Creating an Online Environment: 
Designing Comprehensive Systems for Nonprofit Organizations

An Honors Thesis (HONR 499)

by

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Abstract

Creating online systems for an organization can be a daunting task that many nonprofit organizations forego until they can find a suitable systems administrator to take the lead and build these systems from the ground up. The systematic process outlined in this process analysis comes from the establishment of Beneficence Family Scholars, a nonprofit organization established in Muncie, Indiana in 2019 by a team of 16 students and 1 professor. The organization set up online systems in the early stages of development, including a self-hosted Wordpress website, a learning management system, as well as G Suite services. This process can be broken down into five stages: system setup, content curation, maintenance, accessibility, and transferability. System setup provides the base of what will serve as an array of online platforms for a nonprofit organization. Establishing online platforms like those of Beneficence Family Scholars can mainly be achieved by asking the question, “how can technology help us further our mission?” This question will serve as the guiding force when establishing an organization’s online systems to best help them serve their audience in the most productive way possible. This analysis covers ways to implement online systems for nonprofit organizations, as well as ways to improve upon the systems already in place at Beneficence Family Scholars. The external Beneficence Family Scholars website is viewable at https://bfscholars.org.

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Process Analysis

Introduction

The process for establishing online systems for an organization can seem daunting, but it does not have to be, as long as the team setting up the systems allots sufficient time and effort to the five main stages of launching the online systems. These five categories include, service setup, curation of content for the website, establishing accessibility tools, maintaining the services, and having the ability to transfer service administration to other parties once the team is finished with the initial establishment of online services. These were the five stages I used when setting up the website in this analysis, as well as the many other websites I have set up for myself and various clients over the years.

This process analysis will cover the processes used to set up the online systems for Beneficence Family Scholars, a nonprofit organization established in Muncie, Indiana by a team of 16 students and one associate professor in January of 2019. This organization’s mission is to help single-parent families attend college to further the parent’s education, as well as foster a passion for learning within the children, too. I served as the primary system administrator for the all online systems used by Beneficence Family Scholars. I had help from a team of writers, as well as a graphic designer to create the website shown to site visitors as of this writing. Various self-hosted and managed online systems were established for this organization, including a website, learning management system, and G Suite collaboration tools, email, and single-sign-on services. The decisions to procure these various services, as well as how they were implemented in the organization are explained further in this analysis. Since the organization was still new and under development when online systems were established, these decisions may seem simple to systems administrators of larger corporations. The organization, at the time, did not have a dedicated space nor budget to establish dedicated servers for more robust services, nor did the organization employ anyone capable of managing such services. All services explained further are web-based and have been established for under $100 USD.

Service Setup

The first stage in establishing online systems can be broken down into a few steps: deciding on a domain name, finding a service to host one’s online services, as well as downloading the necessary files or programs to set up the organization’s systems. This stage of web development required some significant preliminary work before Beneficence Family Scholars could even begin work on online content.

The first step of setting up service is establishing the organization’s name and goals for online systems. This step may seem unnecessary at the beginning of this process; however, it is imperative that the organization’s leaders and technicians are all on the same page when it comes to deciding what is best for the organization. One question that can be asked of organization leaders, whether the organization has already been established or not, is, “how can technology help us further our mission?” There is an infinite amount of possibilities that technology can
provide for an organization, sometimes it just takes a creative mind to implement what the organization desires.

The technological goals set by Beneficence Family Scholars were the following:

- A website to display content for donors, supporters, etc.
- A monetary donation form
- A place where volunteers could register to help at events, spend time with families, etc.
- A blog or news section
- A video center where program scholars could view informational content about how to navigate college, manage finances, and practice important job-related skills at home
- Organization-wide email—only 19 individual accounts to start. 16 for the development team, 1 for the supervising professor, 1 for a “noreply” address, and another for a central mailing address that any member could check

These goals, at first, seemed fairly attainable and easily achieved by a self-hosted platform, which is exactly what the team decided on. Over time, these goals changed and became more complicated as the organization’s needs evolved. This was something we, admittedly, did not plan for or know would happen at the start of the project. Originally when the project started, the goals were very different than what we ended up with at the end of the semester. These were certainly not negative changes to the organization, but rather just changes the team had to adapt to over time to ensure the systems established were still meeting the organizational goals. This is something all leadership and technical teams need to anticipate when setting up online systems for the first time. Goals are ever-changing, and the technology should be built to flex with these goals.

After selecting the goals of the organization’s online systems, the team must decide on a domain name for the organization. A domain name for an organization needs to be something memorable and concise so that visitors to the site or other services on the domain can reach these items with minimal issues with spelling or remembering the domain format. The domain name of an organization is very important, because this truly establishes the online identity of not only the organization, but its employees, too. The domain name is the base for the website, email addresses, and client-based applications attached to the organization.

The domain name’s ending should also make sense with the organization’s affiliation with their industry. According to Google Domains (2020), these endings are referred to as Top Level Domains, or TLDs. Besides the widely known domain endings like .com, .org, .net, etc. there is a multiplicity of top-level domain endings to choose from to match the organization’s industry affiliation. These additional TLDs allow for more simple domain names to be used by more organizations, since the online world is no longer limited to the orthodox .com or .org domain endings.

The Beneficence Family Scholars team decided on bfscholars.org for the organization’s domain name. This domain is short and includes the ending, .org, since we were setting up a nonprofit organization. The team decided on this name because it was easy to remember, given “Beneficence Family Scholars” can sometimes prove to be a mouthful for individuals new to the organization. Over time, we found this domain name worked well for email addresses, e.g.
hello@bfscholars.org, as well as additional applications, such as the learning management system implemented, e.g. academy.bfscholars.org. The Beneficence Famoly Scholars domain name was obtained through Google Domains, simply because the service offered attractive pricing and simple domain name service (DNS) management. Just like hosting services, there are a wide range of domain name registrars that offer a wide range of prices and services. A domain name registrar should allow users full access to their domain name’s capabilities, including the ability to change the nameservers, DNSSEC, registered hosts, as well as both synthetic and resource records. Not all registrars offer access to edit these details, so it is imperative to select a registrar that permits editing of such information.

![Google Domains](image)

**Figure 1:** Google Domains offers full control of the purchased domain name.

The next step requires multiple individuals and multiple opinions from technical professionals—hosting the online platform. There are many services that offer a variety of hosting packages and rates that may seem attractive at first glance. As I have learned over time, sometimes the cheapest is not the best for the organization, and the packages provided by hosting providers can appear very similar but offer different programs, speeds, storage, etc. that may have a profound effect on the organization’s systems.

The Beneficence Family Scholars website was set up using cPanel managed hosting service through Hosting24. This company is known for providing hosting for a variety of types of online projects, typically for beginners. The cPanel user interface is a simpler interface, allowing users a way to easily manipulate the various components of their website. This service was chosen due to the affordability of the service, as well as the range of tools available to us when setting up the site. Once the site was paid for, the service was ready to use, so we could begin work right away. There was no need to utilize a terminal to download components like MySQL, Apache, etc. to
set up the site, like one might expect when setting up their own server.

If this portion of the project could be repeated again, I would suggest the team search for a cloud-based server solution, such as Google Cloud or AWS from Amazon. These services, while certainly more complex and unable to work “right out of the box,” offer a wide range of options when it comes to the speed of the server desired, as well as billing per monthly usage. This means the price is not an all-inclusive price paid upfront, but rather a cost billed to the organization monthly based on how much the services were utilized that month, similar to a water or electricity bill. A cPanel hosted service is ideal for smaller organizations beginning their online journey, but they can be limiting, especially when it comes to site speed. Cloud-based servers offer the convenience of not having to perform one’s own server maintenance, but also allowing the user flexibility to alter their plan to best fit their needs, such as increasing the amount of available speed to site visitors in the event the organization is expecting more traffic, upload, or general usage of the site than normal. This allows the organization to still keep operating costs low but provide the performance of professional online systems.

The final step in the first stage of setting up a website is deciding what services the organization will implement on the domain. One of the best ways to start establishing online systems for an organization, especially if it is smaller or just getting started, like Beneficence Family Scholars, is to use open source software to set up the necessary platforms for the organization. Opensource.com defines open source as “something people can modify and share because its design is publicly accessible,” (2020). This definition originally came from the early stages of computer operating system development, where individuals would use other’s designs for operating systems to modify their own to their own needs. The term “open source” has been
expanded to include the exchange of software and collaboration on various products for a more community-oriented development (Opensource.com 2020). This genre of software is ideal for new organizations, as it is usually very customizable to fit the organization’s needs and can often be found for free or at a very affordable cost. When seeking out this software It is important to return to the question of, “how can technology help us further our mission?” At times, the amount of available software can appear overwhelming and a technician might feel the need to install more than what it actually necessary for the organization. Sometimes it may not even be necessary for an organization to set up an informational website, but rather just an internal site or database where employees or clients can log in to access tools or information pertaining to their affiliation with the organization. An organization’s systems do not have to model other organization’s systems—they should reflect their own technical needs.

Beneficence Family Scholars originally set up a number of platforms to kickstart the online journey. Eventually, certain components of all these platforms were moved to more advanced services. The nonprofit organization’s website was created using what 35% of the world uses for its websites—Wordpress (Wordpress 2020). Wordpress is an open-source, highly customizable platform that can be used as a foundation for many websites. That is why the Beneficence Family Scholars development team decided on this platform for the website. Wordpress satisfied many of the team’s goals, including the ability to embed a donation form to a page, post updates about the organization to a blog, showcase photos, a directory, and serve as a central hub for the organization’s online presence. Wordpress is also a platform that allows for collaboration on content between multiple users at a time, so the team felt it would be best to implement this platform for our main website.

Being the primary web developer on the project, I also implemented several auxiliary services at the start of the organization’s establishment of online systems. Since the organization was set up using cPanel managed web hosting, webmail service was included in the package. This form of email services was certainly very basic and did not allow for much customizability in terms of sign in options, GUI, or user management. After the organization was recognized as a tax-exempt organization by the Internal Revenue Service, we switched email service to Google’s G Suite. Google provides registered nonprofit organizations with full G Suite access, which includes SAML sign-on services, Gmail, Google Drive, and many more enterprise-level applications available to paying G Suite customers. Switching to G Suite allowed the organization more freedom when it came to the ability for users to add mail accounts to their own devices, opposed to checking mail from a browser. The speed and reliability were also two qualities of G Suite that influenced the transition from webmail to this platform.

One of the goals for the organization was to have a place where program scholars could watch informational videos on the innerworkings of college, managing personal finances, searching for jobs after college, etc. There are a variety of platforms that serve as a place for video hosting, such as YouTube or Vimeo, but the organization wanted to be able to track the progress of the scholars through a more comprehensive program. With the organization’s mission centered around education and the majority of the development team comprising of college students, the idea came to mind to implement a learning management system, similar to the ones the scholars would be using at their respective colleges. The team implemented another open-source platform called Moodle. Moodle is a fully-fledged learning management system with the ability to create
custom courses, assignments, as well as providing capabilities for user management. There were a few caveats to setting up this online system, as Moodle is not a “ready-to-use” product upon its initial installation. This software is very robust and has many capabilities that can be customized by the site administrator. As the primary developer, it was my job to figure out these idiosyncrasies to best mold the platform to the needs of the organization. There was approximately one month of setup involved before the team could begin using the platform.

As the team began implementing more and more systems, it became necessary to implement a single sign-on authentication service to centralize the login process for these platforms. At this point in the project, the organization was pending nonprofit verification, therefore the team could not yet obtain services with Google for Nonprofits. I implemented single sign-on service with Auth0, to connect Moodle, Wordpress, and webmail. This allowed users to sign in with their organization username and password, instead of having to maintain three separate accounts for each service. This advanced feature proved to be quite useful for the team, since they were accessing these platforms daily. Similar to Moodle, setting up this service proved to be somewhat difficult. This service required previous knowledge of single sign-on systems and minor knowledge of JSON to program the system to allot various access permissions to our different user groups.

While the setup for an organization’s online systems is certainly a very long process, it was only the beginning of what would be a four-month project to officially deploy the website for the public to see. There were still many stages left remaining in the web development process after the initial setup, that the team worked through. The team still had to create all the content to post on the site and learning management system, as well as set up more logistics to optimize maintenance of the site, as well as add tools for accessibility purposes. As the primary developer, I also had to ensure everyone who would be continuing with the organization could utilize all the online services just as they had been established.

**Curation of Content**

Curating content for an entire website can be very difficult, especially if it is just one individual working on the site. Writing content to fill a site can be even more daunting than the site setup, if the main developer is not comfortable with their writing capabilities. Filling the site with graphics, whether computer-generated or photographed, can also be difficult if the developer does not possess the skillsets to complete these tasks. It is important to establish a team of individuals who are confident in these steps of the process so that the site can be filled with the content the organization needs by the time the site is required to go live.

**Writing and Graphics**

As a web developer for many years, I have had a lot of experience designing websites and online systems, but I realized when working with the Beneficence Family Scholars development team I am not always great at coming up with the content for largely text-based websites, like the site for Beneficence Family Scholars. I was fortunate to work with a team of individuals who happened to be very confident in writing for various types of platforms, whether it be news, social media, or website design. We formed a marketing team that solely worked on the organization’s graphics, videos, social media, and website content. The writers and I devised
plans how we were going to implement the information that needed to go on the site with the web design I had in mind. This process was often altered depending on the pages we were working on, but for the most part, we established this process: I, the web developer, kept the writing team informed on what pages of the site we needed to add content for next. With some pages, such as the Home page and Board of Directors page, I established a template of sorts that would allow the writers to envision how much text the space on the page would allow for, that way I did not have to pare down what they had written as I copied the writing into the placeholder. This method proved to be somewhat useful, because it allowed the design of the page to stay concrete, which was necessary in cases of more visually involved pages such as the Home and Board of Directors pages. This allowed the text to just fill space that was necessary, while also allowing the images and graphics on the pages to do the majority of the talking. This method of distributing work was often times limiting on what the writing team would want to put in the space. As the web developer, it was difficult to balance design with what the writers wanted to express on the site. At times, I would still have to omit sections of writing to give preference to the design of the site.

The second method we implemented was the following: the writers would work on the copy for a section of the site while I was tasked with other duties, such as building out the learning management system. I would then reference the document from the writing team outlining what they needed to put on the page. It was then my job to piece the puzzle together, metaphorically speaking, to design the section of the site around the text the writing team produced. This method proved to be most helpful; the writing team was allowed the freedom to add whatever they needed to the site, and as the web developer, I implemented their work into design elements I could envision on the page.

Website graphics can be a challenge, too, just like writing copy for various sections of the site. The marketing team was equipped with talented videographers and photographers that produced media for the site. Having to do this work on my own would have prolonged the web development process, causing the unfortunate consequence of foregoing features like the learning management system. This team of individuals was tasked with photographing the various trips the group took around the Muncie community as well as the work we were doing with the organization. These photos were used as placeholders for graphics spaces on the website. These photos are described as placeholders, because the majority of the organization’s work with families had not yet commenced, leaving us to use our creativity to create these experiences on the website.

Having not yet started the primary function of the organization proved to be difficult when designing the site. It was challenging to show the public what we were doing without fabricating photos or video clips and staying true to the fact that we were a new organization. This information had to show through in our messaging and existing graphics. The team was authentic in what was displayed on the site, which is something all organizations should uphold when making online content. The audience will stay true to an organization that has upheld authenticity over an organization that has not held itself to that standard.

Site Design
There is a lot that goes into the design of a website, especially when the organization is new and has not yet established its own identity. Whether the organization is new or preexisting, the organizations platforms should reflect the brand of the site. This is an all-encompassing task, meaning the site should utilize the brand’s fonts, colors, and key graphics.

The Beneficence Family Scholars marketing team took several days to build out the brand now displayed on the primary site. Because it was very easy to integrate with our site’s theme, our team used Google Fonts to select the nonprofit’s brand font. This way, the font would be easy to display throughout the site and visitors to the site would recognize the familiarity of the text from social media posts and print materials. The team copied the same philosophy to the brand’s colors. Our in-house graphic designer drafted many color palettes for the group to choose from and the designer ensured they would be both web and print compatible.

Once the team had developed a brand identity, I chose a Wordpress theme that would work best for the Beneficence Family Scholars website. The ideal theme would have support for Google Fonts and allow me to fully customize the theme’s files and layout either by code or by the Customizer function built into Wordpress if I felt we needed to better adjust the main template to our needs. At the time of the initial build of the site, I decided on CustomPress. This theme was touted as one of the most customizable themes for Wordpress. While I certainly agree that this theme met most of my expectations, it was not as customizable as I had initially desired. It was very challenging to overwrite the default layout of the theme, sometimes returning the end-user to a page that they were not supposed to see.

If I had to pick a different theme and do the design build again, I would choose Hello by Elementor. The theme was released after the Beneficence Family Scholars site was completed and has been my theme of choice for websites built since this project was finalized. Hello is a very simple, lightweight theme built by Elementor, the company behind the robust drag-and-drop page builder plugin mainly used for this website. The theme does not slow down site browsing, and it is fully customizable, either by coding CSS into the site itself, or making changes to the theme using the built-in Wordpress Customizer tool. Since this theme is built by Elementor, it works flawlessly with the company’s editor and has full drag-and-drop capabilities as well as support for Google Fonts.

The rest of the site design was tasked to me and our in-house graphic designer. The both of us made sure there was ample spacing and proper text alignment throughout every page on the site. This step is crucial to site design. A site should be easily navigable and legible by the site’s visitors. Easy navigation and legibility of the content allows the individual to capture the organization’s messaging.

**Plugins**

Wordpress offers a large repository of plugins that can be used to enhance the site experience for both visitors and site administrators. The Beneficence Family Scholars website utilizes many of these plugins to make the site look and operate how the team designed it. One of the main plugins used throughout the entire website is Elementor. This plugin made the design process of the site much faster and allowed me and our graphic designer the ability to alter the site without having to touch the main CSS code of the site. Elementor is a drag-and-drop editor that gives the
developer full control over how the site looks and can be used by beginners or more advanced web developers.

It was important for the entire team to be able to see who was accessing the website during specific times of day and from which platforms. The two plugins installed for this goal were Yoast SEO and MonsterInsights. Yoast SEO helped boost the search engine presence for Beneficence Family Scholars. This plugin provided the team with statistics on how the pages displayed on the site could be improved to allow search engines to index these pages more easily, as well as load these pages faster from search engine results. This plugin allowed search engines like Google see the structure of the site and display detailed search results based on how Yoast SEO communicated the structure of the organization’s site to these engines. MonsterInsights provided our marketing students with data on how the site was performing based on social media posts and search engine optimization. These individuals could log on and see where users were coming from to visit the site. It was important to determine this information to better determine where the organization’s donor pool was on the internet. To best market to these individuals, the social media team needed to know whether to focus their content more on Facebook or Instagram, or perhaps produce more print materials if donors preferred to spread the news about our organization via word of mouth.

As the site administrator, there were a few other tasks that needed to be fulfilled by the help of plugins. Some of these tasks included user management with Advanced Access Manager, speed and image optimization with Autooptimizer, establishing an RSVP service for events with RSVP, and adding donation functionality to the site with Donorbox. These tools are essential to building sites as complex as these and are what really shape the sites into the ideal user experience.

![Figure 3: Implementing a series of Wordpress plugins can drastically increase the user experience on a Wordpress site.](image)

**Maintenance**
Maintaining a Wordpress site and other hosted services, like the Moodle learning management system require constant upkeep, or else the site may be susceptible to errors caused by outdated plugins or themes. It is important to delegate someone in the organization who checks in on the site’s settings every so often and is responsible for ensuring site updates are processed properly. Often times, that individual can just be the primary site administrator, but other times it may be necessary to delegate that role to another individual if there is not a primary site administrator available to process these tasks.

One way that often proves effective for ensuring the site and all associated platforms are current is registering for the email lists of the companies that produce the software used to initially set up the website. This is a task I was sure to complete during the construction of the Beneficence Family Scholars Wordpress site, as well as Moodle learning management system. This was a way I would always know when to log in to the site administration and run the update scripts so that users to the site would have the best experience possible.

Another way to mitigate the inconvenience of having to update the site manually would be to implement a plugin such as Jetpack, or a script in the case of the Moodle LMS. Plugins like these automatically update the website at a specified time when there is not a lot of site traffic to cause the least amount of disruptions to site visitors and employees of the organization. Since I was working on the Beneficence Family Scholars site day to day, I did not find it necessary to add this functionality to the site at the time. A plugin like this should be added during the transfer process of the website to another party since the individual may not be accessing the administrator console every day.

**Accessibility**

A topic that is often overlooked when creating even the smallest of websites is accessibility. Websites need to be accessible to all types of people regardless of ability, language, or device availability. When designing the Beneficence Family Scholars website, we kept accessibility at the forefront of our website construction. The team wanted to ensure it would be able to be seen by anyone regardless of ability, language, or device. We knew that some of our scholars may not always have access to a laptop or desktop computer, so we wanted to ensure the site and its associated entities were fully capable with mobile devices. By implementing mobile-friendly CSS styling and a mobile-friendly theme, individuals can browse the site on any device with full functionality. Often times mobile sites will forgo certain features due to the complexity or inability to use these features on the go. The Beneficence Family Scholars team wanted everything on the site to be visible and operational no matter the device.
This philosophy held true in the deployment of the Moodle Learning Management System, too. Scholars are able to use the mobile version of the Beneficence Family Scholars learning management system or Moodle app to watch training videos and complete assessments assigned by the program coordinators. This functionality was especially important to include in the site because we knew that some scholars may only have access to a fully capable computer on campus, so we wanted these resources to be available with no extraneous access requirements from their home.

A next step to take for this site would be improving the overall accessibility score of the Beneficence Family Scholars site and associated platforms. Currently, as the site stands, there are a few issues with images and text styling that can be remedied to better serve individuals who require a screen reader or enlarged text when viewing websites. Using a website like the WAVE Web Accessibility Tool, to pinpoint accessibility issues would be a great way to identify and implement these changes. Fixing errors like these would allow these individuals better access to the site’s text and image descriptions on screen readers. Increasing accessibility can also help a site’s SEO rating, pushing the site higher on search results and allowing the engine to better index the site.

**Transferability**

Eventually, there will come a time where the primary system administrator will need to leave their position and pass the current systems down to another administrator. The most important thing to keep in mind when transferring a website is ensuring all established processes are properly documented in a central, easy-to-access location, such as the organization’s Google Drive file or another shared file service like this one. When passing down a website, it is good to create guide in the style of a user manual for the continuing administrator. This list is the primary checklist I make sure I cover with the new administrator when passing down a website to a new administrator:

- All plugins installed on the site, whether or not they are enabled or disabled, and what purpose they serve for the site
- The site’s current theme, any customizations made to the theme, including if it is operating under a child theme
- All access policies and access roles
• A list of current administrators and contact information
• An emergency account that is established in case the site’s single sign-on service fails
• Contact information for any plugins installed on the site by third parties or authentication service providers (i.e. SAML, LDAP or other single sign-on services)

This checklist only serves as a basic list of items that need to be passed along to the next individual in charge. Every set of online systems is different and requires unique coverage of the processes and policies currently in place with that organization.

Conclusions

Overall, the establishment of the Beneficence Family Scholars online systems provides the organization with a strong set of tools to accomplish various online tasks, especially with the addition of G Suite products like Gmail and Google Drive to aid with collaboration. Though this installation is robust as is, there is still much room for improvement. Over the next few years, it would be ideal for the Beneficence Family Scholars team to reevaluate the current design of the website and perhaps adopt a cleaner interface with better accessibility capabilities and translations for speakers of different languages in the Muncie area. Establishing an Active Directory service with LDAP login would also improve productivity between applications for both scholars and Beneficence Family Scholars employees as the organization grows into the next several years. Services like these would centralize scholar data and allow these users to login with an organization-established account to services like Moodle and organization email. With these improvements and more, the Beneficence Family Scholars online presence would meet the ideal standards for enterprise-level online systems.
References

