computer, so having wireless Ethernet would facilitate the process of networking the laptop. He called America Online to sign up for DSL and went online to purchase equipment that was needed for the network. After the equipment arrived, we installed the equipment together and I explained the functionality of the equipment as we installed the equipment. Then I configured the network and showed him how to connect the computers to the network.

I selected this approach because it allows him to gain confidence in his ability to make decisions in regard to technology for the church, be aware of the new technical environment, and gain the ability to sustain this technology in the future. If I were to do all of this alone, he wouldn't be able to know how it works making it difficult for the church to sustain this technology in the future.

- Improving Effectiveness of Information Systems

The church is currently using three software databases (Microsoft Access, CCIS, Clarisworks) to keep track of information about their congregation (contact information, attendance, baptisms, weddings, donations, etc.). This is highly undesirable, especially

because one of their database software is licensed for use on only one computer, making it difficult for other staff members to be able to access this information on other computers. Their current Microsoft Access database is made up of only one table that contains many blank fields, short column widths, and impractical choices for input. None of their databases are backed up on a regular basis. Improving their database system will guard against loss of information if their computers malfunction and allow the staff to access this information more effectively, enabling them to be more conscientious about their congregation members and thus increasing their ability to access and store information.

After Rev. Keller and I restored the network, the computers were able to access the file server. Pastor Keller and I consulted on different backup mechanisms we could implement, and he ultimately decided on purchasing a CD-RW drive for the file server. He ordered the CD-RW online and I installed it after we received it. Later I showed him how to use the software to backup data onto CDs. We created a directory structure on the file server where the staff can transfer their data for weekly backups.

As mentioned before, there wasn't enough time during the consulting session to deal with all the aspects of improving their information systems. Instead, we focused on being able to backup their data in case Ms. Kostovny's computer crashes. During our consulting session, Rev. Mollick's computer had crashed and that enlightened the importance of backing up the database along with other documents. By addressing this issue, we expected that the church's important computer files and documents be accessible in case their computer crashes again.

II. Outcomes & Recommendations

A. Results of Consulting Activities

1. Increasing Capacity for Communication with Computers

Outcome #1 – *The computers in the office and the learning center now all have concurrent access to the Internet.*

Instead of having the staff members go online one at a time with a phone line that's shared with the fax machine, they're now able to be online at the same time at much higher speeds. The computers in the learning center now have Internet connectivity, a goal that was desirable prior to the consulting session.

- Evidence of Outcome – The secretary and both Pastors were able to download e-mail attachments at the same time at much faster speeds. They were also able to “instant message” each other from their own computers.
- Increased Capacity – This outcome is an extension of benchmark B-2 from the Technology Literacy Benchmarks for Nonprofit Organizations. This outcome has increased capacity by allowing the staff members to be online at the same time, increasing their productivity. Downloads will take less time than it did originally, allowing them to perform tasks that require these downloaded files at a faster pace. Multiple staff members will be able to check their e-mail and browse the web at the same time.

- Sustainability – This outcome is sustainable because all the equipment and configurations are in place. Rev. Keller is aware of how to contact the DSL provider when there are problems with the DSL connection.

Recommendations for Outcome #1

To make better use of this increased capacity, I suggest that they should look into software applications that'll enable them to make better use of this technology, such as file-sharing applications (FTP) and video-conferencing software. This will enable them to access files from home in case of emergencies and for them to be able to work from home if they have to, or have meetings with other Pastors over the Internet.

- <http://www.tucows.com> - this site contains a list of over 30,000 shareware and freeware software with detailed descriptions of their functionality and reviews on these titles. I suggest titles such as CuteFTP as the FTP client.
- <http://www.download.com> - this site is very similar to tucows but their site makes it easier for users to look for what they want.
- <http://www.techsoup.org> - this site is dedicated in helping non-profit organizations increasing their technical capacity. In particular, they have section where you can purchase software at a discounted price (<http://www.techsoup.org/DiscounTech/default.asp?cg=home&sg=dt&visit=1&js=1>).

Another suggestion is that they should search for websites that contain valuable learning material for the students of the learning center. This will help them achieve their goal of expanding the capabilities of their learning center. Search engines and web portals should be used to look for these sites and then bookmarked on the browsers.

- http://www.askjeeves.com/channels/index.asp?catkey=Top/Society/Religion_and_Spirituality/Christianity&ad=Christianity - is a web portal for resources regarding to Christianity. They have a list of various topics, including education, events, and software titles.
- <http://www.internetdynamics.com/pub/vc/christianity.html> - is a site with online resources pertaining to Christianity. They have links to where you can download Christianity software such as games, online Bible study topics and games, and much more.

Outcome #2 – *All computers in the office and learning center are now networked together.*

Instead of having to transfer files onto multiple floppy discs, the staff is now able to share files with each other more effectively by being able to transfer documents over the network. They're also able to print to printers that aren't located in their room.

- Evidence of Outcome – When Rev. Keller was composing the contents of the weekly newsletter, he was able to send the Word document directly to the secretary's computer as opposed to putting it on a floppy disc and manually handing it to her. The secretary was then able to print a draft of the newsletter directly onto Pastor Keller's computer.
- Increased Capacity – This outcome indicates increased capacity according to benchmark D-1 from the Technology Literacy Benchmarks for Nonprofit Organizations. Staff members are now able to share documents with each other saving them the time from having to transfer it onto floppy discs. They are now able to send large files that were too large to fit onto floppy discs.
- Sustainability – This outcome is sustainable because Rev. Keller has gained the knowledge on how to add additional computers to the network in the future. He is also

able to perform basic troubleshooting if there is a problem with the network and rely on their volunteer committee if a more complex situation arises.

Recommendations for Outcome 2

Since I didn't have enough time during the consulting session, I suggest that the network configuration and troubleshooting procedures be documented so that other staff members would be able to troubleshoot the network if it goes down. The staff and Board of Directors will also have a better sense of the technical environment that they have. This is also mentioned in the Technology Literacy Benchmarks for Nonprofit Organizations.

In order for this to happen, Rev. Keller and a member of the volunteer committee should setup a time so that they can work on this together. Rev. Keller should explain the current network configuration and troubleshooting procedures to the volunteer. The volunteer will then outline the specifications of the network and the troubleshooting procedures. He should also apply his knowledge in networking so that their peers can easily understand the document. Networking books should serve as references to explaining network terminology and troubleshooting procedures.

Resources that'll aid in this procedure are the same as the ones for establishing a technology baseline, which will be listed later in the report.

2. Establishing Backup Mechanism for Files

Outcome - *Database and other vital files are now being backed up regularly.*

Updated database files and other important documents will now be transferred onto the server at a weekly basis so they can be backed up. Rev. Keller will then execute the backups weekly.

- Evidence of Outcome – The secretary is now transferring the database files and weekly newsletters onto the file server every Friday. Rev. Keller stores most of his work directly on the file server.
- Increased Capacity – This outcome indicates increased capacity according to benchmark D-4 from the Technology Literacy Benchmarks for Nonprofit Organizations. Rev. Mollick's computer has already crashed during the consulting period and her files were unrecoverable. If she was able to store her files on the file server, then she would've been able to recovery her data.
- Sustainability – The sustainability of this outcome is highly dependent upon each of the individual staff members. The secretary needs to transfer the database files onto the file server since her computer doesn't have a backup medium. Each staff member needs to store the files that they want to backup on the file server. If they fail to do so, then the data won't be backed up. If every staff member sticks to the regimen, then this outcome is sustainable.

Recommendations for Outcome

There is no guarantee that the staff members will always remember to transfer the files onto the file server for backup. As stated in section D-4 of the Technology Literacy Benchmarks for Nonprofit Organizations, an automated backup mechanism would be the ideal solution alleviating the staff from having to transfer these files. This will ensure that all the important files will be backed up accordingly.

In order for this to happen, the church should consult their volunteer committee on how to do this. The simplest solution is to run an automated batch job on each of the workstations that'll transfer the appropriate files onto the file server, and an automated batch job on the file server that'll copy the data onto CD. This will still require someone to make sure that the CD is not full when the job executes.

- <http://www.computerhope.com/nethlp.htm> - this site contains instructions on how to use net.exe Windows command to transfer files across the network over NetBIOS.
- <http://www.qbasic.com/tutorial.shtml> - this site contains a tutorial on Basic, the programming language that's used to create batch job files. The batch file should include commands on executing net.exe to automate the process of transferring files from the secretary's computer onto the file server for backup.

B. Other Recommendations

Recommendation 1: Establishing a Technology Baseline

This recommendation stems from a part of the original consulting work plan, but wasn't implemented due to Rev. Keller's trip to Africa and illness during the consulting period.

There is no person designated for maintaining the technical environment of the church. When technical problems arise, the staff members would pass the problem onto the volunteer committee. This is fine if there is proper communication amongst the volunteer committee so they'd be aware of the changes in the technical environment. After talking to a couple of the members in the committee, I get the impression that none of the committee members are totally aware of their technical environment. I had to spend a good amount of time documenting the technical environment instead of having it presented to me. Establishing a technology baseline would improve the church's ability to understand their technical environment and how to effectively make changes in the future when necessary.

In order to establish a technology baseline, Rev. Keller and the volunteer committee should hold a meeting and address the following issues:

- Establish a minimum set of requirements for the technical environment.
- Establish a minimum set of requirements for the staff's technical knowledge.
- Determine who should be responsible for managing the technical environment and enforcing the baseline.
- Establish a mechanism for documenting changes in technical environment.

These steps were derived from the Technology Plan section of Technology Literacy Benchmarks for Nonprofit Organizations. My original work plan was a direct approach that addressed the needs of each individual staff member. The revised approach will establish a standard for the church that is more general.

These are a few resources online that serve as a guide on how to implement this process in detail. These resources should be used to help establish the technology baseline for the church.

- <http://www.techatlas.org> - this website has a web-based technology planning tool designed for non-profit organizations. It guides you step by step through the process of creating a technology plan by asking a series of questions, and generates a plan with a schedule for you to follow.
- <http://www.coyotecom.com/tips.html> - this website has a list of resources and articles for non-profit organizations on how to obtain resources on technology. In particular, the following article (<http://www.coyotecom.com/database/nptech.html>) has a list of companies that offer personal help in aiding non-profit organizations implementing a technology plan.

- <http://www.techsoup.org> - this is a very useful site that contains detailed articles on how to implement a successful technology plan for non-profit organizations. It also contains a message board (<http://www.techsoup.org/community/index.cfm>) where users may post questions on all aspects of technology relating to non-profit organizations. Members of other non-profit organizations and technology consultants answer these posts.

Recommendation 1: Improving Effectiveness of Information System

This recommendation is an opportunity that wasn't part of the consulting work plan due to the lack of time that was available during the consulting period and the complexity of the problem. I also felt that the problems and opportunities addressed by the work plan would have a higher yield of expanded capacity and were more sustainable.

The reason why this recommendation should be implemented is so that the church would be more able to convey its information. Currently none of the staff members are able to access all their data from their own computer. It's extremely impractical to have to go to another person's computer to obtain the information they need or to ask the person who uses the computer to obtain the information when it's not their responsibility to do so. Centralizing their database so that all the church's information resides on one computer under a single platform will alleviate this problem, and productivity will improve if this issue is addressed. Another issue is that their current information system doesn't provide them with the ability to export their information to formats that suit their needs, so addressing this issue will also increase the ability of the church to convey their information with others. This can be addressed by developing queries and report formats that are relevant to the needs of the church.

I recommend that Rev. Keller should find a volunteer consultant that has the proper knowledge in databases. This consultant should then work with Rev. Keller to develop a relational database schema that'll store data pertaining to the church, migrate the data from existing platforms onto the new platform, develop queries that'll generate the relevant data pertaining to the church's tasks, and report formats that suits the tasks. Volunteer technical consultants are hard to find, so Rev. Keller should post a job offering to hire an intern that has the proper knowledge in databases. Otherwise, the cost of hiring an actual consultant to do this may be too much.

Another possible solution is for one of the staff members or volunteer committee members to learn how to use Microsoft Access and then implement the ladder. This would allow the information system to be sustainable internally. However learning Microsoft Access effectively to implement all the steps may be too time consuming.

Personnel resources are required to find a consultant that is willing to work under the strict budget constraints of a church. I suggest that Rev. Keller consult the instructors of this course on the possibility to work with this course again next semester or for organizations that are willing to provide database consulting services at an acceptable cost. If a consultant is found and the recommendation is fulfilled, one of its staff or volunteer committee members should take a course or at least purchase a book or training software about the database software so that the church will be able to implement changes to the system in the future. If the church decides to implement this recommendation with its own personnel, that person should obtain training in database administration and in the database software.

- Teach Yourself Microsoft Access Visually by Ruth Maran is a highly acclaimed book that teaches beginners on how to use Microsoft Access. Their examples are detailed with diagrams explaining the basic concepts of databases such as tables, queries, and relations. Screenshots of how examples should look like are also in the book.

- <http://mis.bus.sfu.ca/tutorials/MSAccess/tutorials.html> - has an excellent online tutorial on how to use Microsoft Access. It also teaches the basics of database concepts. Users can follow the examples on the tutorial to improve their skills in using Microsoft Access.

About the Consultant:

Chung-Wai Lau is a Senior at Carnegie Mellon University majoring in Electrical & Computer Engineering and Computer Science. He has worked in the technology sector since the age of 15 as a computer technician, and over the years he has consulted many people on computer technology. Recently, he has worked as a media systems architect at Dotsperinch, LLC. He hopes to become a restaurateur and wine taster someday.

Computer Equipment at the First United Methodist Church of Pittsburgh

- (2) – Compaq 7857s with 600Mhz Celeron processors, 64MB RAM, 8GB HDD, Windows 98, Microsoft Works 2000
- (3) – Acer Computers with Pentium 166 Mhz, 32MB RAM, and 2GB HDD, Windows 95, Office 97
- (1) – Generic computer with Pentium 60Mhz, 16MB RAM, 2GB HDD, Windows 95, Office 97
- (1) – Hewlett Packard with Pentium 166Mhz, 32MB RAM, Windows 98, Office 97, Peachtree, LotusSuite
- (1) – Dell Computer with Pentium 90Mhz, 32MB RAM, 2.5GB HDD, Windows 98, Office 97
- (1) – Compaq Presario Laptop with Celeron 700Mhz, 64MB RAM, 10GB HDD, Windows XP
- Miscellaneous – printers, computer projector, and scanners.