

# Shady Lane

## Executive Summary

Student Consultant, Mun Thye Mak  
Community Partner, Patrick Webster

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### I. Background Information

Shady Lane is a 41-year-old non-profit organization whose main purpose is to provide high quality early childhood development programs. It consists of Shady Lane School and Shady Lane Resources, where the latter provides professional development of other early childhood educators. The mission statement of Shady Lane School is as follows:

*Shady Lane is a diverse learning community committed to programs of excellence for children, their families, and educators that embody best practices of early childhood education and promote collaborations that help all children realize their full potential.*

The School has been accredited by the National Association for the Education of Young Children (NAEYC) since 1987. Shady Lane owns its building on 100 N Braddock Avenue in Pittsburgh, and boasts 8 classrooms and a library among other facilities for the children. Its current Administrative Director, Patrick Webster, has been in his position since 2005, and has been charged with, among other things, strengthening the administrative structure of Shady Lane to better support its programs.

### II. Consulting Tasks

Through the context analysis, two major consulting tasks were considered: the preparation of a technology plan and preparation for a database overhaul.

#### Task 1. Preparation of the Technology Plan

The lack of a technology plan was identified as the root cause of the eclectic mix of computer hardware and software—it had led to mismatched technology being deployed in Shady Lane. As such, this consulting task seeks to remedy the problem through the development of a technology plan with the community partner. The technology plan included the three phases of interim improvements, 2-year improvements and subsequent renewals of the plan to align it with the overall strategic direction that Shady Lane is taking.

#### Task 2. Preparation for Database Overhaul

One reason why Shady Lane had trouble keeping up with the enrollment and waitlist data was due to the fragmented way in which data was stored prior to the consulting period—from Microsoft Excel spreadsheets to hard copies. This problem was compounded by a poorly designed and under-maintained database. A board member has offered help in leading a team of database designers to create a new database, but prior to that, a good understanding of work processes and the data that each process requires was needed in order to proceed. This consulting task is focused on documenting and annotating two of the largest administrative processes in Shady Lane to serve as a model for the other processes which will benefit from the database.

### III. Outcomes Analysis and Recommendations

#### Task 1. Preparation of the Technology Plan

- Outcomes
  - A detailed back-up protocol was implemented with 4 off-the-shelf USB flash drives for less than \$100.
  - A 2-year technology renewal plan was created with Patrick detailing how the IT budget can be spent in the next 2 years to upgrade at least 4 PCs.
  - Processes for the renewal of the technology plan at both the grassroots and board level have been put in place.
  - A shift in view of IT as an infrastructure as opposed to being incidental has improved the understanding of the community partner of IT's impact on administrative work.
- Major Risks to Sustainability
  - Cooperation amongst the administrative department staff is vital for the sustainability of the technology plan.
  - Any instability of the amount available in the IT budget can reduce the efficacy of the technology plan by a fair degree.

#### Task 2. Preparation for Database Overhaul

- Outcomes
  - The enrollment and waitlist processes have been updated and annotated with data requirements.
  - Waitlist forms have been slated for redesign due to the deeper understanding of the process.

#### Recommendation 1. Promoting a stronger sense of community over the Internet

Blogs and internet forums are recommended as ways to harness technology to build upon Shady Lane's community using the Internet.

#### Recommendation 2. Work log of technology problems and solutions

A work log of technology problems and solutions serves as the practical knowledge that is learnt through experience. By documenting the problems and their solutions, a knowledge bank is created that can be drawn upon during maintenance and future planning for ideas on both the past and the potential future.

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Mun Thye is a sophomore in Computer Science.  
His future plans include research in  
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# Shady Lane

## Final Consulting Report

Student Consultant, Mun Thye Mak  
Community Partner, Patrick Webster

### I. About the Organization

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#### Organization

Shady Lane is a 41-year-old non-profit organization designed to create a diverse learning community committed to fostering children's self-confidence, independence, curiosity, and problem solving skills. Caring staff members help students search for and form their own questions, ideas and meaningful solutions in an environment of mutual trust. Students enjoy the pleasure of learning through direct experience. Accredited by the National Association for the Education of Young Children (NAEYC) since 1987, Shady Lane is an influential organization in the development of early childhood programs in the Pittsburgh area<sup>1</sup>.

Shady Lane consists of Shady Lane School and Shady Lane Resources. Shady Lane School provides preschool children with a high quality, developmentally appropriate experience, while Shady Lane Resources provides an avenue for early childhood educators to meet and share experiences on developing best practices. The mission statement of Shady Lane School is as follows:

*Shady Lane is a diverse learning community committed to programs of excellence for children, their families, and educators that embody best practices of early childhood education and promote collaborations that help all children realize their full potential.*

Throughout the many years of their existence, Shady Lane has seen many young minds passing through its doors, and at this stage, people who are alumni of Shady Lane School are sending their children through the doors of Shady Lane once more; such is the sense of community that permeates the organization.

#### Facilities

Shady Lane is located at 100 N Braddock Avenue in Pittsburgh, and owns the building that it is housed in, unlike other early childhood development centers. Shady Lane boasts 8 classrooms, an arts studio, a gymnasium, a library of child development resources, and a children's library. The classrooms are mostly located on the first floor and the basement, with one located on the second floor, where most of the administrative offices and Shady Lane Resources are located.

Shady Lane's two constituent components organize two distinct programs.

Shady Lane School caters to the actual practice of early childhood education, and has an enrollment of over 100 students. Parents enroll their children for the various age-specific programs, namely

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<sup>1</sup> <http://www.shadylane.org/our-story/accreditations.aspx?WT.svl=1> retrieved on Apr 23, 2008.

Two Year Olds, Three Year Olds, Four Year Olds, and two multiple-age classrooms. Dedicated teachers lead the groups and engage the children in various activities designed to build up their character. With an excellent educator to child ratio, Shady Lane School's early childhood education programs have seen great success.

Shady Lane Resources provide workshops and sharing sessions where early childhood development professionals meet up and share their working experiences on their work in the industry, providing state-mandated professional development for early childhood professionals in the region. Being one of the most influential early childhood centers in Pittsburgh, Shady Lane Resources have an extensive library on early childhood development methodologies. That, combined with the experiences of the teaching staff at the School, provides a unique opportunity for synergistic developments that ultimately benefit many children beyond the four walls of the School itself.

## Staff

Shady Lane has about twenty-four teaching staff members, six administrative staff members, and several substitutes, support staff and independent contractors who supplement various aspects of the organization. The teaching staff deal largely with the education process and interaction with the children, and are functionally autonomous with regards to the administrative processes. All staff members are conversant with basic office productivity software, and two administrative staff members have taken courses on using Microsoft Access, the database software. Due to the autonomy of the teaching staff with respect to the systems, focus will be placed on the six administrative staff members instead.

1. Gina Capriotti is the Director of the School, and is in charge of recruitment of students, teaching staff, and relationships with families. As the Director of the School, she is in charge of all matters that pertain to the functioning of the School, and uses her computer mainly for email and written communication with Shady Lane's various.
2. Patrick Webster is the Administrative Director, and works with the Program Coordinator closely to handle the records of all who have contact with Shady Lane School. Patrick is also the key link person between many of the processes that occur in Shady Lane School, like being the intermediary of recruitment and finance; because of that role, he is one of the key users of the current database system. He is also one of the staff members who have undergone a course in Microsoft Access.
3. Polly Lipkind is the Project and Training Coordinator for Shady Lane Resources. Sharing the same administrative office as Patrick, she fronts Shady Lane Resources and coordinates professional development programs for other early childhood development professionals. She uses her computer mainly for communications and planning.
4. Janna Rasmussen is the Program Coordinator, and works closely with Patrick in maintaining the myriad records that Shady Lane School has. As such, she is also an important user of the database system that is currently in use. She is the other staff member who has undergone a course in Microsoft Access.
5. Jeff Yannazzo is the Controller, whose main task is to handle the accounting of Shady Lane. Operating remotely, Jeff drops by at Shady Lane to check on the computer which runs QuickBooks, ensures that all accounting is kept up to date, and generates the relevant reports that are necessary for the entire accounting process. Jeff works with Patrick, to the extent where Patrick will update QuickBooks with various invoices that come in to Shady Lane.

6. Jennifer Bell is the Receptionist, and she is the first face that visitors will see when they come to Shady Lane. She handles most of the reception-based work, and is not directly involved in the electronic records administration.

## Technical Environment

The technical environment of Shady Lane is not uniform in terms of hardware; there exists a mix of many different kinds of computers of different technology ages, as shown in the detailed breakdown in Appendix A. However, interconnectivity between the computers is achieved through an internal network that is spread over both wired and wireless connections. Internal data is shared through the use of the server ("Nemo") which is configured to be accessible by every computer within the internal network. The wireless network is protected by the Wireless Encryption Protocol with a network authentication key that is only accessible through the explicit permission of the Administrative Director. Most administrative computers are connected to the Internet as well as the internal network through the cabled LAN connections; the Library Resource Desktop and Janna's desktop is connected to the Internet via the wireless network itself. The wireless network sees usage mainly by the various partners of Shady Lane when they visit for official matters; as noted earlier, the access is given through the authority of the Administrative Director.

## Technical Management

The computers are managed by an independent contractor who comes in when there are problems with the computers; prior to this arrangement, there was a volunteer who would come by to manage the computer systems. Previous arrangements for computer repairs were mainly based on taking from other non-working machines which might be present on site. A quick census revealed that there are a total of about three such non-working computers used for spare parts in the store room. The current independent contractor is still on trial by Shady Lane and no long term contractual commitments have been made thus far.

The computer networks, web service, email and internet access are hosted by One Communications. The email system provided supports both web and Microsoft Outlook interfaces, and is sufficiently robust. Shady Lane's website is also hosted on One Communications' servers. A completely redesigned website was launched in April by the web development company Elliance. The new site contains substantial amounts of information for use as a marketing tool for Shady Lane. Certain dynamic contents of the website are to be managed through a content management system, so as to allow staff to do speedy updates.

The server, Nemo, was formerly maintained by the company Abbott Digital Ltd. However, due to the age of the system, it is no longer being actively maintained; the company that made the software which runs on Nemo is no longer in business. The system is still working well though, and is still being used extensively by staff members for the day-to-day running of Shady Lane. There exists a "technology box" which contains the various manuals which provide simple front line troubleshooting—however, much of the information that the materials refer to have since been outdated, particularly those that provide links to the various websites where certain tools might be found.

## Technology Planning

Before the start of the consultation period, there was no formal technology plan in place at Shady Lane; most of the hardware and software came from donations and other ad hoc means. However, the current staff has recognized that a technology plan would be very useful to Shady Lane so as to provide a good outlook on how technology can be used to aid Shady Lane in improving productivity and efficiency.

## Internal and External Communication

Shady Lane has good internal communication among its staff due to the close proximity of the administrative offices. An internal telephone system with individual extension numbers exists which allows fast verbal communication between staff members to help in quick dissemination of information. The server, Nemo, provides a shared storage solution which staff members use extensively to keep frequently used information accessible to all who need it. There are several folders designated for each staff member which are only accessible by them, however, there are folders set aside specifically for the storage of role specific files, like "Shady Lane School" and "Shady Lane Resources". Each staff member has an individual email account, and that provides yet another avenue for electronic data to be transmitted. While emails are technically stored on the One Communications email server, it is the usual practice for them to be downloaded onto the local computers by staff through the use of the email program Microsoft Outlook.

Externally, Shady Lane has two ways of communicating information. The first way is through the website, which has just been updated and released by Elliance. The website has been revitalized to work as a marketing tool for Shady Lane. The new website has both static and content-managed portions which allows staff members of Shady Lane to update frequently changing information like events and news. For a long time, Shady Lane has been recommended largely by word-of-mouth, and it is of the opinion of the stake-holders that the website should continue to be updated to be more relevant than before.

The second form of information dissemination is through printed materials. Information from Shady Lane School is sent to parents through hard copy form, which is very labor intensive due to the large volume involved. Another issue with transmitting information in this form, is that some critical information can get lost among the routine ones. There are plans to explore alternative media through the website or other electronic means to disseminate routine information, so as to reduce the volume of paper work, and to increase the visibility of critical information.

## Information Management

As a school for both children and early childhood professionals, Shady Lane has data on both the children as well as teaching staff. Part of this data is stored electronically, and the others in hard copy form. Due to the longevity of Shady Lane, there are many different formats of data which are being housed, each one encompassing the differing aspects of student, alumni and even parent. There was an effort to consolidate these pieces of information in the form of a database running off Paradox, and it was fairly successful for a while. With most of the computers running Microsoft Office as the main productivity suite, the maintenance of the Paradox database has become increasingly costly due to the lack of expertise in operating the software. The predominant database system today is Microsoft Access, which puts the current database on the path of being obsolete. In

view of these circumstances, a new database system has been proposed to revitalize the data capture process.

At present though, electronic information in Shady Lane is stored in fragmented forms. Each person manages his/her own version of data that he/she is interested in, resulting in lots of information overlap, with the potentiality of synchronization errors. This also results in unnecessary labor in maintaining these fragmented sources of information, time and effort which can be better spent in improving Shady Lane's core business of early childhood development. Much of the data that is in the database cannot be easily accessed, which results in the current situation described.

Folders currently hold much of the hard copy information. There has been some effort in converting these data into soft form, but without a working database, this is not consistently done.

There was an automated back-up system centered around Nemo initially. However, due to a lack of process controls and maintenance, the automated back-up system is no longer functioning and the data back-up process has been reduced to that of an ad hoc manual system where staff members will copy their own files into Nemo as and when they think that it is necessary. Reliance on Nemo has reached the point where should it fail due to its age, Shady Lane will have problems trying to reconstruct the data that it requires for efficient functioning.

Web-based materials had been housed off-site by the company One Communications prior to the website redesign. At that time there was no easy means of allowing staff members to update the website; the new website design with content management system will alleviate this issue.

## Business Systems

Accounting is currently stored on a separate computer and is handled by Jeff. Invoice data is entered by Patrick, while Jeff will do the necessary accounting obligations from both on and off-site via the Internet. The accounting system is run on QuickBooks, and has been a self-sustaining component ever since it was updated in 2005-06.

## II. Scope of Work

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### Task 1. Preparation of Technology Plan

Prior to the consultation period, Shady Lane did not have a technology plan. This prevented Shady Lane from best deploying and renewing technology to support the administrative processes of tracking information of the children on the waitlists and in enrollment, as well as that of alumni and parents who could have been potential donors. Much of the work was performed in a labor intensive way through manual sorting of lists in Microsoft Excel spreadsheets. The fact that the existing technology is aging and eclectic does not help in reducing the time spent on these tasks. All this means that from the administration is hampered in its ability to fully support the programs of Shady Lane.

### Task 2. Preparation for Database Overhaul

Shady Lane's information management system was in disarray due to the fragmented way in which data was stored. This fragmented data management technique hampered staff members from processing enrollment data effectively, resulting in a lot of unnecessary labor in the coordination of data gathering and use that is better spent on other things like recruitment and fund-raising. For instance, Janna spends a few minutes each time she needs to look for information on the waitlist status of a child due to fact that the information is partially stored in a Microsoft Excel spreadsheet with annotations of correspondence stored as notes in the phone log. Tameria, a board member of Shady Lane and database expert, is willing to provide and lead a team to aid Shady Lane in rebuilding the old database into a modern one, but prior to the database design, it is necessary to know what kinds of information are really needed for the various work processes. A documentation and brainstorming of how information flows through Shady Lane will allow staff members to be better armed in their interactions with the database redesign team. The identification of these data flow patterns will also allow a clearer idea of actual work processes, and will also aid in the design of redundant systems to reduce the down-time in case of a component failure in the system, be it human or machine.



### III. Outcomes and Recommendations

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#### Task 1. Preparation of Technology Plan

A technology plan was put together for Shady Lane to address the concerns of how best to deploy technology in accordance and support of the business plan. There were three main activities under this consulting task, namely the interim technology improvement, technology planning and technology plan renewal.

#### ***Interim Technology Improvement***

- Outcomes
  - A detailed back-up protocol was implemented with 4 off-the-shelf USB flash drives for less than \$100.
  - The assignment of Patrick and Janna as back-up operators means that the back-up processes have proper custodianship and thus accountability now, ensuring longevity of the protocol.
  - Users are educated on identifying the critical files that Shady Lane's administrative department require in the day-to-day running of the business processes.
- Increased capacity to meet the organization's mission

The back-up protocol was designed to safeguard the critical information of Shady Lane. Thus, if any of the administrative computers fails, the critical information can be restored in less than 10 minute through copying the latest back-up from the USB flash drive onto the replacement computer. This reduces the down time of the affected administrative staff member from a few days to less than a day after the replacement arrives. This means that business can go on quickly even with such failures.
- Sustainability
  - The protocol is detailed and easy to follow: back-ups occur in the afternoons every Monday, Wednesday and Friday, while monthly data restoration drills are conducted to ensure adherence to the protocol. As the protocol involves all administrative staff members of Shady Lane, it is hard to "miss" any of these steps.
  - There is clear custodianship of the back-up process leading to accountability. With explicit accountability, the protocol is assured of its sustainability.
- Outcomes not yet achieved/risks to sustainability
  - Should the entire administrative department be uncooperative in the implementation of the monthly drills, the risk of not performing the entirety of the protocol is greater.
  - Roll-out of protocol to entire administrative department not yet performed: only Patrick and Janna (who are the largest data generators/users) have active back-ups. The roll-out will take place no later than July this year.
  - A visually-oriented procedure to explain the user end of the back-up process should aid in a successful roll-out particularly for less technologically-savvy staff members.

- New vision of technology supporting the mission
  - The use of relatively cheap off-the-shelf USB flash drives in performing this back-up protocol has shown Patrick that it is possible to implement a working technology-based solution without spending a lot of money or sacrificing functionality.
  - Technology-based protocols can be implemented within Shady Lane successfully through careful planning and gradual roll-out starting from the most technology-savvy staff members.
  - A more work process-centric perspective towards technology use heightens the awareness of staff members of possibilities of technology use for the future.

### ***Technology Planning***

- Outcomes

A 2-year technology renewal plan was created with Patrick charting IT budget use in the next 2 years to upgrade at least 4 PCs. Included in the plan is a list of criteria for assigning priorities to computers for upgrade, and a suggested order of upgrading the current computers. These recommendations were made in tandem with the direction set by the business plan of Shady Lane. Patrick expressed that this was sufficient to provide a framework for future renewal programs when the time comes.

A list of criteria for the selection of a dependable IT maintenance contractor was developed with Patrick. This addresses the problem of Shady Lane having only ad hoc technology maintenance which leads to the vast incompatibilities of hardware and software.

A comprehensive data back-up plan was created with Patrick. This explored the avenues of deploying a server to back-up the important files. Enterprise servers were examined and were deemed too hefty for Shady Lane's needs. An experiment was conducted and it showed that a simple Microsoft Windows-based computer with file-sharing was sufficient. Incidentally, the experiment revealed that the Microsoft Windows operating system came with a good back-up program, eliminating the need to look for third-party software. Further reflection revealed that the USB flash drive back-up system ought to be continued with the proposed back-up system to provide more reliable data protection.

A plan for website growth was crafted with Patrick. This plan consisted of timelines and processes to ensure timely updates to the website, thus maintaining its relevance. The focus was also on how to use the website as the primary source of basic information in lieu of directly calling up Shady Lane—this is to best maximize staff hours to perform other administrative tasks like enrollment.

- Increased capacity to meet the organization's mission
  - The renewal of technology over 2 years will bring the aging computers up to speed. For example, Janna uses the computer extensively, but her machine is old and slow (1.1GHz with only 127MiB of RAM), resulting in wait times of up to a minute for a single program to load. She needs to refer to many other documents in other file formats, but they cannot be opened all at the same time, resulting in wasted time waiting for programs to load. A faster computer with more RAM will thus reduce her waiting time and increase her output.

- With dependable IT maintenance, productivity will not suffer due to wait times for computers to be fixed. A proactive approach towards IT means that the computers are less likely to be broken which leads to time savings and thus more effective work hours.
  - The safeguard of critical data like enrollment information through back-up means that Shady Lane's administrative department can support the School more confidently.
  - A good website will help Shady Lane solicit donations from alumni better, as well as recruit prospective clients more easily, thus spreading the successes of Shady Lane's early childhood development program to more people with less man-hour effort due to the freeing of staff from having to answer phone queries on basic information-type questions.
- **Sustainability**

Patrick has shown great enthusiasm in the technology plans, and has already brought parts of it up to the board for approval into the coming fiscal year. The plans were comprehensive, documenting the rationales behind the decisions, which makes it easier for referral for later developments of the plans.

The third activity of this consulting task addresses the issue of sustaining the technology plan in the future.
  - **Outcomes not yet achieved/risks to sustainability**

As in any nonprofit, planned expenses associated with specific budget lines can fall prey to revenue shortfalls or other funding problems. Should Shady Lane fail to fully fund the plans outlined in the technology plan, the adoption of recommendations will be delayed, causing extended inefficiencies due to obsolete computer systems not scaling with the size of the tasks.
  - **New vision of technology supporting the mission**
    - IT is now viewed as an infrastructure as opposed to an ad hoc tool that is merely incidental. This resulted in a clearer understanding of the impact IT has on Shady Lane's administrative work, as well as providing a more solid grounding to convince board members of its importance.
    - Viewed as an infrastructure, donations of components to IT are now scrutinized with the overall technology goal in mind. For example, Patrick was offered a brand-new inkjet printer for free by a teacher for Shady Lane during a consulting session. Instead of accepting, he offered to think about it first in view of the goal of phasing out inkjet printers from Shady Lane in favor of networked, commercial-grade printers.
    - With a better control of technology at the administrative level, Shady Lane can use the lessons learnt here to create other technology plans to aid in other areas of the organization, for instance, in the classrooms.

### ***Technology Plan Renewal***

- **Outcomes**

Processes for the annual update and alignment of the technology plan with respect to the business plan at the board level are implemented with Patrick. This ensures that the technology plan does not stray too far from its primary purpose of enhancing administrative support of the overall strategic plan. Although the first technology plan was rolled out only in May, the next

review will occur in early 2009 to coincide with development of the 2009-2010 fiscal year budget, and annually thereafter.

Processes for the gathering of "wish lists" from administrative staff members have been put in place to occur half-yearly. This provides a systematic feedback to Patrick who can then incorporate these technology requests into the technology plan and budget and provide the tools required. The processes were tested to a small extent by Jeff's request of QuickBooks 2008 to keep up with accounting requirements, with the result of prioritizing this in the technology renewal plan.

- Increased capacity to meet the organization's mission

These processes strengthen the good working relationships between the board and administrative staff. Better communication between these two groups of people leads to a more seamless operation to support the teaching staff, potentially increasing the ability of Shady Lane to develop new programming as the administrative department can better keep up with the book-keeping.

By having a systematic way of soliciting needs from administrative staff, Patrick can have real inputs to solve real problems and thus make the technology plan relevant, leading to the benefits of the technology plan being always applicable.

- Sustainability

These processes themselves relate largely to how the technology plan is to be updated. Their relevance can be updated in the process as part of the conversations around the technology plan.

- Outcomes not yet achieved/risks to sustainability

Less technology-savvy staff members might be less inclined to contribute suggestions to improving technology for their work, citing their mediocre understanding of technology as a reason. This can cause the feedback process to Patrick to be biased towards the more outspoken staff members.

- New vision of technology supporting the mission

With Patrick being the custodian of these processes, managing technology is now seen as being similar to managing other business processes.

### ***Recommendations***

From the above activities in the design of the technology plan, several recommendations are made below to address some of the potential shortcomings and risks that can occur during the implementation of the plan.

- Continuing technology education

A large portion of the risks to sustainability arise from the lack of confidence of voicing opinions on technology by staff members. One way to mitigate this is to provide education opportunities to these less tech-savvy staff members through specific skills-related courses to increase their comprehension of technology. A good start will be to enroll them into classes that are specific to applications, like using Microsoft Word, to show them the possibilities that their software can provide, and thus providing them with an avenue for exploration. With a wider

exposure to technology, their confidence in expressing their views on technology will increase and thus lead to more constructive inputs to be garnered.

If there is insufficient budget to sponsor staff for courses, an alternative source of information will be the Learning Center of [techsoup.org](http://techsoup.org)<sup>2</sup>. This site provides useful articles that explain technology that is most related to non-profit organizations.

With the continued technology education of staff members, the success of the technology plan in the future will be more viable due to the increased quality of inputs into the review and execution of the plan.

- Extension of technology plan to all of Shady Lane

The current technology plan was crafted to be specific to the administrative department of Shady Lane. A natural step to take with the technology plan will be to extend it to other aspects of Shady Lane. An example of this will be to incorporate the technology deployed in the classrooms.

The main benefits of extending the technology plan will be the ability to capitalize on the economies of scale and technological homogeneity. By having similar systems deployed throughout Shady Lane, the overall maintenance of the IT infrastructure can be streamlined, resulting in potential cost savings in the long run.

The children and teachers can benefit from the unified platform because the user support base has increased, resulting in better community support.

- Work log of technology problems and solutions

An issue that has plagued Shady Lane is the lack of a knowledge base of technology problems and solutions that have occurred in the past. This inadequacy has resulted in "quick-fixes" to the IT infrastructure that leaves it in an eclectic ensemble with a complicated interoperability dependency.

A log ought to be maintained to track the problems and solutions that have been implemented. The reasons are two-fold: there will be a common knowledge bank from which solutions to similar problems can be found without relying on any single person, and it also serves as an executive tool to spot problem areas that require prompt action. For instance, the relative frequency of failing computer monitors can be an indication that the working ages of the devices are almost up, and thus might be more cost effective to replace them instead of repairing them.

Thus, the work log will serve as a useful knowledge base for both maintenance and future planning.

- Increase participation in technology discussions

In the past, technology decisions were made by a small group of staff members, leading to large biases in how technology is appropriated in Shady Lane. While at this stage the main parties in the technology discussion are Patrick and Janna, it is important that other members participate in these discussions. With increased participation from other staff, the overall technology plan can be more comprehensive and more relevant to the actual needs of Shady Lane due to the increased number of perspectives. All these lead to better allotment of technology resources and

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<sup>2</sup> <http://www.techsoup.org/learningcenter/index.cfm> retrieved on Apr 15, 2008.

increased efficiency of the administrative department, which indirectly creates additional capacity to better support Shady Lane's programming.

## Task 2. Preparation for Database Overhaul

A large part of the book-keeping in Shady Lane was based on the database. However, that database is no longer supporting the proper book-keeping due to flaws in its design that was exacerbated through the lack of maintenance. Tameria, a board member of Shady Lane, has stepped in with the intention of helping Shady Lane build a new database. The student consultant analyzed the situation and agreed that it was a good idea. This consulting task provides a start for Shady Lane's administrative staff members to prepare the necessary information needed to build a good database later on under Tameria's guidance.

- Outcomes

Janna and Patrick have updated the 2006 version of the workflow diagrams for enrollment and wait listing. The data that is required from forms to move through work processes have been identified and catalogued by Janna.

- Increased capacity to meet the organization's mission

By having the workflow diagrams updated and required information extracted, the administrative processes for Shady Lane can be stream-lined further to make them more efficient. Patrick and Janna, through this exercise, have discovered that the waitlist form was unnecessarily complicated and have thus talked about their redesign to better suit the workflow. Also, Janna discovered that she spent almost an additional hour per week working on sorting and prioritizing children on the waitlist, a task that is most suitable for a computer-based solution.

- Sustainability

The steps involved in determining database requirements from the existing work processes are now set in place. Patrick has acknowledged that it is an operational requirement to have the work processes documented and their demands from the database annotated. With that mentality, the rest of the work processes are assured to undergo a similarly rigorous approach in identifying their requirements of the database.

- Outcomes not yet achieved/risks to sustainability

The current outcome handles only the major processes of enrollment and wait listing. Other processes like teaching staff management will also require workflow diagrams to be drawn up with the data required extracted. Even though these processes are deemed to be of less impact on the operation of Shady Lane, they are still important and are thus slated for future work.

There is the danger of getting too bogged down by implementation details that the overall need to document the data requirements gets overlooked. During the meeting with Tameria, Patrick and Janna were advised by both the student consultant and Tameria to ignore the implementation details and to think about what they want out of the database.

- New vision of technology supporting the mission

There is a shift from worrying about implementation details of the database to that of determining what is it that Shady Lane requires out of the database. This results in the

realignment of priorities of business over technology, and pushing technology as being a support to the business decisions of Shady Lane, as opposed to the earlier situation of Shady Lane being held hostage by non-functional technology.

### **Recommendations**

The activity that was undertaken in this consulting task is by no means complete; it is a tacit agreement that similar steps be taken to document the other work flows to allow the extraction of the data flow. Apart from that, here are a few other recommendations that pertain to the preparation of the database overhaul prior to the entry of the database designers led by Tameria.

- **Function over form**

As noted in the risk to sustainability, the implementation details should not be of the primary concern of Patrick and Janna. The important part of the preparation process is to identify the functionality that they require in order to support their work processes.

A good way to ensure that this is observed is to first document the work processes in a broad way, before diving into the details that the work processes entail. This does not explicitly mean that implementation details should not be considered at all—if there are some nuggets of usability that are found out, they should be noted down too. For example, during the documentation of the wait listing process, Janna thought that the database should be able to generate the sorted priority lists for waitlisted children.

- **Open discussion of work processes**

While most work processes are owned by the primary user, it is good form to discuss them with the rest of the staff members. This step will ensure that the documentation of the process is coherent enough to describe to the database designer later on.

On a similar regard, the annotation of the kinds of data that are required should also go through a discussion process to strengthen the understanding to be able to explain it clearer to the database designer.

### **Recommendation 1. Promoting a stronger sense of community over the Internet**

Shady Lane has seen many people passing through its doors over the last 41 years. The strong link between Shady Lane and its alumni is one that the organization is very proud of. As times change, the traditional methods of keeping in touch with alumni are no longer as effective as before due to the existence of faster and more efficient means. A step towards this direction was already taken with the institution of the web site to provide information to prospective clients. However, more can be done to promote a stronger sense of community over the Internet.

### **Blog**

One idea that can be explored will be to set up a web log (or blog<sup>3</sup>) that links to the Shady Lane website. The purpose is to provide a less formal way of providing an insight to what is going on in the classrooms, and should supplement the news/events updates on the official web site. Blogs are content-driven websites that require almost no technical skill to set up, thus making it very desirable for this. A good way to use the blog will be to provide it as an avenue for teachers to showcase the

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<sup>3</sup> <http://en.wikipedia.org/wiki/Blog> retrieved on Apr 23, 2008.

children's art-work and even pictures, perhaps even having some of the older children writing some short entries. These benefit the children because they are now exposed to technology in an easy way.

Blogs are very easy to set up. Popular blog-hosting sites like Blogger<sup>4</sup> and Wordpress<sup>5</sup> provide free hosting as well as an intuitive interface to write and publish posts on blogs. Signing up is simple—just enter the URL as noted in the footnote and follow the on-screen instructions. There are many basic styles of the blog that can be selected on creations—these can be customized to make them unique for Shady Lane. The point-and-click interface is intuitive to use and help is always available from the support pages on the hosting sites.

One way to involve the children with the blog will be to expose them to the use of the computer and to typing. Some of the activities that they can engage in include uploading pictures of their artwork on to the blog, or even to annotate some of the pictures through typing. With the blog, the children are brought a little closer from the classrooms to the real world. This exposure makes Shady Lane just a little more tangible to prospective clients as they can take a peek into how Shady Lane operates in real life.

### ***Internet Forum***

Much of the alumni of Shady Lane are in their twenties and above by now, which makes them prime targets for this suggestion. Most of the conversation between Shady Lane and the alumni has been isolated from each other, which makes it ever harder to build the network necessary for donations and re-contributions back to the Shady Lane family. One way to foster stronger ties between alumni members is to deploy an internet forum.

An internet forum is a type of web site which allows selected members to hold discussions online at near real-time frequency<sup>6</sup>. The usefulness of internet forums stem from the fact that conversations are persistent—any one who is registered for the forum can just add on to a discussion that is taking place at their own time. Interaction between members is the centre-piece of this type of web application. The great thing about internet forums will be that moderators can be assigned from the user base to perform self-policing duties, freeing up precious human resource in Shady Lane in trying to maintain the community.

The ease of setting up such a forum can vary depending on the choice taken. One good way to begin will be to sign up for a free forum at freeboards<sup>7</sup>, a free internet forum hosting web site. This site provides basic functionality for a normal forum and can provide a good feel on how an internet forum is run. Should there be a need to have a more "professional" forum, phpBB<sup>8</sup> can be used later on. The caveat of phpBB will be the need to have a dedicated server and quite a fair bit of technical knowledge, but the advantage will be the ability to have more control over how the forum appears and operates.

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<sup>4</sup> <http://www.blogger.com/> retrieved on Apr 15, 2008.

<sup>5</sup> <http://www.wordpress.org/> retrieved on Apr 15, 2008.

<sup>6</sup> [http://en.wikipedia.org/wiki/Internet\\_forum](http://en.wikipedia.org/wiki/Internet_forum) retrieved on Apr 15, 2008.

<sup>7</sup> <http://www.freeboards.net/main.htm> retrieved on Apr 15, 2008.

<sup>8</sup> <http://www.phpBB.com/> retrieved on Apr 15, 2008.



## Recommendation 2. Documenting Shady Lane's History

Throughout Shady Lane's 41 years of existence, many people have come and gone through Shady Lane's doors. While there have been ideas of creating a documentary on Shady Lane's history, not much has materialized as yet. Instead of creating a one-off multimedia piece, it is suggested that a more extensible system be implemented in the form of a wiki.

A wiki is a style of web management that promotes content creation through the help of the masses. A good example of this is the free online encyclopedia, Wikipedia<sup>9</sup>. The advantage of using a wiki for the task of documenting Shady Lane's history will be that the alumni can be involved in the content creation. This means that it can be easier and more effective in obtaining first-hand accounts which can make the history of Shady Lane more vivid than based on what can be unearthed from the records alone. By definition, the wiki is easily extensible, and once set up, can be self-sustaining; this means that after the initial history has been documented, subsequent events can be added to the wiki as they are occurring, thus keeping a live account of Shady Lane.

Like most web-based applications, there are free versions available online to reduce the time required to set-up the software and servers required. One good place to start will be that of pbwiki<sup>10</sup>. This wiki system provides an intuitive word processor-like interface to ease content creation. There is nothing that needs to be installed, and accounts can be easily signed up for from the web site. This provides a cheap way of getting the history documentation off the ground.

As the wiki is online, links to the growing history of Shady Lane can be created in the official web site to direct alumni and prospective clients to read. This can serve as yet another way of engaging the Shady Lane community.

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### About the Consultant

Mun Thye Mak is a sophomore in Computer Science with a minor in Mathematics at Carnegie Mellon University. He will be pursuing his interest in Machine Learning with the aim of performing research in the field upon graduation.

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<sup>9</sup> <http://en.wikipedia.org/> retrieved on Apr 15, 2008.

<sup>10</sup> <http://pbwiki.com/> retrieved on Apr 15, 2008.

## Appendix A.

### Technical Environment Details

| <b>Equipment</b>  | <b>Features</b>   |
|-------------------|---|
| Gina's Desktop    | <p>Intel Celeron 2.5 GHz processor with:</p> <ul style="list-style-type: none"><li>a) 256 MiB of RAM</li><li>b) 2 Hard drives (71.3 GiB and 9.54 GiB)</li><li>c) DVD/CD-RW Drive</li><li>d) HP LaserJet 6L printer connected</li></ul> <p>Software:<br/>Microsoft Windows XP Home Edition SP2, Microsoft Office XP, Adobe Reader 7.0, WordPerfect Office 12, Microsoft Internet Explorer 7.0, and Firefox 1.5.0.12</p> <hr/> <p>Estimated technology age: 5 years old</p>   |
| Patrick's Desktop | <p>Intel Celeron 1.3GHz processor with:</p> <ul style="list-style-type: none"><li>a) 256 MiB of RAM</li><li>b) 4 Hard drives (9.76GiB, 8.84GiB, 4.96GiB and 0.99GiB)</li><li>c) DVD Drive</li><li>d) CD-RW Drive</li><li>e) 3.5" Floppy Drive</li><li>f) HP LaserJet 6L printer connected</li></ul> <p>Software:<br/>Microsoft Windows XP Home Edition SP2, Microsoft Office 2000, Microsoft Publisher 2003, Adobe Reader 8.0, Microsoft Internet Explorer 6.0, Firefox 2.0.0.12, and Symantec Antivirus</p> <hr/> <p>Estimated technology age: 5 years old</p> |
| Polly's Desktop   | <p>Intel Pentium D 3.0GHz processor with:</p> <ul style="list-style-type: none"><li>a) 992MiB of RAM</li><li>b) 2 Hard drives (60GiB, 88.9GiB)</li><li>c) HP DeskJet 5150 printer connected</li></ul> <p>Software:<br/>Microsoft Windows XP Home Edition SP2, Microsoft Office 2000, Adobe Reader 8.0, and AVG 7.5</p> <hr/> <p>Estimated technology age: 3 years old</p>   |

| <b>Equipment</b>       | <b>Features</b>  |
|------------------------|--|
| Janna's Desktop        | <p>AMD Athlon XP 1.1GHz processor with:</p> <ul style="list-style-type: none"> <li>a) 127MiB of RAM</li> <li>b) 1 Hard drive (18.6GiB)</li> <li>c) CD-ROM Drive</li> <li>d) 3.5" Floppy Drive</li> <li>e) Iomega Zip Drive</li> <li>f) HP DeskJet 5550 Series printer connected</li> </ul> <p>Software:<br/>Microsoft Windows 2000 Professional SP4, Microsoft Office 2000, Microsoft Internet Explorer 6.0, Firefox 2.0.0.12, Adobe Reader 5.1, WordPerfect Office 2002, and Norton Antivirus</p> <p>Estimated technology age: 7 years old</p>                                      |
| Jeff's Desktop         | <p>Intel Pentium III 1.3GHz processor with:</p> <ul style="list-style-type: none"> <li>a) 256MiB of RAM</li> <li>b) 1 Hard drive (9.97 GiB)</li> <li>c) DVD Drive</li> <li>d) CD-RW Drive</li> <li>e) 3.5" Floppy Drive</li> <li>f) HP LaserJet 6L printer connected</li> </ul> <p>Software:<br/>Microsoft Windows XP Home Edition SP2, Microsoft Office 2000, QuickBooks Premier (Non-profit edition 2005), Microsoft Internet Explorer 6.0, Firefox 2.0.0.11, Adobe Reader 8.0 and AVG 7.5</p> <p>Estimated technology age: 7 years old</p>  |
| Administrative Desktop | <p>Intel Celeron 2.0GHz processor with:</p> <ul style="list-style-type: none"> <li>a) 480MiB of RAM</li> <li>b) 1 Hard drive (38.3GiB)</li> <li>c) DVD/CD-ROM</li> <li>d) 3.5" Floppy Drive</li> <li>e) HP LaserJet 4 Plus printer connected</li> </ul> <p>Software:<br/>Microsoft Windows 2000 Professional SP4, Microsoft Office XP, Microsoft Publisher 2003, QuickBooks Pro, Adobe Illustrator 9.0.1, CorelDraw 8, Acrobat Distiller 5.0, Acrobat Reader 5.0, WordPerfect Office 2002 (Paradox 10), and Macromedia Fireworks MX</p> <p>Estimated technology age: 4 years old</p> |

| <b>Equipment</b>                | <b>Features</b>  |
|---------------------------------|--|
| Library Resource<br>Desktop     | <p>Intel Pentium 4 2.8GHz processor with:</p> <ul style="list-style-type: none"> <li>a) 1GiB of RAM</li> <li>b) 2 Hard drives (32.2GiB, and 5.03GiB)</li> <li>c) DVD/CD-ROM Drive</li> <li>d) 3.5" Floppy Drive</li> <li>e) SanDISK Multi-card Reader</li> </ul> <p>Software:<br/>Microsoft Windows XP Professional SP1, Microsoft Office XP SP3, Internet Explorer 6.0, Adobe Reader 6.0, and Symantec Antivirus</p> <p>Estimated technology age: 6 years old</p> |
| Server ("Nemo")                 | <p>Intel Pentium II 498MHz processor with:</p> <ul style="list-style-type: none"> <li>a) RAID 1 Hard drives (39GiB)</li> <li>b) UPS battery and surge protector</li> </ul> <p>Software:<br/>Linux Operating System (custom-build), and reBYTE software suite</p> <p>Estimated technology age: 10 years old</p>   |
| Network Printer/<br>Photocopier | Ricoh Aficio 2232C   |
| Photocopier                     |  |

## Appendix B.

### Preparation of Technology Plan: Expected Outcomes Details

| <b>Activity</b>                | <b>Participants</b>   | <b>Expected Outcomes</b>  | <b>Measurement Metric</b>  | <b>Baseline Measurement</b>   |
|--------------------------------|---|---|--|---|
| Interim Technology Improvement | Administrative Director (second floor offices), Program Coordinator (first floor offices) | Cheap individual-based ability to recover from minor disturbances of business.  | Drills to ensure that the interim data back-up and restoration strategy devised can restore data in less than 2 hours.                             | It is possible to restore much of the data in case of failure, but it is a hassle as the system in use is currently ad hoc—takes too much time (possibly up to a day including searching for the data) to restore data.           |
| Technology Planning            | Administrative Director, Board Members  | Clear direction of technology renewal process (hardware and software)   | Checks every 6 months (May and November) to ensure that the technological renewal process is proceeding as planned.                                | Currently, there is no clear direction of technology renewal; ad hoc systems renewal have been the norm.  |
|                                | Administrative Director, Program Coordinator  | Comprehensive data back-up and restoration policies and strategies in place to ensure minimal disruption in case of single point failure. | Quarterly drills to ensure that the data back-up plans are well-understood and are followed.   | A detailed look at the current files that are available on Nemo will provide the baseline measurement of how much of the critical data that we can currently recover in case of single-point computer failure.                    |
|                                | Administrative Director   | Technology maintenance requirements for contractors.  | To have the ability to proactively maintain all the computer systems routinely every quarter so that single point failure likelihoods are reduced. | Currently, there is no routine maintenance that is scheduled for the computer systems as opposed to the usual infrastructural maintenance; this is evidenced by the assorted administrative computers of varying technology ages. |
|                                | Administrative Director   | Documented plans for website growth and update schedule.  | To be able to update routine information every two months and to be able to provide quick updates to news and events which Shady Lane has.         | The website suffered from the lack of timely updates which resulted in it not fulfilling its role as a marketing tool and information dissemination tool.   |

| <b>Activity</b>         | <b>Participants</b>                    | <b>Expected Outcomes</b>   | <b>Measurement Metric</b>  | <b>Baseline Measurement</b>   |
|-------------------------|--|--|--|---|
| Technology Plan Renewal | Administrative Director, Board Members | Processes for the renewal of the technology plan every year in May to ensure close tie-in between the technology plan and the business plan, taking into account the changes in technology requirements and how best to work that in to improve the steps undertaken to implement the business plan. | To have a coherent technology plan that will support the business plan with the ability to demonstrate its effectiveness.  | The lack of a technology plan now means that the business plan is not aligned with how technology can be harnessed to better improve upon the work processes. |
|                         | Administrative Director, Staff Members | Processes for yearly "wish-lists" which highlight an individual's technology needs to provide feedback on how technology can be used to increase their work output.  | To enable staff members to have the ability to decide together what they need from technology to help in their jobs, and to be able to present a coherent technology plan to the board to show that the technology plan is working to enhance the ability to meet the goals set in the business plan | Staff requests for technology support are far and few because there is no structured way of soliciting feedback from the ground level.                        |