

**BA3810 INFORMATION SYSTEMS ANALYSIS**  
**DR. VICKI SAUTER**  
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**PRESENTED BY**  
**GROUP B**

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## **Introduction**

Family Support Network came to us in need of a new and improved database platform that would best serve its needs and their client's needs. Our objective was to come up with a few alternatives, evaluate our options, and make a decision based on the benefits that would be provided to FSN and its clients.

Background research and an interview with Mr. Marino revealed many problems with Family Support Network's current database system. There's a lack of essential data entered and stored in the database. Therapists enter data at the beginning and end of each case; the system does not allow the therapists to enter data on an on-going basis or in between visits. All of this data ends up on paper. There needs to be a reduction in the amount of paper documents used when handling cases. There is also no effective error checking mechanism and most of the fields that exist in the database are not required.

The database has significant reporting limitations. You cannot create custom reports nor can you query specific data from individual reports or display reports on screen. Reports can only be viewed after they are printed. Searching the database is even more complicated. The process for researching a specific case can only be done by the client's name. In order to locate a case number, FSN has to reference a separate master list of case numbers. Mr. Marino would also like to see security implemented such that individual users could have specific permissions set to access the data for reading, editing, or reporting. Our goal is to provide Family Support Network with an alternative database system to better serve their needs.

### **2.0 Proposed Solution**

We recommend Alpha Five as FSN's database solution. Alpha Five seems to be the better system choice financially. As we have proposed Alpha Five as the database option, three levels of costs and options will be discussed. Our most expensive option would be to use

premium editions for all users, high end server hardware for the database, laptops for therapists, and web applications so therapists can access database anywhere. Laptops used would be **Latitude D510 STANDARD** from Dell costing \$699 apiece. This level would consist of Alpha Five premium @ \$1499 for five user license(x2), the server would be a Power Edge 1800 server at \$3237, 8 laptops at \$699 apiece, a consultant to train users at \$60 x 8 hours, and 40 hours for all end users to attend. Total cost for this configuration with data importation and training would be \$14,207.

The mid level of pricing entails one Alpha Five premium license for the database server bundled with ten licenses for Alpha Five Runtime Plus at \$1299, a Dell Power Edge 1800 server at \$2497, 8 Dell Latitude D510 base laptops at \$599 apiece, and a consultant to train users at \$60 x 8 hours. Total cost for this level would be \$9,848.

Our most cost effective level would eliminate laptops altogether, use a lower grade Power edge server, and also use the Alpha Five Runtime Plus 10 user bundle with one premium license for the server. Training would consist of web based tutorials provided on Alpha Softwares web site, and one short tutorial session by trainer for end-users. Alpha software would cost \$1299, the server would cost \$824, and training would consist of 16 hours of end user time to learn screens, reports and forms. Total cost for this option is \$2,903.<sup>1</sup>

FSN can vary any of these cost variables to suit their needs such as number of laptops, model of laptop, model of server, etc. Included in all levels is some form of system backup. The highest level includes RAID disk arraying and tape backup, but other servers include DVD/cd burners. As there is no way to backup the entire system currently, any option will be an improvement and prevent downtime. All levels of Alpha Five will help therapists to deliver better service through quicker access to files, more streamlined data entry, and less downtime.

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<sup>1</sup> See Appendix A – Cost Benefit Analysis

The level of service given to end clients will increase through better monitoring of case statistics by administrators using custom reports and queries. And FSN will be able to seek more funds because less time will be spent transferring data from the old antiquated alpha four to excel and other document formats. The end result will be more time spent by end users doing what matters, spending time with clients and donors.

### **3.0 Alternatives**

Bases on the client's requirements and an analysis of existing system, we have come up with three alternatives. The first alternative uses Microsoft Access as the user interface and backend Database. The second alternative uses MySql server as the database and either Aware IM or a custom coldfusion/html website for the interface. Our last alternative is an Alpha Five database with Alpha Five graphic user interface.

FSN's first option is to use Access as both the interface and the database, and would use leased computers for end users and a new server for the access database. Access is bundled with Microsoft office, and currently all leased machines have Office installed. With 7-8 therapists, 2 supervisors and 1 administrator, 10-11 licenses are needed for any option. Having licenses already for end-users can save \$800-\$1500 as opposed to other options, but a custom interface will have to be developed. The current computer used for the Alpha Four database is not secure or able to run an Access database. All options will require the purchase of a server to house a database, and Access is no different. Alpha four tables will have to be exported in either a comma delimited or space delimited format so Access can import data into new tables. Queries, forms, and reports would run off of end user machines, and the database and tables would be stored on the server.

Although cost efficient in terms of licensing, Access would require 8 hours of programming for the table structures and another 30 hours for the reports, forms and queries.

At \$60 an hour for a programmer, this cost could easily erode any cost savings saved by using Access. Security would also force FSN to choose another option due to Access's limited ability of securing files. Without a custom interface written in another language such as java or coldfusion, Access limits access to files to one level, either can edit or not edit. FSN currently requires 5 levels of access to files and tables such as read/write, change tables, workgroup level, view only, etc. Currently Access alone will not comply with these file level security requirements.

FSN's second option was to implement a MySQL server database and a custom graphic user interface using either cold fusion/html or another third party interface. MySQL is open-source, meaning any use other than including in another product for resale, would be free. As competing commercial enterprise grade database servers start at \$1500 and escalate quickly, MySQL would seem to be a bargain. High scalability, rock solid reliability, and great user base and forums lend much credibility to using MySQL. All leased personal computers in the office would access the MySQL database through html or cold fusion web pages. All screens would have to be custom coded and require many hours of coding and testing. An alternative user interface for the MySQL Database is the AwareIM Database solution. At \$999 for 10 licenses, Aware IM eliminates much of coding necessary to access the MySQL database by implementing an easy drag and drop graphic user interface to simplify and lower development time. The server would run MySQL Server Pro database, currently costing \$1995 with unlimited incident support. Security could be handled by the database itself, or html forms, and would comply with FSN's requirements for multiple levels of access. The main downfall of MySQL is the cost. Coding the web pages for intranet or internet use would consume 40 hours of coding and another 40 hours for testing. Coding @ \$60 an hour would run \$2400, and testing would consume another \$1200-\$2000. Training would also be required for all personnel. Eight hours

@\$60 an hour for the trainer and 40 hours for staff would increase cost by another \$2640 giving an overall cost of \$9035 before all new hardware.

FSN's third option would be upgrading to Alpha Five Database. Forms, reports and queries would run on existing or new lease personal computers running Alpha Five premium or runtime. An Alpha Five database would run on a new enterprise grade server. Benefits of using Alpha Five include ease of importing data and tables from Alpha Four, simple graphic user interface built in to system eliminating need to purchase third party program, and the speed with which reports and forms can be created using the built-in wizards. With wizards, custom reports, forms, operations and browse are a few clicks away. Another plus is the option of using either runtime or premium editions. A premium edition enables programmers the ability to create the database and tables. Using the upgrade price for the edition of Alpha Four currently owned drops the price of premium to \$199. When bundled with the runtime edition for end users, end users would be able to run the applications developed using premium edition at a savings of \$500 for 5 users. A five pack license for Alpha Five premium currently costs \$1499, and a five pack of licenses for the runtime version costs \$799. A 10 user license for the runtime edition costs \$1199, and a bundled edition with 1 premium license is only \$100 more. As tables and data can be uploaded easily to the Alpha Five Database, data import costs would be 2 hours @ \$60. Creating new screens for reports, forms, and login screens would entail 32 hours @ \$60, and training can be accomplished through 1 hour apiece for therapists, 2 hours for supervisors, and 4 hours for administrators. Simplicity is the key to Alpha Five, and is the reason we are recommending this application for the new FSN database.

#### **4.0 Current System**

The current information system being used by our client is based around a database program called Alpha 4. This DOS based program is designed for a single user and the various

users must physically come into FSN's office and manually key in all data pertaining to a case file, as there is no option for network or remote access available to this system. Users may use the system to output data on clients, therapists, and other basic information that is stored within it via printed reports. Managers and therapists use this data to analyze client performance and history and to supply reports to potential donors. Data backup is done with a system command that copies all files to a 3.5-inch floppy disc for storage. This disc is then used until it shows signs of failure, at which point it is replaced with a new disc. Documentation for the Alpha 4 system and this database is sparse and no manual exists at the client location.

Overall, the situation with Family Support Network's data storage, entry, and retrieval system is inadequate. With no reporting flexibility, FSN cannot attract donors as easily as it may with a better system. Therapists must take time that could be more efficiently used with a client to enter data. Office staff must sort through substantial amounts of paperwork each time anything more than the minimal start and finish data is required for a client. Given the age of the system that the database is currently running on, we have no assurance that the existing backup solution works, nor that it is backing up both the system and data, making the backed up data useless in the event of a disaster.

FSN can vary any of these cost variables to suit their needs such as number of laptops, model of laptop, model of server, etc. All levels of Alpha Five will help therapists to deliver better service through quicker access to files, more streamlined data entry, and less downtime. The level of service given to end clients will increase through better monitoring of case statistics by administrators using custom reports and queries. And FSN will be able to seek more funds because less time will be spent transferring data from the old antiquated alpha four to excel and other document formats. The end result will be more time spent by end users doing what matters, spending time with clients and donors.

## **5.0 Feasibility**

### **Economic Feasibility**

Our proposed solution provides a cost efficient and high-quality solution for FSN. The new database will provide improved work processes and improve the organizations ability to serve its clients. Considering the fact that FSN is a not-for-profit agency, minimizing existing and long-term costs for maintaining a new database is a necessity. As proven with our assessment of costs and benefits, we have economically justified our solution for FSN.

### **Organizational Feasibility**

Family Support Network's organizational procedures will not change due to our proposed solution. The users will have to be trained once the new system is implemented, but we will ensure that there will be minimal changes to their day to day operations. All users are willing to use a new database even if it is more complex than the current system.

## **6.0 Information Gathering Results**

### **Initial Class Meeting**

Our first experience with the client was in the classroom on February 15<sup>th</sup> of 2006. Vincent Marino, Program Director of Family Support Network and Patrick McEnaney of Community Partners For A Better Internet were the speakers that day. Mr. McEnaney's group is an information technology support group dedicated to assisting non-profit organizations with technical help. During this meeting Mr. Marino laid out his basic desire for a modern information system to enable him to assist his clients in a more effective manner. We took notes on this session; however we realized that a more in-depth interview session would be required.

### **Interview with Family Support Network**

We scheduled an interview with Vincent Marino on March 3<sup>rd</sup> 2006. This meeting was done in order to get a first hand view of the strengths and weaknesses of their current information system and his desires in regards to a new system. This interview was conducted in person and recorded for later analysis.

What we observed how the Alpha 4 system was involved with the day to day operations and handling of the individual cases by the therapists. The therapists interacted with the database was when creating a case and then again when closing a case. Apparently key dates and demographic data on various factors were recorded, but there was little else entered into the system by users. This leads us to think that the Alpha 4 system is not fulfilling its intended function of improving the ability of the staff to serve their clientele. Mr. Marino stated his desire to integrate these pieces of information with the electronic information in one complete database package for improved work efficiency, and better overall ability to serve the clients.

During the interview Mister Marino emphasized the limitations of the Alpha 4 database system in terms of reporting. First and foremost there is no capability of any sort to do custom queries of the client database. The system was setup with several hard coded report functions that were not adjustable to meet future changes in types and amounts of information needed by the Family Support Network staff. Mister Marino expressed that this was a big limitation. The lack of ability to select what data needed to be selected and put in a report is a major drawback.

A related aspect of the problem was the issue of viewing data. None of the report functions could be printed to the screen of the computer, they had to be printed to hard copy. Mister Marino stated that he often needed to know data that was in one of the report functions but he didn't always need to print out a hard copy. This told us that the system was not nearly

as efficient as it should be as users were often unable to get the data they needed in the most convenient format.

Mister Marino also expressed frustration at the lack of required fields and information in the Alpha 4 database. For example, he stated that important data would often be left out of the initial entry and not updated at a later time as nothing prompted it. The Alpha 4 systems lack of more advanced field checking leads to incomplete data on cases that was not caught by the computer system beyond simple errors such as entering an incorrect date. This prompted us to put this as a focus of the new system to make sure FSN has full, accurate, and timely data about the people they are helping.

The interview revealed another major limitation of their information system. It is a single user system without remote access. He made the point that he would enjoy a system where users could remotely access the main system from their locations in the field, getting rid of the necessity to come to the office to type in any data they may need to record. This would also give Administrative staff at FSN the ability to keep up to date with the progress of a case by viewing notes and information uploaded daily from the field locations instead of having to rely on handwritten notes that may or may not be at the office and the limited data set in the Alpha 4 system, which was difficult to work with and inefficient in its own right.

Another concern voiced during the interview was that the FSN periodically had to copy client name information into an Excel format for sending to outside agencies. A staff member taking names out of the Alpha 4 system and manually entering them into an Excel document, as Alpha 4 lacks any data export capability, currently accomplishes this. Mr. Marino stated that this was a waste of time and staff resources. This told us that data export functions were vital to any new system we were to recommend to FSN.

## **Email Interview**

An email interview was conducted on March 9<sup>th</sup> 2006 in order to determine any particular requirements that his donors may require. Mr. Marino stated the report demographics and success numbers were a frequent requirement for his donor organizations in order to show success in putting the donations to use.

## **Staff Questionnaire Results**

In addition to our interview with Mr. Marino we sent a questionnaire to the staff of FSN to get their input on the effects of the current systems and their view on possible improvements. From the replies we received it was clear that the ability to do custom queries and reports was viewed as a very beneficial function, all replies gave it the highest value on the scale. We also discovered that the staff spent at least twenty one percent of their days working with papers and notes that could not be entered into the Alpha 4 system, with half the respondents stating they spent over thirty percent of their day in such activities. Along those lines the questionnaire also revealed that seventy five percent of the respondents stated that putting this data in the computer would be very beneficial to doing their daily jobs. Surprisingly, seventy five percent of the respondents didn't feel that the current system was overly hampering their ability to server their client's needs. Perhaps this is an indication of the staff's knowledge of this system and their ability to work around the limitations it presents? Finally all respondents stated they would be very willing to use a new system even if it was more complex than their current system.<sup>2</sup>

## **7.0 Cost - Benefit Analysis**

Benefits of using Alpha Five include ease of importing data and tables from Alpha Four, simple graphic user interface built into system eliminating need to purchase third party

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<sup>2</sup> See Appendix B – Client Questionnaire

program, and the speed with which reports and forms can be created using the built-in wizards. With wizards, custom reports, forms, operations and browsing capabilities are just a few clicks away. Another plus is the option of using either runtime or premium editions. A premium edition enables programmers the ability to create the database and tables. Using the upgrade price for the edition of Alpha Four currently owned drops the price of premium to \$199. When bundled with the runtime edition for end users, end users would be able to run the applications developed using premium edition at a savings of \$500 for 5 users. A five pack license for Alpha Five premium currently costs \$1499, and a five pack of licenses for the runtime version costs \$799. A 10 user license for the runtime edition costs \$1199. As tables and data can be uploaded easily to the Alpha Five Database, data import costs would be 2 hours @ \$60. Creating new screens for reports, forms, and login screens would entail 32 hours @ \$60, and training can be accomplished through 1 hour a piece for therapists, 2 hours for supervisors, and 4 hours for administrators. Simplicity is the key to Alpha Five, and is the reason we are recommending this application for the new FSN database.<sup>3</sup>

## **8.0 Quality Control/Success Measurement**

We will ensure continued quality by first implementing the proposed system. After the system is implemented, we will conduct periodic surveys in order to ensure that the system is functioning properly and meets all user specifications. The success of the system will be measured by its ability to complete the tasks that are required by the users, such as entering data both on and offsite and generating, viewing, and printing reports in the necessary format. We will also measure success by evaluating the therapists' ability to enter data in a more timely and efficient manner, in turn, assist more of FSN's clients. We will answer the question of

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<sup>3</sup> See Appendix A – Cost Benefit Analysis

whether or not FSN is able to assist more clients in order to help reduce the number of child abuse cases in St. Louis.

## **9.0 Test Plan**

Our test plan includes testing each part of the system separately by entering sample data in each field and all forms as if we were a user. After each segment of the system is tested we will then test the system as a whole by again entering in sample data and performing all of the necessary task that have to be done with the system. These tasks may include entering data both directly in the system and also by entering data in remotely using an offsite VPN system. Also going back through the data and editing it, generating all of the necessary reports that may be needed, viewing these in an onscreen format, exporting certain reports into excel, and finally printing the reports in the necessary formats required by FSN's stakeholders.

## **10.0 Summary**

Our goal of this analysis project was to improve Family Support Network's current information system, in turn, prevent child abuse and neglect. We considered several alternatives and feel that our proposed resolution is the best solution to FSN's problems. Our solution will allow users to display and print reports in the necessary formats and in a timely manner. It will reduce the amount of time therapists spend entering data, increase traceability of data, and increase data security. Our solution is also the most cost efficient option in comparison to the other alternatives. We did not discover any major risks associated with implementing the new system due to the ease of transferability of data from the current system into the new system. We have provided adequate justification to proceed with our proposed solution and we are confident that our solution will benefit the Family Support Network and all of its clients.

**Appendix A  
Cost Benefit Analysis**

<b>Item</b>	<b>High</b>	<b>Med</b>	<b>Low</b>
<b>Dell Server</b>	\$3237	\$2497	\$824
<b>Laptops</b>	8 @ \$699 = \$5992	8 @ \$599 = \$4792	\$0
<b>Alpha Five DB</b>	10 Premium @ \$2998	Bundle -1 Premium, 10 Runtime Plus @ \$1299	Bundle -1 Premium, 10 Runtime Plus @ \$1299
<b>AntiVirus Software</b>	McAfee VirusScan 10.0 10 user license x10 \$0. included with Server package	McAfee VirusScan 10.0 10 user license x10 \$0. included with Server package	McAfee VirusScan 10.0 10 user license x10 \$0. included with Server package
<b>Wiring Network cabling</b>	2 Patch cables @ \$10=20 8 25' cat5 cables \$10 x 8=\$80	2 Patch cables @ \$10=20 8 25' cat5 cables \$10 x 8=\$80	2 Patch cables @ \$10=20 8 25' cat5 cables \$10 x 8=\$80
<b>Router/Firewall</b>	NetGear FVS338 Programmable Router with VPN/Firewall \$200 x1 = \$200 Netgear DS108 10/100 8-port switched hub	NetGear FVS338 Programmable Router with VPN/Firewall \$200 x 1 = \$200 Netgear DS108 10/100 8-port switched hub	NetGear FVS338 Programmable Router with VPN/Firewall \$200 x 1 = \$200 Netgear DS108 10/100 8-port switched hub
<b>Training</b>	End users 40 hours @ \$30 = 1200 Consultant 8 hours @ \$60 = \$480	End users 16 hours @ \$30 = \$480 Consultant 8 hours @ \$60 = \$480	End users 16 hours @ \$30 = \$480
<b>Total</b>	<b>\$14207</b>	<b>\$9848</b>	<b>\$2903</b>

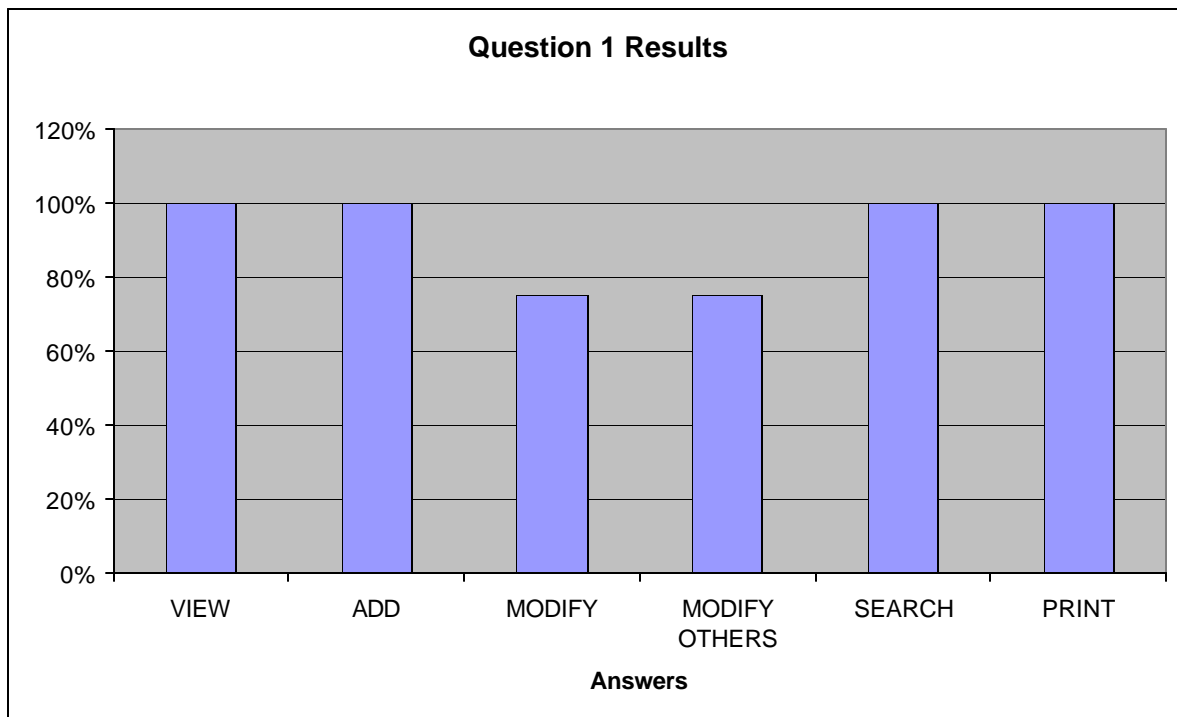
## Appendix B Client Questionnaire

### Question 1

**What level of access do you think you need in the current system in order to effectively perform your job duties (check all that apply)?**

- View data                       Add data                       Modify my data  
 Modify other peoples' data     Search for information     Print out reports  
 Other: \_\_\_\_\_

**Justification:** This will give us an idea both how many different kinds of users there are in FSN and the kind of user who is answering any given survey.



*Question 2*

**On a rating of 1-5, if you could access your computer data when on location or visiting clients, would that be useful to you?**

Not Useful

Very Useful

1

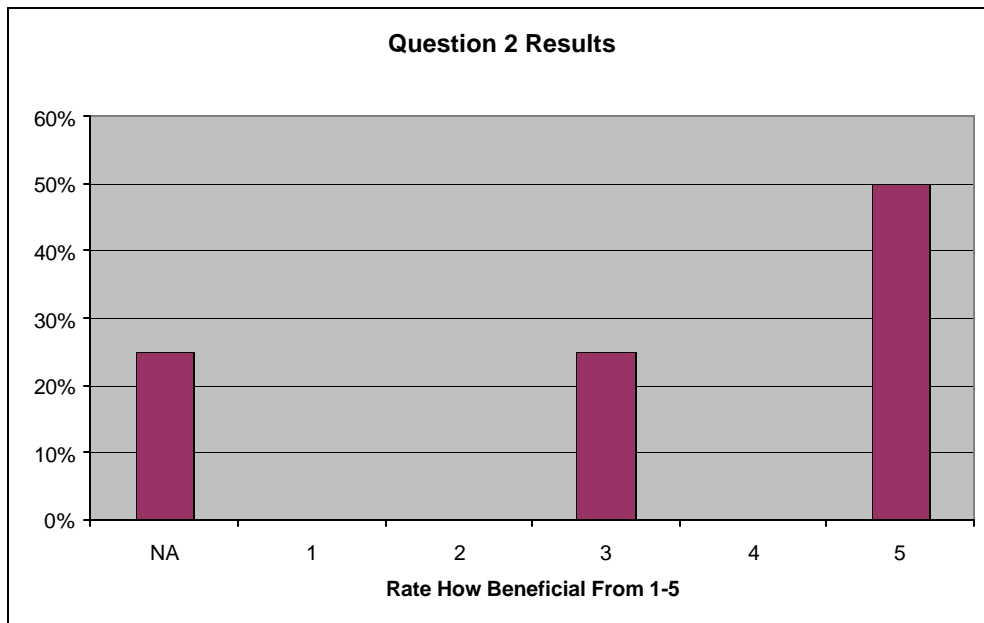
2

3

4

5

***Justification:** One feature we want to build into the new system is remote access, and this is one of our client's desires as well. However, we do not know how useful the other users will find this feature.*

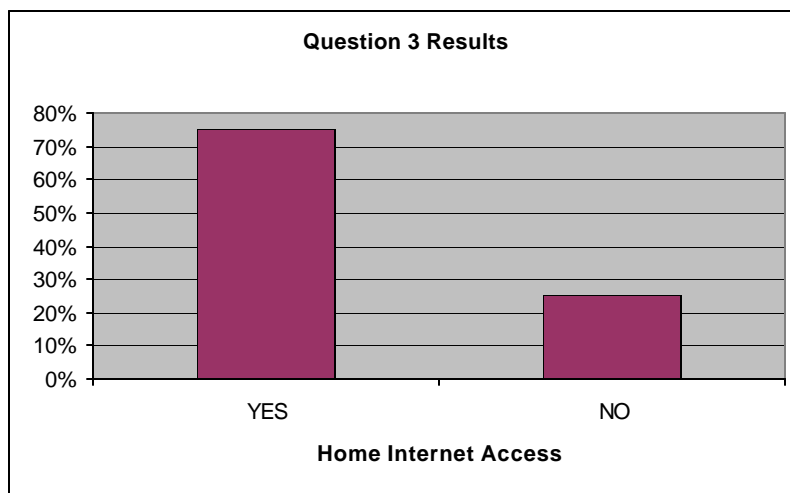


**Question 3**

**Can you get on the internet from your home or another convenient location?**

Yes       No

**Justification:** *The ability to remote-connect will be of limited use if the people who need to remote connect do not have access. If they do not, we will have to budget getting them access.*



**Question 4**

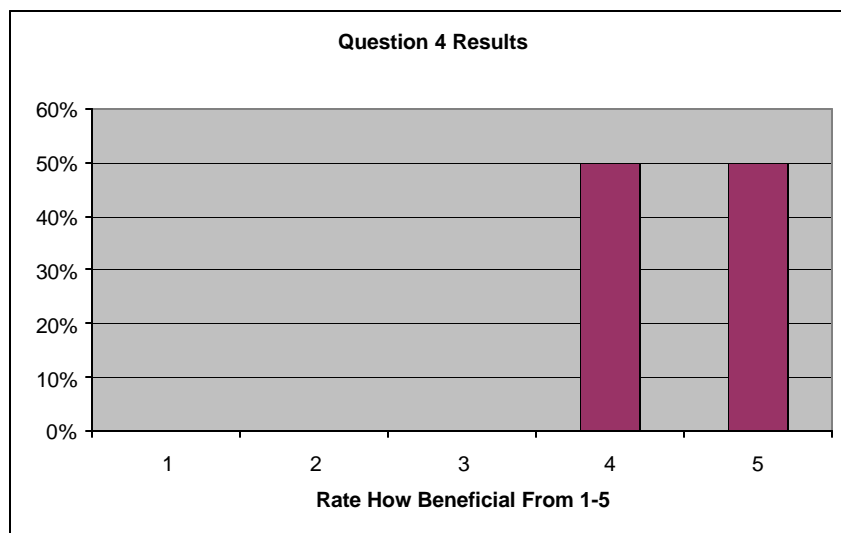
**On a rating of 1-5, how comfortable are you/would you be with using a computer regularly as part of your day to day job?**

Very Uncomfortable

Extremely Comfortable

1 2 3 4 5

***Justification:** While many of the users in the office use computers, we do not know how computer savvy the therapists are. Additionally, being able to use a computer, and being comfortable are two different things – this question will help us judge what kind of training we will need to provide for the client.*



**Question 5**

**On a rating of 1-5, would you find it beneficial to have the ability to print reports “on demand” (that is, be able to decide what fields will be on the report, and then have the report print)?**

Not Beneficial

Very Beneficial

1

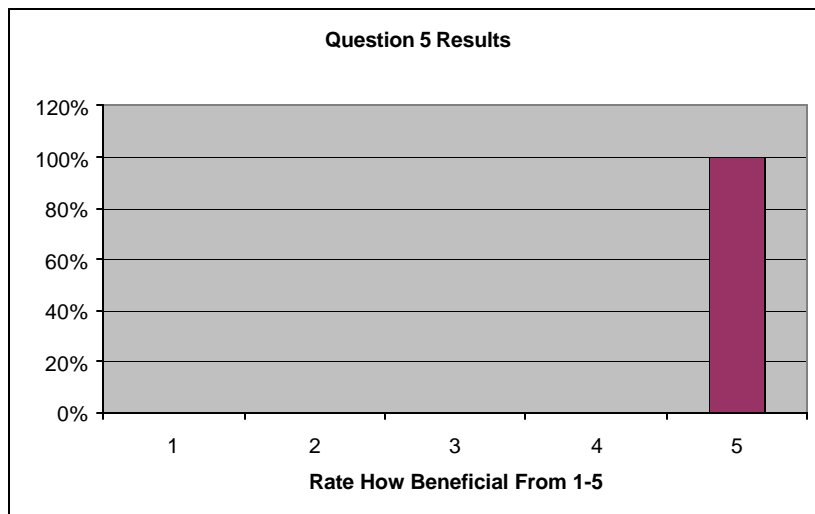
2

3

4

5

***Justification:** Another critical component of our new system, and one desired by our client. However, again we do not know just how useful many of the users will find this option. If they find it very useful, we will want to spend extra effort on making this feature extra user friendly.*

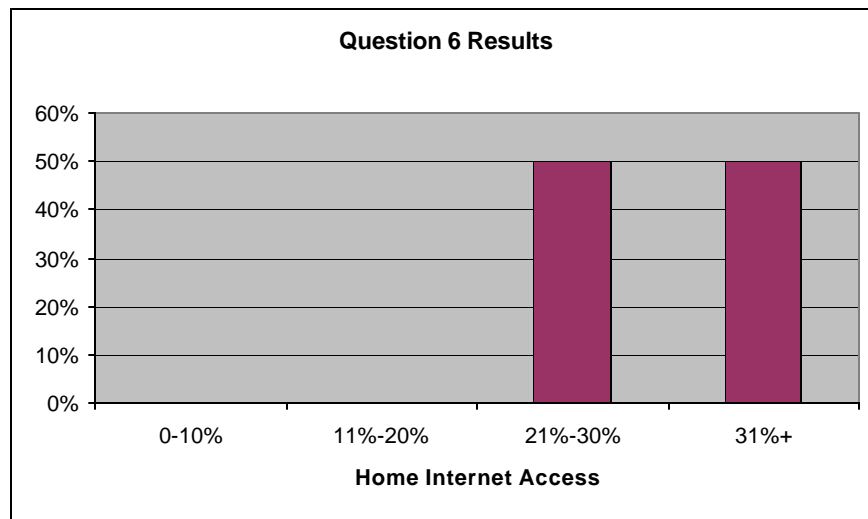


**Question 6**

**What part of your day is currently spent working with paperwork that is not stored on the computer?**

- less than 10%       10% - 20%       21% - 30%       Over 30%

*Justification:* While going paperless is a major goal of the client, it may be misleading. While there is a lot of paperwork involved, many of the users might be VERY skilled at manipulating it – making going paperless less of an overall perk of the project.



**Question 7**

**On a rating of 1-5, would you find it beneficial to be able to put more data on the computer (data that is currently submitted via paperwork)?**

Not Beneficial

Very Beneficial

1

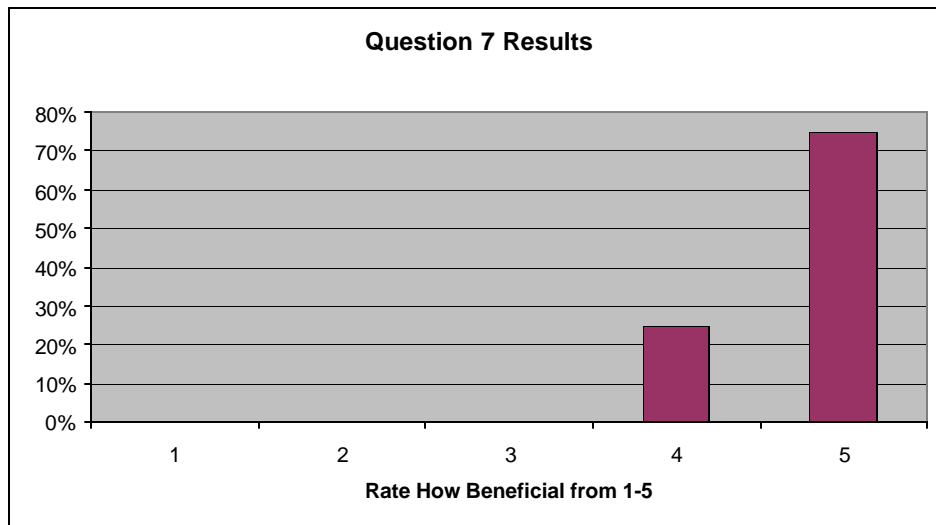
2

3

4

5

***Justification:** Along with asking how much time is being used with paperwork, we need to ask just how comfortable the users are with manipulating their paperwork. If the users would not find a paperless office (jargon we can't use) useful, we may be able to cut expense, or at least show these results to our client and argue for cutting expenses*



**Question 8**

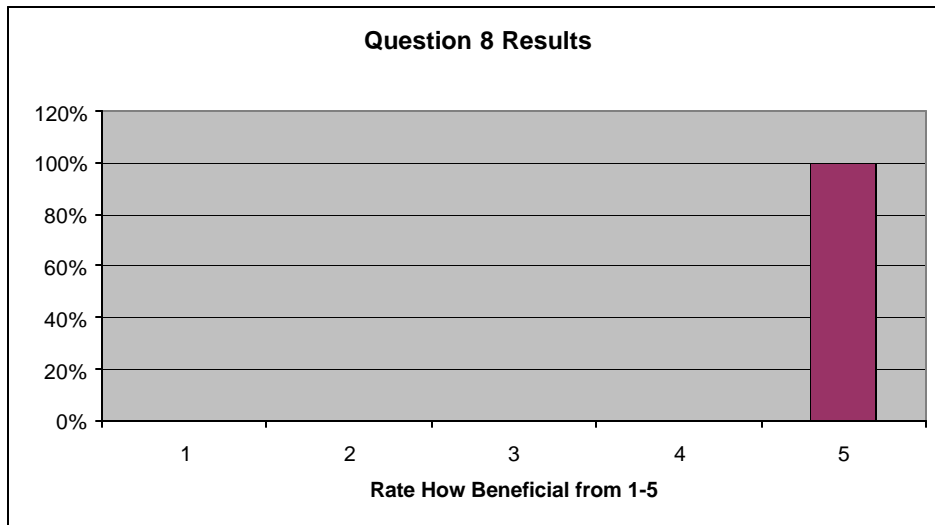
**On a rating of 1-5, if a new computer system to store FSN's data was made available, but it was more complex, how willing would you be to start (and continue) to use it?**

Not willing

Extremely Willing

1                      2                      3                      4                      5

***Justification:** Here we start to judge how willing the users are to change. There isn't a way to make this system meet the requirements and be as simple as their original system.*



**Question 9**

**. On a rating of 1-5, do you feel your current method of storing and retrieving your client's data limits your ability to serve your client's needs?**

Not Limiting

Very Limiting

1

2

3

4

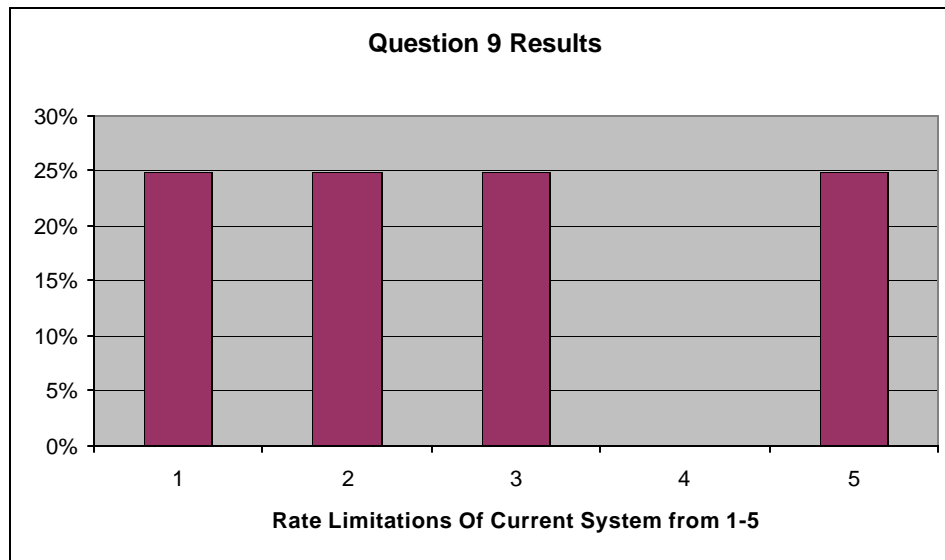
5

**If you answered a 3, 4, or 5 above, briefly explain in what ways it limits your ability to serve your client's needs. We will use this information, so please write legibly!**

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***Justification:** The users may or may not understand that their current system is limiting. If we have to sell the system to our users, knowing their mindset will help us. Additionally, they are likely to know of issues our top level manager and client does not know about.*



# Appendix C

## Prototype

# Appendix D

## Data Dictionary

# Appendix E

## Level 0 Data Flow Diagram

# Appendix F

## Level 1 Data Flow Diagram