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## Launching a Startup: Beacon's Road to Becoming a Lean Nonprofit

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LAUNCHING A STARTUP:  
BEACON'S ROAD TO BECOMING A LEAN NONPROFIT

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Submitted in Partial Fulfillment  
of the Requirements for  
Graduation with Honors from the  
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## **Abstract**

One would think that having a great product or service and a few compelling advertisements would be enough for an entrepreneur to successfully launch a company. However, this assumption no longer holds true in today's competitive marketplace. In fact, the vast majority of startups fail. Research suggests that this failure is often derived from the rigidity that comes with the traditional startup model. To avoid this fate, startups have the option to adopt a different startup model—the recently developed lean startup method.

This thesis will follow the startup “Beacon”—a disaster relief application that seeks to efficiently distribute relief resources to disaster survivors and mitigate waste—throughout its development process over the past two years. The Beacon team realized that to be able to launch their mobile application quickly and inexpensively, they would need to address their organizational structure and growth strategy. For this reason, the group evaluated and compared the traditional startup model and the lean startup model to see which would be the best approach for Beacon's development. Although the lean startup model is most often applied to for-profit businesses, it was found to have many applications in the nonprofit arena as well. After assessing all options, the Beacon team decided to establish a nonprofit and apply the lean startup model. This model will allow the group to develop a disaster relief application that will cater directly to the needs of natural disaster survivors, volunteers, and relief organizations while saving time and resources. Finally, this paper will explain how the lean method can be more intentionally applied in Beacon's next steps to take full advantage of the savings and opportunities offered by lean principles.

## Introduction

Beacon is a student-faculty team dedicated to developing and launching Beacon--a disaster relief mobile application designed to efficiently distribute supplies and volunteers during disaster situations. The project was started in 2016; the team has since won the SCRA Fan Favorite category in USC's annual Proving Ground Competition and has assembled a coding team through the USC School of Engineering's Hackers and Backers pitch competition.

Since Beacon's founding, it has followed the traditional startup route of writing a formal business plan, attempting to attract investors, and beginning development of the mobile application. However, due to the team's limited funds and desire for a quick launch--in order to place Beacon in the hands of those who need it before the next disaster strikes--the traditional route may not be the most feasible launch method. The team has unknowingly followed some of the lean principles but has not directly adhered to the lean startup path. The conscious application of lean methods will allow Beacon to better match its services with user needs while avoiding wasteful investments.

In 2011 an alternative was introduced for the traditional route: the lean startup concept. Eschewing the painstaking planning, intense upfront investment, and secretive development of the traditional model, the lean approach attempts to trim the costs associated with starting a business. Through hypothesis testing, extensive customer and partner feedback, and rapid development, the lean approach seeks to make business launches less risky, less costly, and more likely to meet customer needs. The lean startup method, which is typically used in for-profit companies, holds great promise for Beacon. By following the lean approach, Beacon will be able to not only substantially decrease development costs, but also significantly expedite the development process.

The purpose of this paper is first to compare and contrast the traditional and lean startup method. It will then explore how exactly the lean approach can be successfully applied to Beacon and other nonprofit organizations.

### **Inspiration for the project**

On September 27th in 2015, Hurricane Joaquin began to develop in the Atlantic ocean. Moving through the Bahamas and past Bermuda, Joaquin intensified into a Category 4 hurricane before dissipating into heavy rain. Joaquin's remains headed toward the United States, eventually hitting much of the Southeast. South Carolina was one of the regions most heavily affected. Much of the state, from Greer to Mount Pleasant, was covered in a torrential downpour as it stalled over the East Coast, tropical moisture flowing from the Atlantic and Gulf of Mexico, and Hurricane Joaquin resulted in excessive levels of rainfall (Wiltgen, Nick). Catastrophic flooding occurred throughout the state-- notably in Charleston and Columbia--and resulted in multiple dam breaches, an estimated \$12 billion in total damages, and multiple deaths (Burris, Roddie). The heaviest rain occurred near Columbia as the city experienced the rainiest day in its recorded history; much of the city was left without electricity or clean water.

In response to this disaster, local and national relief organizations and community members quickly began to provide aid in the form of food, water, and shelter to those displaced or otherwise affected by the flooding. In Columbia, organizations such as the Red Cross and Lexington Interfaith Community Services along with informal groups such as the Lake Katherine neighborhood Facebook group worked feverishly to provide lifesaving supplies and services.

Beacon draws its inspiration from the Columbia community's incredible outpouring of support. Dr. Nancy Buchan, while volunteering in the local community, noticed that no platform

existed to help distribute volunteers and supplies to organizations--both formal and informal--who needed them. Organizations were overwhelmed with volunteers in certain areas while a few miles away, others were in dire need of assistance. Supplies were similarly mis-distributed; organizers also noted that the type of donations provided were sometimes inappropriate for flood survivors' needs. Interviews later conducted by the Beacon team with formal organizations and informal community organizers in the Columbia area reinforced the existence of this problem.

In response to this issue, Dr. Buchan reached out to the Honors community at the University of South Carolina in search of students interested in designing and launching a disaster-relief mobile application. Community members in Columbia had proved they were more than willing to help, they just lacked the information necessary to know how and where they could best provide their assistance. The team's vision of a mobile application, later named Beacon, serves to remedy this problem by providing a platform to improve visibility and communication between formal and informal grassroots organizations, volunteers, and survivors.

### **Market Gap Analysis**

Currently, organizations, volunteers, and survivors primarily use Facebook and Twitter to communicate needs and available resources during and after natural disasters. Two main issues exist with this method of disaster relief communication: outdated information and limited information networks. Organizations and individuals rarely update the platforms as needs are met; this leads to extra supplies going to places where they cannot be put to good use. Next, individuals can only see the posts, and therefore the needs, of people that they are friends with or follow. Even if volunteers are offering what organizations and individuals require, those organizations and individuals could lose out on valuable resources because they are not part of

the volunteer's social network. This also attributes to the uneven distribution of resources in a city struck by a natural disaster.

Since several other disaster relief platforms have emerged over the years, it appears that Beacon is not the only group to notice the need for a centralized platform where everyone can view nearby requests for volunteers and donations. The two most notable potential competitors to Beacon are *Recovers.org* and *All Hands Volunteers*. *Recovers.org* is one of a few organizations that are currently on the market that serve to organize disaster relief services. *Recovers* is a web based solution that allows individuals to establish “communities” to manage the collection and distribution of supplies. Users in established communities can register as an organization, request aid, or provide supplies or labor to those in need. While *Recovers* offers many of the same functionalities that Beacon plans to offer, it has limitations, which keep it from being as helpful and widely used as the Beacon team hopes that their app will be.

First, *Recovers* is narrow in its scope as it limits users to a specific area of the map, which unnecessarily restricts who can participate in relief efforts. For example, after the flooding in October 2015, Vanderbilt University and Louisiana State University decided to send bottled water to Columbia due to the city's contaminated water. Without using *Recovers*, the institutions had to communicate with the University of South Carolina, who then had to talk to and distribute the water to local organizations. However, there were many water bottles left over on campus after the immediate relief efforts ended because the university did not know which organizations out of their network could use the donations. Using *Recovers*, coordinating the donations between these universities would have been impossible because they are too far away to be considered part of the community. Because Beacon has a borderless map, any of the universities



would have been able to see exactly which organizations in Columbia needed what they had to offer.

The second major issue with *Recovers.org* is that it is a web-based solution. After a disaster strikes, people are more likely to have a mobile device on them as opposed to a computer, especially if they have been evacuated or are out volunteering in their community. This will make accessing regular webpages, like *Recovers.org*, slower and more difficult. A disaster relief solution needs to be both quick and easy to use as the people using it are likely to be in a time sensitive and stressful situation. For these reasons, a mobile application or a mobile enabled webpage would be much better suited to fit the needs of disaster survivors, volunteers, and relief organizations.

The second service found to be similar to Beacon is called *All Hands Volunteers*. *All Hands Volunteers* is a worldwide disaster relief service that was founded in 2006. The organization has a full-time staff, partners with several Fortune 500 companies, and gets funding from a variety of sources like such as Clinton Global Initiative. On *All Hands Volunteers'* website, volunteers can apply to volunteer in disaster affected areas around the world. In this way, it acts as a medium to organize volunteers based on global demand.

*All Hands Volunteers* also does not meet all of the demands of those in disaster relief situations. For instance, it does not seek to organize the distribution of donations. Another potential downside to the website is that it is not a tool for local citizens to use. The tool is completely managed by the *All Hands Volunteers'* staff, which makes finding local solutions and aid more difficult as requests take more time to go through additional parties. Beacon seeks to eliminate these problems by putting the tool directly in the hands of those who will be making

the requests and donations; which will allow changes to be made in real time as situations change. These capabilities will prevent valuable time and donations from being wasted.

Clearly there are needs in the disaster relief market that are not being met, despite the existence of several organizations that attempt to orchestrate the distribution of resources during and after a crises. Some of the major needs that have been left unmet are the following: a solution available in a mobile format, *one* solution that addresses both the distribution of volunteers *and* donations, borderless mapping capability, and the ability to be used by those on the ground in disaster areas who know exactly what is needed. Beacon will fulfill all of these unmet needs and has the potential to help many people in a variety of situations. Finally, it is important to note that the market gap likely seems larger to those who have not done considerable research on disaster relief organizations. The ones that exist do not do a lot of marketing; therefore no one knows that it is available to use. Beacon will close this substantial perceived market gap by having a comprehensive marketing plan that meets people where they look for disaster relief information, as it will not make an impact unless it is widely adopted.

## **What's been done?**

### *Fall Semester 2015*

After the flood, Dr. Nancy Buchan assembled a team of five students (Brett Ward, Matt Johnson, Miller Love, Jessica Thiergartner, and Samantha Kear) and three Darla Moore School of Business professors (Dr. Buchan, Dr. Mark Ferguson, and Dr. Michael Galbreth). The team met to discuss their experiences from volunteering in flood relief efforts around the city of Columbia and to create hypotheses for solutions that could help make relief efforts more efficient.

The team first set up some preliminary hypotheses: relief organizations were experiencing uneven levels of supplies and desired a better communication platform to remedy this issue. In order to test these hypothesis, the team then collected contacts that were active in Columbia's flood relief efforts and reached out to them to set up interviews. These contacts represented members from a wide array of organizations from large groups like the Red Cross, medium sized groups like UofSC Relief, and small groups like the Lake Katherine Neighborhood Association. Overall, the team conducted more than fifteen formal interviews and informal interviews which took place over the course of their research.

The interviews confirmed the team's hypothesis that there is an unequal and inefficient distribution of resources during times of natural disaster relief. For example, several organizations reported having an overabundance of water after relief efforts ended, but lacked items such as the cleaning supplies and toiletries that survivors so desperately needed. Then there were others, like the Lexington Interfaith Community Services Organization, that had so many cleaning supplies and toiletries that they had to be warehoused, which puts an undesirable additional expense on the charitable organization. In some cases, organizations stated that volunteers were providing unneeded items. This was the case at the Community Flood Hub at the Richland Mall which had mounds of unusable clothing. These accounts illustrate the severe problem that Beacon hopes to address.

Further, the interviews allowed the Beacon team to gauge interest for the proposed application. It was found that the interviewees were quite intrigued by the idea of using a mobile application as a centralized platform through which they could communicate with eager volunteers in real time. They also expanded upon the idea and provided Beacon with recommendations of what to include based on their personal experience with disaster relief aid.

Recommendations ranged from ideas of how to communicate needs to volunteers (such as what to wear or what jobs would be accomplished during volunteer time) to what items to include in possible donation lists (such as feminine hygiene product and cooking equipment). Such input enabled the group to focus Beacon's capabilities on what organizations, volunteers, and individuals would actually find valuable, therefore helping the most people possible and minimizing waste.

### *Spring Semester 2016*

The second semester of the Beacon project offered its own difficulties, with two of its members leaving the University of South Carolina to study abroad. The remaining team members—Miller, Matt, and Brett—worked with the group's faculty advisors to accomplish four main objectives: compile the data from the personal interviews, create a mockup of the app, discuss partnerships, and write their theses. The primary objective was to take what the group learned from community member interviews to determine the functionalities and layout of Beacon that will be most helpful to potential Beacon users. From that, the group then created mockups of Beacon that could be used to gain further feedback from potential users and to show to investors. The group also communicated with the computer science department of the university in hopes of making Beacon a class project for the fall semester. This would serve as a beta version of that app, which would decrease development costs to build a mobile application that could be put out onto the iTunes and Google Play app stores.

Finally, Matt and Brett completed their senior theses during the spring semester of 2016. Matt worked to gather the team's findings of relief efforts and shared the stories of flood survivors with whom he spoke. These stories illustrated the devastation of the flood while

allowing Beacon team to better understand how the flood impacted survivors of different socioeconomic statuses. Brett enhanced our understanding of emergency management by delivering his thesis on how the South Carolina Emergency Management Division delivered and coordinated disaster relief within the state. The work done during the spring of 2016 enforced the group's belief that a disaster relief app is needed, that there was a diversity of relief needs depending on locality, and marked the beginning stages of app production.

### *Fall Semester 2016*

The third semester of the project started off with setbacks but ended with major successes for Beacon. In the beginning of the semester, the team was disappointed to hear that Beacon had accidentally been left off the project list for the computer science class, meaning that the first version of the app would not be produced by them for free, at least in the near future. This came as a major obstruction because Beacon did not have any funding. Later in the semester, the group learned about a business pitch competition, called The Proving Ground, which would be held in November of 2016. Beacon developed a traditional business plan and submitted it for the first round of judging for The Proving Ground's Maxient Innovation category, which was open only to undergraduates at the university and offered a grand prize of \$17,500. The Maxient Innovation category received over 30 submissions. While waiting to hear back, the group was determined to keep moving forward and got quotes for producing Beacon from two professional app developers, Knoxweb and Greenstone Media. Both of the estimates came in at around \$15,000.

Soon after receiving the quotes to produce Beacon, the team discovered that it made it to the second round of judging. About a week later the group learned that Beacon had made it to the final round of judging, but instead of being included in the Maxient Innovation category, Beacon

would be included in South Carolina Research Authority category for a grand prize of \$5,000. At first, the group was disappointed that they were unable to secure enough funding from The Proving Ground to completely develop Beacon. They were, however, proud to have made it so far in the competition. They also were still able to compete for a considerable prize that would cover at least a third of the production costs of Beacon.

With valuable input from Beacon's faculty advisors, the team created a five-minute presentation for the final level of The Proving Ground. On November 17<sup>th</sup>, 2016, Sam, Jessica, and Miller presented to over two hundred people, answered audience questions, and secured the first place prize for the South Carolina Research Authority category. Many community members reached out to voice their interest, which bolstered Beacon's hypotheses for the need for the app's creation. The remainder of the fall 2016 semester was spent gathering advice from contacts made through The Proving Ground competition. The contacts had expertise including entrepreneurship, app development, app distribution, and marketing. These contacts will likely be crucial as the group moves forward in producing Beacon.

### *Spring Semester 2017*

Beacon hit the ground running in the spring semester of 2017, moving off of the momentum gained from winning the SCRA Fan Favorite category of The Proving Ground competition. Thanks to Dean Kress, the Associate Director of the Faber Entrepreneurship Center, the group learned about a pitch competition being jointly held by the USC computer science department and the Faber Center. The competition, called "Backers and Hackers," gave entrepreneurs the opportunity to pitch app ideas to computer science students, and possibly have students sign up to create the entrepreneur's app. Jessica and Miller presented at the competition

in February, and soon found out that out of the more than twenty group's pitching ideas, Beacon was one of the few that was chosen by two coders. Shortly after receiving the good news, the group met with the coders in order to provide better specifications and further explain the vision for the app. Beacon's computer science students will produce the first version of the Beacon disaster relief app by the end of the spring 2017 semester. The app is expected to have basic functionality. It can be used to present to investors, to gather feedback from potential users, and be serve as a starting point for professional app developers to create a more sophisticated and user-friendly second version of the app (and should also lower cost of the second version).

The second priority for the spring 2017 semester is the establishment of a formal entity for Beacon and preparing the organization for the next school year. In order to receive the prize money from The Proving Ground, the team was required to establish a formal entity and open a bank account. The group debated between making Beacon a limited liability corporation, a nonprofit, and a student organization. It ultimately seemed best to establish Beacon as a nonprofit, partly because the group does not expect to be making money off of Beacon. Other benefits of choosing to become a nonprofit include: tax exempt status, quick filing, and the opportunity to compete for government grants. On March 14, 2017, Beacon Disaster Relief, Inc. became recognized as a nonprofit organization by the state of South Carolina. In order to ensure that the group continues after the founding student members graduate, they also spent time this semester recruiting and onboarding new members to Beacon. While Miller, Jessica, and Sam intend to stay involved in Beacon from a managerial standpoint, they expect that the new members will take over the day to day responsibilities of managing the organization, producing the app, and marketing it so that people who may need it are aware that they have this resource.

Finally, the senior members of Beacon developed their theses, which explains different aspects of the Beacon project. It is the intention of the authors of this paper that it serves as a reminder of the inspiration and vision for the project, as well as a guide for what needs to be done next in order to quickly start helping those who are affected by natural disasters.

### **Traditional Business Plans**

As noted by startup veteran and Stanford University Professor Steve Blank, entrepreneurs have followed the same uniform recipe when launching a startup for decades: “write a business plan, pitch it to investors, assemble a team, introduce a product, and start selling as hard as you can.” A multitude of sources such as the U.S. Small Business Administration and Entrepreneur Magazine’s “Step-by-Step Startup Guide” lay out the path for the traditional startup strategy. Some sources open with interesting personality quizzes to see if the entrepreneurial lifestyle is the right fit while others heavily caution would-be entrepreneurs about the inherent risks involved. Their key message, however, is always the same: start by writing a heavily researched and thought-out business plan.

The business plan is meant to serve as a roadmap for a startup. It is meant to layout a business’s goals, strategies to meet those goals, problems, potential solutions, organizational structure, and finances including capital requirements and expected breakeven point. It is normally broken into sections; the section number and titles may differ but are generally similar to the following list:

1. Executive summary
2. Business description
3. Market strategies
4. Competitive analysis



5. Design and development plan
6. Operations and management plan
7. Financial factors

The executive summary—usually a page or less—summarizes the business plan by clearly explaining the business type, the product or service being offered, and the capital or type of finance the writer is seeking. If a loan is being requested, the repayment schedule, expected debt-to-equity ratio, the borrower's equity share, and collateral or security is also listed. The business description, as one might expect, describes the business the entrepreneur is hoping to launch. The section usually begins with an industry description: industry type, size, growth, and opportunity, among other factors. The target market, distribution method and channels, and advertising and customer service strategies can also be discussed. An in-depth description of the product or service's uses, applications, and unique value proposition should be included as well ("StartUp Guides" 346).

The marketing section explores the different strategies the business will use to raise awareness of and attract consumers to its product. It should identify the customer demand for the product or service, identify the market along with its size and location, layout how the product or service will be marketed, and explain the rationale for the business's pricing strategy ("StartUp Guides" 346). To avoid failing to take into account competition from existing products, the marketing section is often followed by a competitive analysis. The competitive analysis should identify competitors and define strategies to combat any anticipated competitive pressures ("StartUp Guides" 349).

The design and development plan is especially applicable for launch ideas which do not yet include a fully functioning product. If a company has not yet developed their product or

service or plans to improve an existing product or service, this should include an in-depth discussion of future design and development plans in order to attract investment. The section focuses not only on product design but also market and organizational development—two key factors which can determine a startup’s failure or success. If a company has already fully designed and developed its product or service, this section may be excluded (“StartUp Guides” 349).

The operations and management plan focuses on the day-to-day manner in which the business will function. Responsibilities of each management member are explained, capital and expense requirements for operating the business are discussed, and, depending on the business size, tasks are assigned to each division of the company. This section is also where businesses can list any positive or negative externalities among the local community that they anticipate their actions to create; examples include environmental effects, job creation, and economic growth (“StartUp Guides” 351).

Finally, the financial section discusses how the business is going to be profitable in the short term and long term. The financial section, while often considered the most difficult, is a crucial component as it serves to assure both the business owner and the investor of the proposed business’s ability to make a profit. Essential documents to include are income statements, cash-flow statements, and balance sheets. Any other relevant financial information, such as break-even point or return on investment, should also be listed in this section. It is recommended that monthly income statements are provided for the first projected year, quarterly statements for the second year, and annual statements for the next years included—usually three, five, or ten years in total. Cash-flow statements are expected to be recorded in a similar manner: monthly for the first year and quarterly for all other years included. Balance sheets, as they are less likely to

change drastically month-to-month, are usually just provided once for each year. Such documents are of course projections but should reflect the business owner's reasonable assumption of potential performance based on acquired data and research ("StartUp Guides" 351).

*Advantages:*

The act of writing a business plan has long been included as part of launching a startup due to the many various advantages it provides. By creating a written business plan, the writer is forced to think both unemotionally and objectively about their business idea. If it does not hold up on paper, it likely has little chance in the actual business world. Further, the business plan serves as a concise and clear communication tool to convey the feasibility of the business to investors, potential partners, and future employees. The structured nature of the plan ensures that key aspects are not left out or overlooked. By organizing a business's plans, strategies, and research all one document, its business growth can be more easily planned, capital requirements more readily estimated, and areas where external assistance may be more simply identified (The Benefits of a Business Plan).

*Shortcomings:*

Despite its level of detail, traditional business plans are by no means all-encompassing or a direct correlation to a startup's success. In fact, Shikhar Ghosh—a professor at Harvard Business School—estimates that 75% of all startups fail (Blank, Steve). Regardless of its seemingly exhaustive description of business strategy, advertising plan, capital requirements, and more, the traditional business plan does not appear to give startups a dependable level of success.

According to Stanford Professor Steve Blank in his article “Why the Lean startup Changes Everything”, there are three main issues with the traditional startup method. First, business plans often crumble when they first come into contact with customers. What features and services a startup believes customers value and what customers actually value are often quite different. Second, the standard three, five, or ten year forecast included in business plans are often an exercise in futility. There is simply no way to make such far-off forecasts accurate, useful, or worth a startup’s time. Finally, a startup’s performance is never predictable. The written business plan is a roadmap that a startup will rarely follow as events will almost never unfurl as they do on paper. Blank notes that the successful startups—the 25% that do succeed—are those who are able to “go quickly from failure to failure” instead of relying on a static business plan.

Most of the business plan’s shortcomings stem from its static, insular nature. Entrepreneurs will spend months researching and planning to write intricate business plans for products or services that they hypothesize customers will desire. Real customer feedback is often not received until the product has been developed or is deep into the development process. This practice can best be seen during the dot-com boom in the mid 90s to early 2000s. During this time, startups would perform their research in complete secrecy to avoid tipping off potential competitors about their business ideas. Thousands of man-hours and significant resources were spent during a heavy up-front development period where startups would create advanced prototypes for customers to test. Such a method, however, does not allow for customer feedback until after an immense investment has been made to develop the product or service. If customers do not react to the product as expected, it can be prohibitively costly for the startup to pivot to a new strategy or make significant changes in product design (Blank, Steve).

## **What is a Lean Startup?**

Without doubt, startups are a risky business. With such slim chances of success, what is an entrepreneur to do in order to mitigate the inherent uncertainty and high chances of failure that come with starting a business? Steve Blank would suggest switching from the traditional startup model to the lean startup model. Blank came up with the idea of the lean startup model by observing the high failure rates of startups, the practices of successful startups, and managerial experts, like Rita McGrath, who taught about the values of planning driven by discovery. One of Blank's mentees, Eric Reis, is responsible for coining the term "lean startup." Since the idea's conception, it has gained a lot of traction in academia and in the business world. Blank has taught a lean startup class at Stanford for years, but now business schools around the world are including it in their curriculum. There are also books now available, written by Eric Reis and others, to explain the elements and benefits of using the lean startup model in their businesses (Blank).

To understand the lean startup method, it is first necessary to recognize that there are two different "strains" of lean. According to Peter Murray and Steve Ma's article in the Stanford Social Innovation Review, the primary strain is lean production, which essentially means that a company needs to keep a tight and efficient value chain (looking principally at a company's manufacturing and distribution processes) in order to reduce both errors and costs. The second strain of lean is the lean startup, which Ma and Murray state is "a way to figure out whether an idea is worth pursuing in the first place." Both lean production and lean startup maintain the following three key elements: "identifying clear hypotheses, conducting rapid experiments and developing new product or service models in response to experimental data" (Ma and Murray).

Due to the nature of Beacon--the service being launched--this paper will focus only on lean startups.

The lean startup process can be divided into three parts: hypotheses development, customer development, and agile development. Blank summarizes that the overall process “favors experimentation over elaborate planning, customer feedback over intuition, and iterative design over traditional ‘big design up front’ development” (66). The lean startup model teaches entrepreneurs to learn important capabilities such as flexibility that will help them to overcome the risks associated with startups, even when confronted with failure.

During the first phase of the lean startup, known as hypothesis development, entrepreneurs must recognize that when starting out, all they have are untested hypotheses. Instead of creating a business plan, entrepreneurs need to compile these hypotheses into what Blank calls a business model canvas, which is “a diagram of how a company creates value for itself and its customers” (67). For this model, companies will need to look at the key partners in their supply chain, their key activities, resources, costs, media, segmentation, revenue, and value propositions. After determining where they lie in each of those categories, the company will have a better understanding of its core competencies and what position they can take in the market place. Following the creation of the business model canvas, companies can move forward with the customer development stage.

The customer development phase of lean startups requires entrepreneurs to test out their hypotheses by asking potential customers and partners about all aspects of their business model. Some elements that Blank suggests to ask about are “product features, pricing, distribution channels, and affordable customer acquisition strategies” (67). With this information, companies will revise their hypotheses and improve their product and business model. The seeking out and

incorporating of customer feedback into your product and business model is imperative to surmounting the risks associated with startups. This is because it can help companies ensure that they are creating something that their target market will actually purchase. This phase of the lean startup process should be continually repeated in order to improve the product and business model.

The third phase of the lean startup process is agile development, which requires companies to build their product “iteratively and incrementally” in order to make a minimum viable product (Blank 68). Once the company has created the minimum viable product, it can put the product on the market and start to work on the next version. The software industry is famous for making these incremental changes to their products and re-releasing their improved products to the market. The benefits to this strategy are twofold: it eliminates waste and allows the company to make smaller upfront investments of time and money. The ability to be nimble and able react quickly to changing customer demands are fundamental to the success of entrepreneurs.

Lean startup practices are applicable to more than just new small businesses, and Blank even believes that large companies would benefit the most from using these ideas (70). Even individual projects can benefit from lean startup ideas if they focus on rapidity, nimbleness, and responsiveness. Quick failures, continual testing, and constant feedback from partners and consumers will engender success much faster than overinvesting time and money in an idea that has not received feedback from prospective end users.

**How the lean startup model is an improvement over the traditional startup model?**

The lean startup model offers many advantages to entrepreneurs over the traditional startup route. These advantages can be separated into two categories: learned capabilities and savings. Writing a business plan offers entrepreneurs value as it forces them to sit down and create a comprehensive *idea* of all that they need to do in order to get their business off the ground. When a startup becomes so inward facing, and no longer looks for advice from experts or input from potential product users, it frequently leads to failure. The ideology behind the lean startup, on the other hand, forces entrepreneurs to learn how to become flexible. The lean startup produces a product in small increments, so if one iteration fails it is not overly detrimental as they can just move on to the next iteration and send it back to the consumer testing stage. This enables companies to fail forward instead of being stuck. By switching from the traditional startup model to the lean startup model, entrepreneurs will avoid being rigid and inward focused, and instead become flexible, resilient, externally focused, and creative.

Another disadvantage to relying on a business plan is that it requires entrepreneurs to determine exactly what their product is before starting production. An internal debate must take place as to exactly what features the final product will have, which takes a significant amount of time. Once the product features have been decided on, a large monetary investment is required to start production. As soon as production is complete, the company can bring the product to the market but must hope that what they have created is something that will be popular in the marketplace. In contrast, the lean startup allows companies to test a minimally viable product, which will allow them to save time and money. Once the first round of consumer testing is completed, the company can decide if what they have produced meets consumer needs, if the product needs to be changed, or if the idea proved unsuccessful and needs to be scrapped. Making changes to or scrapping a product idea is less detrimental in the case of the lean startup



because less has been invested up front. This allows entrepreneurs to try again instead of failing completely.

If the lean startup offers the best benefits to companies, then why does everyone not just discard their business plan and switch to the lean method? Unfortunately, the lean method is not for everyone. Companies must check with their employees, boards, and funders in order to see if lean principles will fit the organizational culture, as sometimes these groups are unable to accept that the lean startup method requires the organization to fail, and to fail a lot (Mangan 2014). Ideally, the best company to apply lean principles will be one that is full of “curious, relentless problem solvers who can embrace failing forward” (Mangan). Some companies may be able to change their culture to support these characteristics, but lean principles will likely not be successful in all case. However, companies that are able to adapt their culture and accept the principles of a lean startup will be able to significantly decrease costs and find success.

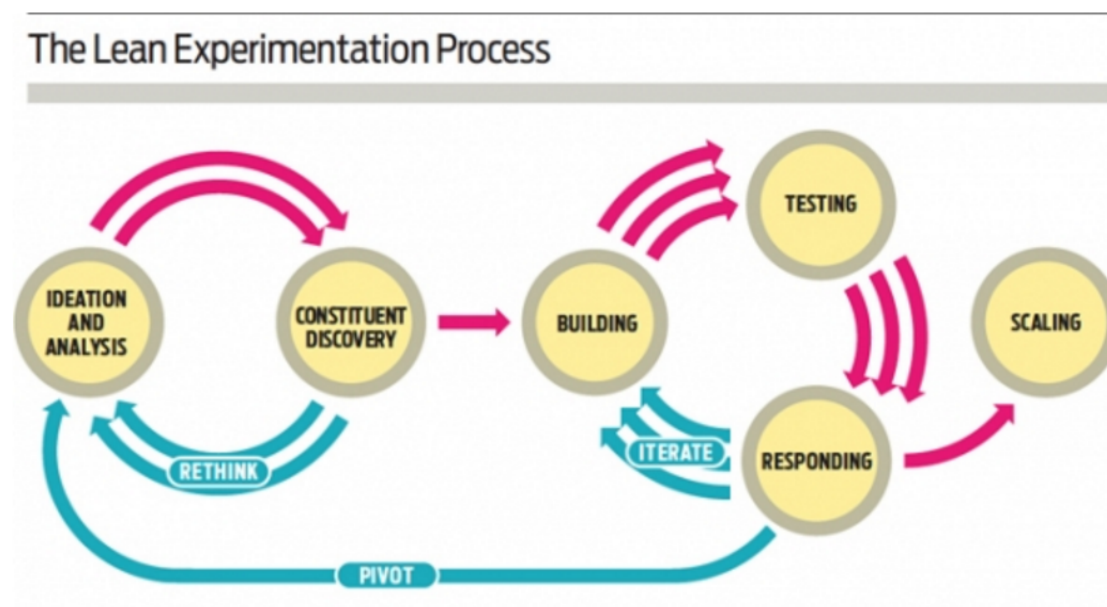
### **How can Lean Startup concepts be applied to nonprofits?**

Most nonprofits currently focus heavily on strategic planning. Like the traditional startup concept for for-profit businesses, the strategic philanthropy model emphasizes creating elaborate multi-year plans. These plans include an assortment of outcomes, roles, and tactics as funders often expect nonprofits to have planned strategies in advance for every desired outcome and follow them for a number of years. As noted in the Stanford Social Innovation Review, the strategic philanthropy model “works well for problems with clear, proven solutions, but often...doesn’t work for problems that require new approaches (Ma, Steve).”

Just as the lean startup concept provided an alternative to the traditional startup model, the lean startup concept also provides an alternate route to the strategic planning model.

Although it was created for use by for-profit businesses, the lean startup concept has been proven to be applicable for nonprofits as well. Just like for-profit businesses, nonprofits can adopt the concepts of lean by developing a minimum viable product and testing it in the field. Similar to the lean startup concept's avoidance of long-term financial projections, nonprofits adhering to the lean technique will not spend time creating intricate strategies and detailing all expected outcomes to their service. As they recognize that they cannot tell in advance which services will prove successful, nonprofits instead should seek to run multiple small tests of their idea to quickly learn what does and does not work (Ma, Steve).

### Figure 1



The diagram featured above—taken from Steve Ma’s and Peter Murray’s article “The Promise of Lean Experimentation”—graphically lays out the lean experimentation process for nonprofits. The process can be divided into six main steps: ideation and analysis, constituent discovery, building, testing, responding, and scaling. The ideation and analysis stage refers to

when entrepreneurs begin to brainstorm what are known as value hypotheses, or ideas and solutions to the social issue that they are hoping to solve. Nonprofits also need to focus on competitive differentiation by analyzing any similar programs that exist and how their services can improve on those already available (Ma, Steve).

From the ideation and analysis stage, nonprofits should then move to the constituent discovery stage. Here, nonprofits are encouraged to seek out their constituents, or targeted future users, to learn exactly their needs and wants. In this stage, nonprofits should present their value hypotheses to their constituents in order to receive feedback on whether they feel the service meets their needs or what it might be missing. Ideally, the constituent discovery stage should allow nonprofits to more accurately design services to meet their user's needs. If new ideas are discovered, the nonprofit should return to the ideation and analysis stage. If the value hypotheses appear to withstand contact with the users, then the nonprofit can move to the building stage (Ma, Steve).

Unlike a traditional startup or nonprofit, the building stage should not result in a fully developed product. Instead, nonprofits should seek to identify one or two of their “riskiest hypotheses”—assumptions that are critical to the nonprofit's idea's success. These hypotheses are where a nonprofit should focus their attention by designing a minimum viable product, or prototype. The minimum viable product should serve to test the “riskiest hypotheses” by allowing nonprofits to see if users react as expected. This minimum viable product can take many forms; it is usually a small-scale version of the eventual product. A common strategy is to take existing products and customize them to represent an approximation of the nonprofit's idea. To cut costs, nonprofits can also test their hypotheses by creating a “paper minimum viable product”. As the name suggests, a “paper minimum viable product” is a simple visual

representation of the proposed product—such as a flyer for a potential program or an online sign-up page for a proposed service—that can still be used to gather and observe user feedback (Ma, Steve).

By observing the successes and shortcomings of its minimum viable product, nonprofits are then able to pursue features and services that prove effective and adapt or cease offering those that do not. By doing so, nonprofits will be able to troubleshoot their services before investing time and resources into fully developing a service. By adopting lean, nonprofits will be able to “speed up and focus experimentation in order to reduce wasted effort (Ma, Steve).” By using the lean method, nonprofits have huge potential to bring services to users that are developed faster, are more closely targeted to user’s needs, and require substantially smaller investments. A rough estimate of potential costs and revenue sources should also be completed at this point.

From here, a nonprofit can then proceed to the testing stage. The minimum viable product should be released to a group of constituents in order to collect data and observe potential user’s reactions. In the responding to data stage, the collected data should be analyzed to see if the nonprofit’s idea served to meet their social goal as predicted. If unexpected challenges occurred due to logistics, cost, pricing, or other factors, the nonprofit may need to either pivot or build a better iteration of the idea. If the data collected shows that constituents have little interest in the product, or the idea does not serve to meet constituent needs to an acceptable degree, a nonprofit may need to pivot, or return to the very beginning at the ideation and analysis stage. This will prevent the nonprofit from continuing to pour investment into ideas that are not feasible or useful. While a result of this nature is normally undesirable, it does serve an important purpose of showing a nonprofit what constituents do not want, and so it brings them closer to finding an

idea that does meet user needs. Alternatively, if the collected data appears to show promise, then the nonprofit can return to the building stage and attempt to build a better iteration of their idea based on user feedback. Nonprofits should continue this cycle of building, testing, and responding until the collected data validates that their idea is meeting user needs as expected (Ma, Steve).

Once a nonprofit is able to test and prove that their idea actually works, they may move to the scaling up phase. The nonprofit should use the data gathered throughout their extensive constituent discovery and testing phase to convince their stakeholders of the idea's value and, most importantly, receive the funding necessary to begin developing a fully functional and widely available product. The experimentation phase, however, should never cease as continuing to run experiments to test hypotheses during the scaling phase will allow nonprofits to continue to better meet consumers' needs.

#### Case Study:

The Lean Startup concept has been previously successfully applied in the nonprofit arena. A recent example occurred in 2014 when the Coalition for Humane Immigrant Rights of Los Angeles (CHIRLA) used lean experimentation to find ideas which better served its constituents. CHIRLA is a nonprofit which is focused on aiding immigrants by helping them over barriers or obstacles they may face such as poverty, poor access to technology, undocumented status, discrimination, and language. The coalition wanted to develop a new service which would achieve the following goals: substantially increase membership, meet the needs of its constituents, and provide financial sustainability to the organization. Instead of following the strategic philanthropic planning process and pouring time, energy, and money into a few

untested ideas, CHIRLA was able to use lean experimentation to test more than a dozen ideals for potential services in just a few months (Ma, Steve).

As stated in the lean experimentation process, CHIRLA first began in the ideation and analysis phase. In this phase CHIRLA completed two tasks: brainstorming a number of potential service ideas and performing market research. By using their experience serving immigrant communities, CHIRLA leaders were able to create over 20 different ideas that they thought would meet their goals of attracting membership, serving constituent needs, and generating at least as much income to breakeven on their costs. Potential ideas included legal and financial services—such as prepaid debit cards for immigrants who may not have bank accounts—low-cost international phone cards, and health insurance products. Market research then allowed CHIRLA to learn what other services similar to their ideas already existed. By using the existing services as either a platform to improve or an indication of an unserved section of the immigrant community, CHIRLA was then able to better tailor their ideas to meet their user's needs (Ma, Steve).

From here, CHIRLA then moved to the building phase by developing paper minimum viable products for 14 ideas chosen by CHIRLA leaders. The paper minimum viable products were created in the form of flyers describing the potential services which were to be shown to constituents to gather feedback. The flyers were meant to test CHIRLA's riskiest hypothesis: would people actually sign up for the services and pay the price necessary to make them sustainable?

In the constituent discovery and testing phase, the paper minimum viable products were tested among the local immigrant community. CHIRLA members would meet with local immigrants to complete an interview and survey based on six to eight of their service ideas.

Based on their responses, CHIRLA then began to gain an idea of what services might meet their three goals or find ideas and blind spots they had not considered or identified before. In total, over 100 constituent discovery interviews were completed which then provided CHIRLA data which they could use to further narrow or adapt their ideas. In the responding to the data phase, CHIRLA leaders were able to eliminate 10 proposed ideas which they concluded did not either have sufficient demand, closely meet constituent needs, or were ideas which constituents were unwilling to pay a high enough price to be financially sustainable. The remaining four ideas appeared to perform strongly; CHIRLA then decided to further test these four (Ma, Steve).

One of the remaining ideas was a plan to offer classes to immigrants to help them pass the California written driver's-license exam. At the time, California had just passed a bill allowing undocumented immigrants to apply for licenses. Looking at state records, CHIRLA leaders had noticed that 70 % of test takers taking the license exam in a language other than English failed the test on their first attempt. CHIRLA, making the logical assumption that much of the immigrant community they served likely fell in this category, decided that this service would probably have great use and appeal (Ma, Steve).

To test the idea's viability, CHIRLA wanted to move past their paper minimum viable product to make a slightly more developed version. Leaders initially assumed that multiple class sessions would be necessary to help prepare immigrants. However, following the lean experimentation approach, leaders did not immediately begin building a service around this hypothesis but first tested it by offering a simple three-hour trial course for 60 constituents. The collected results were overwhelmingly positive: almost 90 % of those enrolled in the course passed a mock version of the driver's-license exam on their first attempt. From the trial, CHIRLA was able to learn that not only was a multiple session course unnecessary, but also that

demand was quite high for enrollment in the course and immigrants were willing to pay a reasonable price for it. Based on these findings, CHIRLA then finally decided to make the trial into a fully developed product by investing significant resources in creating a curriculum, training instructors, and marketing the service. Today, CHIRLA continues to offer drivers-license classes and has plans to scale up their current model to reach thousands of immigrants in California (Ma, Steve).

#### *Limitations:*

The potential application of lean experimentation methods to nonprofits, however, is unfortunately limited. For nonprofits involved in longitudinal research—or gathering data from the same subjects repeatedly over significant periods of time—rapid lean experimentation likely holds little promise. It would be, for example, prohibitively costly and time intensive to run multiple experiments to see which early childhood intervention would lead to better high school performance for at-risk students. Funding also poses an issue as nonprofits traditionally rely on grants, private funders, or other similar sources of funding to support their work. Such sources are often quite risk averse and will require extensive up-front planning rather than allowing for experimentation. A few foundations such as The MacArthur foundation and The Bill and Melinda Gates foundation have begun offering funding that encourages experimentation but such funds are by far the exception. Until funding and grants become more accepting of experimentation, it will likely be difficult for lean methods to substantially permeate the nonprofit field (Ma, Steve).

#### **Applying Lean Startup Concepts to Beacon**



Beacon is the promising product and organization to take advantage of the lean method for two reasons: the group's organizational culture and prior practices. The Beacon team has developed an organizational culture that will make using lean principles especially valuable. Because the group has encountered many obstacles in producing Beacon over the two years since the project began, it has gained creative problem solving skills and the ability to remain resilient in the face of adversity. Instead of focusing on the failure, the group has evaluated the pros and cons of the situation, incorporated the good into Beacon's future plans, and immediately started working to find solutions; therefore failing fast and failing forward. These characteristics will prove immensely beneficial in applying the lean startup method.

Further, the Beacon team has been applying the lean startup approach along the path to development long before they knew the principles of a lean startup. Surprisingly, it has gone through several of the phases of the lean experimentation process, as pictured in Figure 1. A more in depth look will reveal where this has happened.

As described by Figure 1, Beacon initiated the lean experimentation process when the team entered the ideation and analysis stage during their first several meetings. During these meetings, the team identified the problem of unequal and inefficient distribution of disaster relief resources. Next, they presented potential solutions to this problem in the form of hypotheses, which would later be tested and revised.

Moving along with Figure 1, the Beacon team also went through the constituent discovery phase. This occurred directly after the team defined the problem and developed hypotheses to be tested. During interviews, disaster relief leaders were able to give valuable insights into how they experienced the maldistribution of resources, as well as how they tried to

alleviate the problem. The constituent discovery phase affirmed the group's belief that Beacon is necessary and allowed them to move on to build the first minimally viable product.

Following the constituent and discovery phase, the team moved forward by building a minimally viable product. The first minimally viable product that was produced happened to be a paper minimum viable product, which is a picture of a product or a list of product features on a piece of paper, that showed potential Beacon users what capabilities the group thought the app should have. The group tested this paper product with their interviewees in order to see what they would suggest to change or add. This information was analyzed and the group responded by making a second minimally viable product with the new requirements.

The second minimally viable product was an online mockup that clearly depicted the three different interfaces of the app. This version was tested with the judges and audience at The Proving Ground competition. The group received a great deal of support at this time but they also heard ideas that could be incorporated into Beacon. Through Dr. Ferguson, the team was also able to receive feedback from Dr. Patrick Bresnahan, who leads disaster related services for Richland County. Dr. Bresnahan provided thoughtful commentary that showed the group where there were potential holes in the plan—like with people ignoring paid advertising on social media networks, security of email database, how to keep the group from dissipating outside of the initial student group, and how to measure success. This type of commentary is extremely useful to the group so that they can improve Beacon to better fit the needs of disaster survivors, organizations, and volunteers.

Currently Beacon is taking its third lap around the “building-testing-responding” loop of lean experimentation process. The team has partnered with students from the College of Engineering and Computing in order to develop a working prototype with limited functionality.

This version will need to be tested with potential users for feedback in order to create a version that can be distributed through the iTunes and Google Play app stores.

Both the traditional startup model and the lean startup model have their merits. However, in a disaster situation, time is of the essence. Beacon will require organizations to take away time from directly assisting survivors in order to register their location and continually update their services, inventory, and current needs. Relief organizations will not bother to download or use Beacon if its features do not appear to meet their needs, are complicated to understand, or interfere with their ability to best serve survivors. The benefits of using Beacon must outweigh this requirement in order for Beacon to be successful. Similarly, if relief organizations are not registering or posting their needs and services on Beacon, then volunteers and survivors will not have a use for the app.

Due to the time constraints, stress, urgency of disaster situations, Beacon's chances of being widely adopted by users depends entirely on its ability to understand and cater to its user's requirements. Despite creating a traditional business plan, is likely not prudent for Beacon to attempt to follow the traditional startup path as little consumer input is included in this method. To become truly lean, the Beacon team will need to continue to gather more consumer input at every level, and from a wider array of sources. The group will also need to continue to loop back on the chart in Figure 1 when they make a fourth iteration of Beacon and revisit the "building-testing-responding" steps and reassess the progress that they have made.

By understanding the lean startup model, Beacon will be able to begin intentionally and skillfully applying lean principles to fully reap the benefits that it provides to organizations. Doing so will ensure that Beacon continues to respond to and fulfill the needs presented by disaster relief survivors, volunteers, and organizations, even if they evolve over time.

## **Next steps for Beacon**

While the groundwork for Beacon has been done, there is still a lot of work ahead to get Beacon into the hands of disaster survivors, volunteers, and relief organizations. The next steps can be divided into three groups: organizational management, product development, and marketing.

In the future, various measures will need to be taken in order to ensure that the organization is maintained and the original vision for the organization is carried out. Miller Love, Jessica Thiergartner, and Samantha Kear, as well as our faculty board (Dr. Nancy Buchan, Dr. Mark Ferguson, and Dr. Michael Galbreth) will oversee this process. However, as Miller, Jessica, and Samantha will be graduating this spring, one priority for the group will need to be recruiting and onboarding new students to the project. These processes have already started but will need to be continuous, so as to have a constant team to support the project as students leave the group to study abroad and graduate. In addition, the group will need to monitor and respond to any inquiries from the state government in order to maintain our nonprofit status. Finally, the group will have to forge and oversee partnerships with students and groups with computer science and coding knowledge that will be able to help the group build Beacon. Focusing on these causes will help the group stay together and move forward in producing a well built and valuable disaster relief application.

Likely the most important next step for the Beacon team will be to evaluate the prototype that our partners in the computer science department have developed. We expect this version to be a prototype that can be built upon to create a version of the Beacon application that will be

available to users. In order to incorporate the lessons the team has learned about lean startups, it will also be necessary to gather the input of these potential Beacon users, like those who were affected by the flood of 2015 and were originally interviewed. Putting the prototype version in front of users will allow the organization to see what needs to be improved upon during the next round of app development. Following the lean model will help the Beacon team produce the app faster, as well as ensuring that the team is building an app that disaster-affected groups will find helpful and valuable, and ultimately put to use.

To measure whether the Beacon prototypes are meeting user needs, the team should consider creating a survey to provide to users who test the product. In order to reach a diverse variety of users, it will be important to find a way to contact different socioeconomic and geographic groups. A potential avenue to connect with these different groups would be to reach out to the relief organizations that the Beacon team originally interviewed. Organizations such as the Lexington Interfaith Community Services, due to their locations and missions, tend to serve lower income constituents while organizations such as the Red Cross tend to serve a larger variety of socioeconomic statuses. By working with these organizations, Beacon could attempt to distribute surveys and connect with a variety of potential users.

The last priority for the group moving forward will be to create and launch a marketing plan. While the group has had preliminary ideas about what should be done to get the word out about our mobile application, the ideas need to be further fleshed out. The two principal distribution channels the team wishes to use in order to inform the public about Beacon are local news and social media networks. The reasoning behind using these media outlets is that they are the primary channels people look to during and after a natural disaster. Social media networks, primarily Facebook and Twitter, not only help people keep up to date, but also provide them

with a way to ask for help by reaching a larger group of people than they would normally have access to. The marketing techniques should seek to meet the people who will need Beacon where they are already looking for disaster relief information.

Over the next few years, the team will need to carefully manage the organization, create and recreate the product based on user input, and market Beacon through the appropriate channels. If this is done correctly, people will be aware of, and take advantage of Beacon when a disaster strikes. It is the hope of the Beacon team that if survivors, volunteers, and organizations use the application, it will maximize the benefit of donations and volunteers, while minimizing unnecessary waste.

## **Conclusion**

Despite a number of setbacks and disappointments, Beacon has finally entered its development stage. By continuing to follow and adopt lean startup principles, the team hopes that Beacon will soon become a reality. Although the lean model is not a master strategy for how Beacon should be organized and run, it does offer insightful ideas on how to save costs and speed development while preventing Beacon from losing sight of its original goal: providing a platform to distribute volunteers and supplies in disaster situations. Through the securing of additional funds or partners with coding ability and the application of lean startup methods, Beacon's chances of success—while not guaranteed—should be well above the current 25% success rate for startups (Ma, Steve). It is the team's hope that Beacon's launch will succeed and ensure that future disaster relief efforts will not be wasted.

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## **Appendix**

### **Business Plan**

#### **Beacon**



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**Presented to: USC Proving Ground Competition**

## **Executive Summary**

### **Company Description**

When a disaster strikes, communities unite to heal and rebuild. Volunteers will travel over countries and even continents to offer assistance to those in need. Last year, we witnessed this incredible outpouring of support first-hand. On October 3rd 2015, a historic storm passed through our home state of South Carolina and left \$12 billion dollars of damage in its wake. By October 4th, communities had begun banding together to organize relief efforts.

Our relief efforts, however, were not perfect. With no way to effectively communicate their needs to volunteers, shelters and relief organizations often found themselves overwhelmed with certain items while understocked in others. Volunteers, lacking the experience and knowledge of relief organizations, often donated supplies that were not necessary or useful for flood survivors or did not reach those who needed them. After interviewing key community members, it became readily apparent that volunteers were more than willing to donate their time, money, and supplies; they just did not know how or where.

Beacon exists to bridge the information gap between volunteers and organizations. Beacon will seek to match supplies and volunteers with the organizations who need them through real-time geolocational information capabilities. Additionally, it will use this data to inform survivors about the locations of supplies and services they need.

### **Service Description**

Beacon is a mobile application that acts as a centralized platform to coordinate relief efforts during and after a natural disaster. It seeks to correct the misallocation of resources by allowing relief organizations to post what they have available for survivors and what they would like to be donated. Volunteers will be able to commit to supplying time or resources in response to an organization's request. The app will register these responses and eliminate the likelihood that manpower or donations will go to waste. Using the geolocation function, survivors will be able to locate the nearest shelter or source of necessary supplies. Professional services such as water-mitigation will also be offered as businesses will be able to post their locations for a fee.

### **Market Analysis**

Our industry is quite new and Beacon will be the first mobile application of its kind. Other competitors exist on the web, but do not offer mobile apps with the functionality, such as borderless maps, that Beacon will have. Additionally, our primary competitor has a segmented map with many distinct communities, in contrast to the borderless map Beacon will feature.

### **Marketing**

Beacon has two target markets: users (survivors, volunteers, and relief organizations) and businesses. Beacon will meet **users** where they go to get information about natural disasters: local news channels, state emergency management, and social media. Our team will reach out to news outlets and state emergency management services to be featured on broadcasts and websites. Social media advertising will be used locally to reach those directly affected by the disaster. The Beacon team will use Angie's List to find reliable **businesses** that offer disaster recovery services. These businesses will be offered advertising opportunities to directly reach their target market. Most marketing tactics will be executed locally when a disaster is predicted or has hit, as this is when people are most likely to download the application. Beacon will also be promoted year-round through social media as a necessity to keep on your phone at all times as disasters are unpredictable by nature. Our key message will promote the message "Have your necessities: flashlight, first aid kit, water, Beacon app. Be prepared for natural disasters."

### **Management and Organization**

Our student team will run Beacon through May 2017. Additional students and on-campus volunteer organizations will be recruited and trained to manage marketing and distribution. Our information database will be managed by our developers.

### **Financial Information**

Expenses for Beacon fall into three categories. The one time expense of \$14,250 will cover the app's development, publishing in app stores, and marketing launch. We will be responsible for a \$95 monthly retainer to the developer to manage our information database. We will also hold a budget for marketing expenses. Further revenue will be used to continue development of the app, adding new features whenever possible.

Revenues for Beacon will come through ads sold to highly vetted local and national businesses which offer services useful to survivors. Two pricing tiers will be used depending on the length of the advertisement. Companies who advertise on the app all year long will be able to do so at a low cost, ensuring a steady revenue stream. A premium rate will be charged to those who choose

to advertise in the wake of a disaster; this will provide businesses with an incentive to choose the long-term option.

### **Funding Request**

We are requesting \$17,500 in order to develop and launch Beacon, maintain the information database managed by our developer, and implement marketing tactics when necessary. Getting Beacon out to the public means more efficient relief efforts, less wasted materials and time, and a smoother and quicker delivery of aid to those who have been deeply affected by a natural disaster.

### **Company Description**

Beacon is a student led project which seeks to serve as a tool for survivors, organizations, and volunteers to find and distribute resources during a natural disaster. After the “1,000 year flood” of 2015, our student team conducted interviews with local organizations and volunteers. We found that organizations often were overwhelmed with certain types of donations, such as clothing, but were running extremely low on other vital items such as baby formula. Volunteers also expressed frustration toward the lack of available information about where their efforts were needed. Similar to the issue with supplies, organizations in some areas were often overloaded with volunteers while others struggled to find enough.

The Beacon app will seek to remedy this mis-distribution of supplies and volunteers by providing real-time information about local organization’s needs. It will also help direct volunteers to where their services are requested and provide information to survivors about the closest locations where they can find shelter or retrieve supplies. In addition to individual volunteers and survivors, our app will serve local organizations such as, in the case of Columbia, the Lexington Interfaith Community service and the Harvest Hope Food Bank.

Beacon is unique in its application and scope through its ability to provide geolocational and real-time information to local communities will help alleviate the adverse consequences of natural disasters, efficiently distribute supplies and volunteers, and serve as an invaluable tool for survivors in need of supplies or services.

### **Service Description**

Beacon is a mobile application that solves the misallocation of resources during times of natural disaster using one centralized platform. Having one platform for all relief organizations will assist in knowledge sharing between different groups and people in the community. Upon opening the app, users will have three options to choose from: Organization, Survivor, and Volunteer. These sections, along with a geolocation function, will help users to find information specific to their needs.

Under the Organization tab, organizations that help during relief efforts, such as churches or schools, can pre-register for the service. When there is a natural disaster, they will be able to request resources (e.g. ten cases of water, clothing, or fifteen volunteers) through the app. Other users will be able to see these requests and commit to donating an item or time to the specific

organization, which will be reflected on the app in a decrease in the amount of the resource needed by the organization. They can also list what resources they have available to survivors.

Under the Survivor tab, people who have been affected by the flood can search for help. Using the geolocation function, they will be able to search for an organization offering shelter, food, or anything they might need that is located in a given distance from their location.

The Survivor tab will also have an additional function. Advertisement-rights will be sold either before or during the disaster to businesses who offer services that will be of use to survivors. Once a business purchases an advertisement, its' geolocational position will be added to Beacon's map. When a nearby survivor searches for a good or service offered by that business, its location will be listed along with other non-profit organizations in the area. The business's location will be indicated in a different color from relief organizations to indicate to survivors that payment will be expected in return for its professional services.

Under the Volunteer tab, members of the community that want to donate time or resources will be able to use the geolocation function to find an organization close to them that is in need of what they are willing to provide. They can also complete a form and our database will send out emails when opportunities matching their availability and capability are added to the system. Additionally, a prompt will be listed encouraging volunteers to share the Beacon app through various social media platforms such as Facebook and Twitter.

Organizations, survivors, and volunteers from disaster struck areas will be able to download this app free through the iOS or Google Play app stores. Using our database to match survivors and volunteers with relief organizations will help to eliminate the misallocation of resources during times of need, assuring that there will not be excess, unused resources in one location, while there is scarcity in another. (See appendix for a mock-up of the different screens available in the app).

## **Market Analysis**

### **Industry Description and Outlook**

Our industry is quite new and has just entered its introduction phase as the technology and devices necessary to create disaster response applications have only recently come into existence. The Haiti earthquake in 2010 is considered to be the first major disaster in which social media was widely used to rapidly disseminate information during a disaster. In almost all subsequent major disaster situations since this time, social media has served as an invaluable tool for survivors, families, volunteers, and organizations to communicate. Various disaster-related applications have also been created for smartphones to help individuals track flood levels, find shelters, and create emergency checklists among other actions. The current disaster applications available, however, do not provide extensive means of distributing supplies and volunteers. They are also often only available through national organizations such as the Red Cross and do not provide options for local organizations to join and use them.

### **Information About Our Target Market**

Our major customer groups and target market would be individual survivors, volunteers, local organizations, and business that offer services related to disaster mitigation. Critical needs would differ by customer group.

Survivors would require information concerning the nearest locations where they can obtain supplies and services. Volunteers would be concerned with what organization/location is in need of either a specific type of supply or volunteers for physical assistance. Local organizations such as churches, food banks, and community service groups would need a tool that would allow them to post in real-time what type/amount of supplies and how many volunteers are needed at a certain location and time. These are needs which have been somewhat met through social media such as Facebook but have been subject to poor communication, dissemination, and lack of real-time feedback. Businesses would expect their goods and services to be promoted to survivors in their area in exchange for an advertising fee.

Beacon would be available and useful to any demographic that is currently residing in a disaster-affected area. Our demand patterns will be quite hard to predict; the majority of our demand will be lumpy as disasters, especially those related to weather, are by nature unpredictable. We expect demand to rise dramatically slightly before a disaster arrives--if predications such as weather forecasts are available to the public--peak during the actual disaster, and then begin to fall gradually over time as the disaster's effects are mediated.

As Beacon will be the first product of its kind, exact historical data concerning customer use is not yet available. However, social media platforms and applications have recently been extensively used during disaster situations such as when more than 20 million Sandy-related 'tweets' were sent during and directly after Hurricane Sandy. Platforms such as Twitter and Facebook have also been used by many relief groups as a avenue to communicate their services to survivors. As Beacon will be able to provide better, more efficient, and accurate services to these same target groups, it has the potential to be adopted and widely used in similar situations.

Beacon was not designed with only the flooding in Columbia, SC in mind. Beacon can be used in any city around the country or world that wishes to be better prepared for its next flood, tornado, earthquake, or any type of natural disaster.

## **Competitive Analysis**

We have identified 2 major competitors which offer disaster-related services. One, Recovers.org, is a direct competitor which functions similarly to Beacon, offering a web-based framework to coordinate resources and volunteers. All Hands Volunteers is an indirect competitor which coordinates volunteers in response to disasters.

### **Recovers.org**

Recovers.org is a recovery software framework designed to be implemented in communities in preparation for disaster. It is a web based solution which allows individuals to establish "communities" to manage the collection and distribution of supplies. Users in those communities are able to register as an organization, request aid,

or provide supplies and labor to those in need. While Recovers has much of the same functionality Beacon will have on launch, it is limited in scope and only available on the web.

Recovers' communities limit users to a certain area of the map, which necessarily limits who can participate in the relief efforts. Beacon will have a borderless map, allowing anyone with the app (such as groups across the country that want to send help) to track the needs of broad area from a distance. This will also allow family members who live great distances away the opportunity to assist elderly relatives who may not have smartphones in locating shelter and supplies. Recovers also exists only on the web, making access to the site slower and more confusing. Beacon will be a native application which will sit on users' home screens, ready to be launched when disaster strike. We believe a native application with a borderless map will encourage greater adoption and be more effective as a result.

### **All Hands Volunteers**

All Hands Volunteers is a worldwide disaster relief organization established in 2006. It is website based and depends on volunteers to fulfill its projects. It is run by an experienced, full-time staff with diverse backgrounds and experiences. It is partnered with a variety of Fortune 500 companies such as Google and Southwest and has access to funding from a variety of sources such as the Clinton Global Initiative. However, it does not have a mobile platform and operates as a separate entity rather than serving as a tool for local organizations and volunteers. Beacon and All Hands Volunteers serve separate purposes but will likely be courting similar groups of volunteers.

Concerning market entry, we expect our most challenging barrier will be the upfront cost of creating the initial mobile application. After the initial creation, Beacon will only require a manageable retainment fee and marketing to spread awareness during a disaster situation.

### **Regulatory Restrictions**

We do not expect to experience any regulatory restrictions.

### **Marketing**

#### **Users & Organizations**

Our marketing plan will seek to meet survivors and volunteers where they look for information during times of natural disasters. The marketing tactics will be most heavily enacted as a natural disaster strikes, as we are aware that this is when most people will download Beacon. However, we will promote Beacon throughout the year as a necessity.

Through interviews with community members, we learned that most people look to two main sources for information about natural disasters: the local news and social media. Knowing this, we need to use these two outlets to get the app to the people who are in need of help, or to those who are willing to give aid. One way to do so is to get Beacon featured on local newscasts that are delivering relief information, as well as having it promoted during briefings that local governments broadcast to give communities information when natural disasters occur.

Additionally, using Twitter and Facebook ads to target users in specific locations will be imperative to spreading awareness and driving people to download Beacon. Organizations who have registered for this service will also be key in generating word of mouth through their media outlets, which will motivate further downloads. Volunteers will also be prompted to share the app through social media after signing up for service opportunities.

The team will use social media ads (Facebook and Twitter) to promote Beacon throughout the year. Messaging will position Beacon as a necessity that people should have at all time, due to the unpredictable nature of natural disasters. The primary message will be: “Have your necessities: flashlight, first aid kit, water, Beacon app. Be prepared for natural disasters.” Beacon will be an insurance policy, that people can download for free, in case a disaster happens.

The mobile application format of Beacon is also an asset that will encourage potential users to download Beacon. Often during natural disasters, survivors do not have access to computers because the power or wifi went out or they were unable to bring their computers with them when they leave the home. This makes Beacon more practical for most people than any other similar services out there, which are all web based.

Organizations will be targeted through the same means as individual users, mainly through local news outlets and social media. Word of mouth will be particularly important in attracting organizations to register with Beacon, as they often have networks with other local relief groups. The idea for Beacon came directly from feedback that relief organizations gave to the student team after the 2015 floods. The app is tailored to resolve the issues that they faced.

### **Businesses**

Beacon will also target stores and professional services to advertise on the app. For example, partners could include Servpro, Home Depot, local tree removal services, or hotels. Many people would prefer getting referrals to reliable professionals as opposed to having unknown volunteers help clean out their house. In order to avoid scammers taking advantage of people during disasters, we will contact companies who have been vetted by Angie’s List, in order to ensure their validity. The most attractive element to stores will be that they will be directly reaching their target market early in the search process after a disaster.

### **Management and Organization**

Beacon will initially be run by our student group consisting of Sam Kear, Jessica Thiergartner, and Miller Love. Before our graduation, the student team will focus on recruiting and training other USC students to implement our planned marketing tactics and facilitate advertisement sales. We also hope to partner with USC service organizations such as USC’s service sororities, the Leadership and Service Center, and UofSC Relief, among others in order to find a permanent entity to continue managing Beacon. Our information database will be managed by our developers.

## **Financial Information**

### **Expenses**

Company expenses will fall into three categories: one time costs, retainers, and marketing expenses. The largest expense will be a one time cost of \$14,250. This cost includes the planning, developing, and testing of the mobile application, publishing to the iOS and Google Play app stores, as well as app store placement optimization and the implementation of a marketing launch plan. The retainer cost will be a monthly cost of \$95 per month to the app developer to hold and manage our email database. After evaluating several options for developing Beacon, this described partnership provides the most value for the cost, as it offers benefits in development, marketing, and management of the application. Beacon will also hold a budget for marketing tactics, like social media advertising, that it will turn on when there is a predicted natural disaster, or right after one has happened.

### **Revenues**

Revenue will be generated through the sale of advertisements to nation-wide and local businesses who offer services that will be of use to survivors. Business will have the choice between two payment plans. A business will be able to sign up for a yearly subscription to have their services listed on Beacon for \$5 per month per location. Alternatively, a business will be able to enter a open-ended subscription that they can cancel at anytime for \$100 per month per location. This will incentivize businesses to sign-up for year-long subscriptions and help ensure a steady revenue flow.

Revenue will first be used to be used to cover the monthly \$95 retainment fee. 70% of our remaining revenue will be used for research and development while the other 30% will be used toward marketing.

### **Funding Request**

We are requesting funding of \$17,500 in order to develop Beacon by May of 2017, cover the monthly retainer until it goes on the market, and additional marketing expenses. With this money, we will be able to roll out Beacon quickly and get it into the hands of the people who need it most, helping to alleviate suffering during very unstable and scary times during people's lives.



## Appendix - Application Mockup

### Home Screen

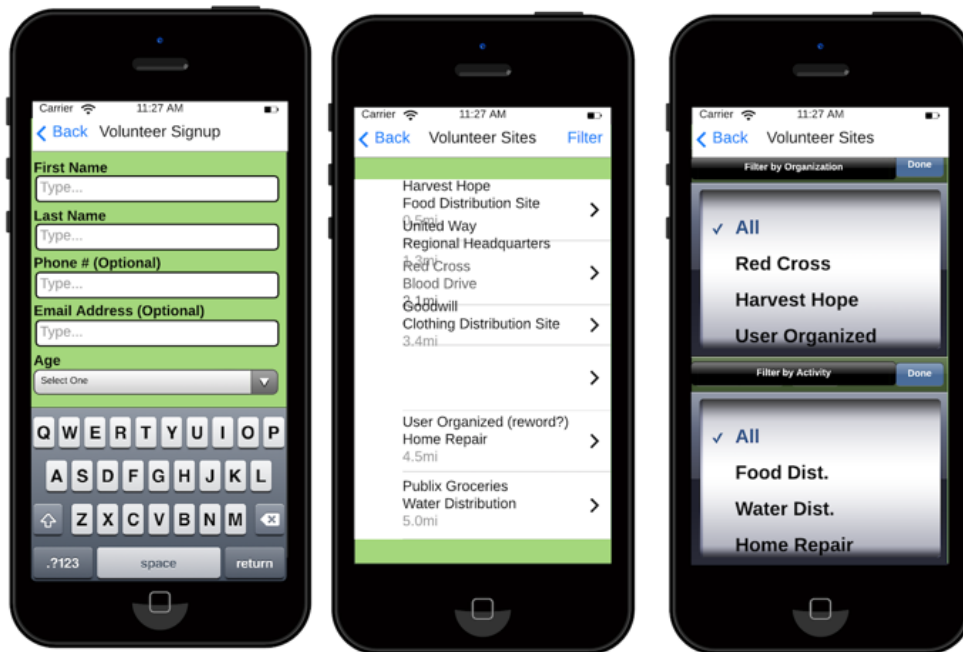


## Survivor Tab



## Volunteer Tab





**Organizer Tab**

