IT Strategic Assessment Report

12/5/2016

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# Executive Summary

**Introduction:** This is a Information Technology strategic assessment created for the organization known as Surgery on Sunday Louisville. First mentioned are the organization’s business practices followed by my recommendations on how SOS can improve the IT aspect of the organization. The executive summary describes how my survey was conducted, a brief overview of the organization, and recommendations on how to deal with the issues at hand.

1. **Survey Process**

* All information regarding SOS was obtained from Program Coordinator Barbara Martin in an Interview on the University of Louisville's Campus, and through email correspondence. James Ryg provided a flash drive that was used to obtain details of any software and hardware used by SOS.
* Our team was subject to a non-disclosure agreement due to the nature of the organization and its need to stay HIPAA compliant
* This assessment was created by looking over the needs of the organization and performing an analysis on how to reach the recommendations that were in the best long term interests of SOS.

1. **Surgery On Sunday**

* Surgery On Sunday is a non-profit organization that performs pro bono surgical services to patients with a particular set of needs.
* SOS business practices consist of gathering information, seeking volunteers, seeking donations, performing surgery, fundraising, and outreaching to the community.

1. **Recommendations**

* SOS needs an overhauled website. This includes revising the main and volunteer webpages and creating a donor webpage.
* Recommend the creation of several databases to make communication and data collection more efficient and simplistic. Recommended databases to be created are as follows:
  + Physician
  + Critical volunteers
  + Non-critical Volunteers
  + Donors
* Recommend middleware for dealing with the above databases to ensure existing HIPAA compliant patient database is left untouched.
* Recommend extra fields that meets specific programming logic be attached to the patient referral data entry form to allow the organization to accept patients that do not identify with the generic binary field currently in place.

1. **Summary**

* In summary, SOS needs to overhaul their website to ensure new volunteers and donations are accepted. They need several databases created to make data collection more efficient. They also need to add a form of programming logic to the existing patient referral form that would potentially add certain fields to the patient form if they are transgender.

1. **History and Purpose**
   1. **History of Surgery On Sunday**

The history of Surgery On Sunday is tied to the Surgery on Sunday organization founded in Lexington, KY. However, the two are separate entities; with the Louisville organization modeling their practice based on the Lexington organization. It all began with Whitney Jones who is CEO of an organization known as the Colon Cancer Prevention Project that is headquartered in Louisville. He decided that an organization was needed to meet the needs of surgical patients that were falling through the cracks of the healthcare system. Dr. Jones believed a Louisville Surgery On Sunday was needed to fill the cracks. He then recruited Dr Erica Sutton who is a Professor at the School of Medicine at the University of Louisville, and chief surgeon at the University of Louisville hospital to help him start up the organization. She has now taken over as President and CEO of SOS. A program coordinator position was created to help oversee the business processes and through UofL’s Kent School of Social Work they hired Barbara Martin. Barbara has a history of working as an Interpreter with Blind and Deaf people that is critical to the program and seen as an asset to the organization. She ensures that HIPAA regulations are being met and that business functions are running properly. Since the inception of the organization in 2013 they have grown from 18 volunteer physician to 44. They have also successfully performed 161 pro bono surgeries with 48 more patients awaiting surgery.

* 1. **Purpose of Surgery On Sunday**

The purpose of Surgery On Sunday is to perform pro bono surgeries on patients on what is a traditional day off, Sunday. Patients that are selected cannot afford surgery or are underinsured and have a family or personal history of medical issues. This organization was created to save patients with these problems. Surgery On Sunday recruits volunteers to donate their time on sunday towards these surgeries. They serve the local community by fulfilling a critical role of surgery service provider to people regardless or race, gender, or orientation. SOS has a mission to ensure everyone has the possibility of living a healthy life.

# Management and Business Practices

**Overview**: The following section details the the practices necessary for SOS to accomplish its mission. The following practices are patient referrals, provide malpractice insurance, seek volunteers, seek donations, perform surgery, fundraise, and reach out to the community.

* 1. **Practice 1: Patient Referrals**

Patients are referred to the organization through several means. Previously sufficient paperwork was required to be sent to the SOS email client in order to enter their data into the organization. However, Sam Walling the Medical Director built a database within the University of Louisville Redcap system to house information on patients within SOS. Chris Head the head of IT linked this database to the SOS website through a HIPAA compliant radio button and from. To ensure federal regulations were being met it was decided that only SOS volunteers with sufficent security access can refer a patient to the organization through their referal webage (soslouisville.org/refer-a-patient) which is protected by a password protected textbox. Once logged in they can input patient data that will be housed in the patient database. Next, the SOS board and CEO will review that data to see if the patient need meets the criteria that the organization has set for pro bono surgery. Patients can also be referred through the University of Louisville hospital. As CEO Dr. Sutton is also a Chief Surgeon at the hospital she sees many patients first hand that have a need for SOS services. Through her position she can pre-screen the patient and gather enough information on them to possibly refer them to SOS directly without a secure user having to navigate the SOS website. SOS is in contact with several clinics throughout the Louisville metro area such as the Family Health Center which can send referrals to the organization through the website or through communication with the SOS email client.

* 1. **Practice 2: Provide Malpractice Insurance**

SOS is covered by Malpractice Insurance that enables the organization to in turn provide insurance to critical volunteers needed to perform surgery. This enables the organization to claim all malpractice liability which in turn keeps the costs of their service free. Barbara is in the process of gathering data for every volunteer to file a federal medical tort. Due to volunteer data being entered into various spreadsheets this is taking some time to ensure duplicate data is not being entered into the federal tort claim. If that claim is successful the federal tort would protect every member of the organization from a malpractice lawsuit. If they will be indeed covered by the Federal Tort Claims Act (FTCA) they would be considered federal employees and thus immune from a lawsuit. Under this situation the federal government would act as the primary insurer.

* 1. **Practice 3: Seek Volunteers**

SOS is in constant need of volunteers to keep fulfilling their mission. They have reached out to Premier Surgery Center, DuPont Surgery Center and Baptist, KY One , Jewish, Norton and UofL hospital which have decided to donate their services once a month. SOS has a rotation between these organizations. However, due to requirements set by these respective organizations KY One, Norton, and Jewish hospitals will only allow volunteers that work in their hospitals to participate in the surgery. At their website (soslouisville.org/get-involved/) volunteers can click on either the Physician, Clinical, or General radio buttons to display a PDF form that the volunteer must fill out and sign and sent back to an email adress listed on the form. All medical volunteers must undergo a 30 waiting period for accreditation once the proper information has been obtained by SOS. Once every volunteer has been accepted into the organization they are added to an excel spreadsheet that has data pertaining to what type of volunteer service they are eligible to perform for SOS.

* 1. **Practice 4: Seek donations**

As a non-profit organization SOS needs donations to ensure their mission is fulfilled. As previously stated they have received donations from Premier Surgery Center, DuPont Surgery Center, Baptist, KY One, Jewish, Norton and UofL hospital in the form of their site, suites, medical equipment, medicine and anesthesia. Anyone can donate to the organization by clicking on a radio button link contained in the SOS website that will navigate them to a paypal page. While there they can donate any monetary value they can afford to give to SOS and it will be received by the organization.

* 1. **Practice 5: Perform Surgery**

SOS is in contact with medical volunteers during the year to schedule a surgery on sunday for a patient in need. The surgery needs specialized personnel that can handle the specific medical need of the patient. Once a patient has met SOS criteria and a surgery is needed to be scheduled Barbara looks through the excel spreadsheet for volunteers that are certified in the surgery needed for that patient. Barbara must then communicate with each critical volunteer that matches that need to find a sunday that works for them and and a hospital site that to perform said surgery. She must also ensure that the critical volunteers selected are employed at the hospital site coming up in the rotation. If the upcoming site is restrictive as to whom may perform or help in the surgery and Barbara has communication issues creating this event then the patient may have to wait till communication issues are resolved in order to receive surgery.

* 1. **Practice 6: Fundraise**

Currently SOS has limited ability to fundraise. Through their minor presence on social media (which consists of simple facebook page) they have been able to raise donations through word of mouth. However, their largest return on investment has been after purchasing advertising on facebook for $140 they were able to raise more than $7,000 in donations. When a fundraising events is needed to be held Barbara has to set up the event far in advance in order to comb through the volunteer spreadsheet and contact non-critical volunteers that are willing to help host an event.

* 1. **Practice 7: Reach out to the community**

Within Louisville, SOS has partnered with the Family community clinic, Family Health Center, Park Duvalle Community Health Center,Shawnee Christian Healthcare Center to locate patients that have a need for SOS. They have also partnered with Hope Health Clinic in Lagrange, KY and Mercy Medical in Shelbyville, KY to help those respective communities. Through these partnerships word of mouth has spread about their services and the mission of SOS.

# Current IT Environment

**Overview:** Section 4.1 and 4.2 go into detail regarding the use of hardware and software at SOS. After auditing their current IT infrastructure it was found that Program Coordinator Barbara Martin is in charge of their limited hardware which is solely used by her. Majority of SOS software is centered around or housed within the University of Louisville’s redcap system. The organization uses VoIP for telephone and Fax services, and regularly uses Microsoft Dropbox to share documents between members. They also have a limited use website that was built upon Wordpress architecture. The organization is currently constrained by how it can interact with the redcap system. Important to note is that SOS is in dire need of software that can streamline the scheduling process for volunteers and referring of patients. All information pertaining to the hardware and software used by the organization were obtained from Barbara’s laptop using a usb stick.

* 1. **Hardware**

Surgery on Sunday has limited hardware available to the organization.

The only purchase the organization has made is for a laptop used by Barbara. She has a hardwired printer/scanner that was donated to the organization in her office and only accessible by her. Any communication between members of the organization is made using their personal hardware. When access to the redcap system is needed those with applicable security access use their own devices to login. Due to the the limited IT budget, and the problems SOS is facing hardware bottleneck capacity is not a current concern.

* 1. **Software**

SOS heavily relies on the University of Louisville Redcap System. Here is where they store all of their HIPAA protected patient data. The system also stores all of the data regarding their critical and noncritical volunteers. Only users with access to redcap are able to view this data. Every member of the organization uses their own email client to get in touch with one another. The website was created on a wordpress platform and hosted through a wordpress domain. Volunteer information is stored on a excel spreadsheet and inputted by Barbara as soon as she can.

* 1. **Staff IT Skills/Training**

SOS has 1 person dedicated to IT, Chris Head. However, most members of the organization has limited knowledge of IT. The minority that do are either close to retirement or graduation and they may decide to relocate in order to advance their careers. The board is currently in contact with UofL Professor Stephen Kendra to help create a job posting for a position that would meet the IT skills needed to contribute to the organization.

* 1. **IT Budgeting and Spending**

A majority of the SOS budget goes toward her salary and any IT infrastructure they need must be donated to the organization. Thus they have a tight IT budget for the foreseeable future.

# Envisioned IT Capabilities

**Overview** The following details the IT goals and capabilities Barbara Martin would like to obtain for SOS. All details and Information for the following was gathered in an interview with her on November 29, 2016 and through email correspondence.

* 1. **Leaderships Vision**

The organization needs to streamline how the organization schedules their volunteers and be able to access specific patient data without having to worry about corrupting the original data. SOS would like to streamline volunteer data from entry into their website to ensure no more volunteers or donors “fall through the cracks”. Lastly, SOS want the ability to accept patient referrals regardless of gender. This would reinforce their mission goal.

* 1. **Top 10 Technology Issues**

**Overview**: SOS is in need of a scheduling system that can cut down on the time it takes for Barbara to schedule a surgery. They also need to create several different databases in order to increase efficiency. Included below are the top 10 technology issues that need to be addressed in order to increase organizational efficiency.

* Create a Donor Database
* Create a Physician database
* Create a Clinical database
* Create a Nonclinical database
* Ensure the above databases keep their data separate from the original patient data to maintain HIPAA compliance.
* Need the ability to create an “event” that will match automatically physicians and critical volunteers to patients based on the patient surgical need.
* The databases need to map to http://www.soslouisville.org/about-us/
* SOS need to accommodate transgender patients in the database without corrupting the existing patient data.
* SOS alerts need to be sent out when volunteers send their information through the website.
* SOS has a need for a fundraising campaign involving donors.

# Closing the Gap

**Overview**: SOS is in desperate need of a more efficient data collection system. Currently they are relying on simple excel spreadsheets to house all non-patient data. This has made SOS inefficient. To combat this they need several databases created that could hold the information that is contained in these spreadsheets. These databases should be able to interact with the patient database without “touching” its data. This could be done using middleware. Currently the patient database only contains simple binary options for input. To serve all patients regardless of gender they need to be able to accept patients that do not fit this mold without corrupting the original data. SOS previously has had donors and volunteers fall through the cracks due to communication issues. In order to combat this push notifications sent to emails specified by Barbara are recommended. With the push notification system in place they would be notified when there is a donor willing to give a donation to the organization that paypal could not cover. Lastly, SOS could use a visual overhaul of their website. Their current website has several visual and information deficiencies that could deter a donation. A non-profit organization cannot afford to miss out on a donation.

* 1. **Recommendation 1: Create databases for SOS volunteers and donors.**

SOS needs to create several database for the various roles volunteers donate their time in the organization. A critical volunteer database needs to be created for all medical certified volunteers. Next, a database needs to be created for non-critical volunteers. Third, a donor database needs to be created to help the organization stay in touch with the donor on the state of the organization. The give local Louisville campaign has 88 names on it and can be a good starting point for donor database. Lastly, a database needs to be created for physician’s. With these databases in place SOS data collection would be more efficient due to the amount of time it would reduce gathering specific data and in turn being able to utilize that data.

* 1. **Recommendation 2: Create Transgender Option**

Currently SOS gender data is only able to be inputted into the patient database as simple binary data. In order to accommodate Transgender patients the organization must be able to identify all that do not conform to this binary input. With such critical functions in the hands of the volunteers this distinction can be the difference between life and death. Through conversation with Barbara and my teammates a series of dropdown boxes and radio button the following programing logic would be perfect for the organization. It could be added to the existing patient referral form. Suggested actions are adding a radio buttons that displays as Trans Y/N? A Y would produce a dropdown box with the text Transman/Transwoman AND a dropdown box with a list of Preferred Pronouns such as He/him/his or she/her/hers or they/them/theirs AND open a Y/N drop down box that displays the question “Sexual reassignment surgery?”. If yes then a drop down box would be displayed attached to a text question “Top or Bottom”. I recommend adding this data into an extra field in the patient database. This would ensure that the original gender data is left uncorrupted.

* 1. **Recommendation 3: Install middleware**

SOS must keep their patient data separate from all other data housed in redcap. This is to ensure HIPAA regulations are being met. An event needs to be created that gathers information about the patient and the critical volunteers. My recommendation is that middleware is installed to gather information when a user creates an event after being notified that a patient is ready for surgery. The middleware should be able to search for key fields in the databases and match them with physicians that specialize in the patients surgery and critical volunteers that can help with said surgery.

* 1. **Recommendation 4: Create push notifications**

When a volunteer prints out the pdf form hosted on the SOS website they fill it out and email it back to the email provided on the website. However, there is no push notifications sent to Barbara or anyone else of importance. According to her this has led to several critical and noncritical volunteers slipping through the cracks. Volunteers have sent an email and are never contacted until someone goes through the backlog of emails and notices it. If this is found several months later that volunteer could have pledged their time to a different organization. I recommend creating an email volunteer-signup@soslouisvile.org. With SOS already using wordpress to host their website I recommend researching and installing a plugin that would push notifications to email’s of Barbara’s choosing whenever an email such as volunteer-signup@soslouisvile.org receives a message.

* 1. **Recommendation 5: Accept a broader range of donations**

SOS currently can only accept donations on their website through paypal. Whenever a donor wishes to give an alternate form of donation they may be discouraged by this sole option. Barbara has mentioned a case where a donor wished to donate a cash value of a “whole life insurance policy” which was a respectable amount. However, the organization was unable to receive the donation because the email was not seen until a significant amount of time had lapsed. This feeds into my recommendation that a push notification system needs to be created that feeds emails with elevated information to Barbara and other important users. A form need to be created and placed on a donor webpage stating what type of donation the donor is willing to give and filled out and sent to an email such as donation@soslouisville.org.

* 1. **Recommendation 6: Overhaul the SOS website**

The current SOS website is visually lacking and has several broken elements. If their social media account drives potential donors to the website they could possibly be turned off by it. There is a broken video that is not visible and the contact information is muddled as to who to contact to volunteer or how to donate to the organization by other means than paypal. The front page should be reconstructed to get rid of these errors. Next, the volunteer page should include more information to make it easier for volunteers to get ahold of SOS. Lastly, a donation page should be created that will house a link where a form can be downloaded. The form should be robust with several options in mind for the various types of donations SOS would be willing to accept in addition to paypal.

1. **Conclusions**

The SOS mission is to “provide free surgical services to underprivileged people without bias”. SOS has several important functions ranging from referring patients, to providing malpractice insurance, to recruiting volunteers and donors, and performing surgery on patients in need. In order to provide free surgical services malpractice insurance is needed to cover every medical volunteer involved. To ensure these volunteers are covered databases needed to be created that to give SOS the ability to create reports for every volunteer without having to spend excruciating amount of time combing through excel spreadsheets while also worrying about duplicate records. SOS wants to be able to accept transgender patients. They cannot input these patients into the current database as it was not built to offer such an option. In order to comply with HIPAA middleware is a prime candidate to fulfill the need of interacting with the patient database while ensuring it is uncorrupted whenever a report is generated. Due to their nonprofit status they have a tight budget and cannot afford a premium middleware option. With miscommunication rampant in the organization several volunteers and donations have fallen through the cracks. A way to combat this would be to revise the volunteer page and create a page detailing donations that are accepted by SOS. On these pages a clear email address would be displayed to send their respective forms in. When the SOS email client receives these messages push notifications should be sent to email addresses of SOS’s choosing to notify them someone of importance someone wishes to volunteer or donate. As a nonprofit they cannot afford to lose anyone willing to donate their time or something of monetary value. I believe that creating several databases to encompass every volunteer is in the best interest of the organization to ensure they meet the requirements of the Federal Claims Tort Act.

# Appendices

* 1. **Basis of Analysis**

The basis for my analysis and recommendation is built upon the Internet Enabled Business Model (IEBM). SOS is in need of expanded web functionality. The website was built without a true purpose in mind and because of this it failing to further the goals of the organization. SOS initial business model collected data on volunteers through tradition paper collection and inputted data into a traditional spreadsheet. They moved these spreadsheets to the redcap system which is linked to the website. SOS wishes to take on the role of technology adopter. As such they wish to utilize technology to make their organization more efficient. By moving their data collection into several databases and connecting them to the website it would increase their efficiencies by allowing them to write a surgery schedule quickly while maintaining data integrity. SOS can differentiate itself from other nonprofit organizations because they would be able to provide malpractice insurance for all critical volunteers due to efficient database records. With database records in place SOS has a greater chance of meeting FCTA standards which in turn could help the nonprofit organization recruit more volunteers.

* 1. **Top Technology Issues**

The IT issues that are facing the organization are summarized below and were previously mentioned in section 5.2. These were gathered in notes from myself, James Pesetsky, and Brett Hardesty.

* Create a Donor Database
* Create a Physician database
* Create a Clinical database
* Create a Nonclinical database
* Ensure the above databases keep their data separate from the original patient data to maintain HIPAA compliance.
* Need the ability to create an “event” that will match automatically physicians and critical volunteers to patients based on the patient surgical need.
* The databases need to map to http://www.soslouisville.org/about-us/
* SOS need to accommodate transgender patients in the database without corrupting the existing patient data.
* SOS alerts need to be sent out when volunteers send their information through the website.
* SOS has a need for a fundraising campaign involving donors.
* Make sure that SOS can still access redcap system once every member of the organization has graduated from UofL.
  1. **Technology Inventory**

**SOS hardware consists of:**

* Barbara’s Macbook running OS X Darwin
* A HP Printer/Scanner

**SOS Software consists of:**

* Patient database housed in UofL’s redcap system
* Volunteer spreadsheet information held on redcap
* HIPAA compliant email client
* Website housed by wordpress
  1. **Sources**

**Hyperlinks:**

* <http://www.bphc.hrsa.gov/ftca/about/index.html>
* <http://www.soslouisville.org/about-us/>

**Text:**

* Afuah, A and Tucci C. Internet Enabled Models and Strategies.

**Interview:**

* Barbara Martin, Program Coordinator, Surgery On Sunday 11/29/2016