

## **Lean Start up: A model for service-learning projects in Higher Education**

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### **Abstract**

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*A recent research by Harvard Business School revealed that over three-fourths of the new projects fail, a new way of reducing risk of new ventures is the Lean Start Up model. Large corporations embracing this concept find it convenient to use student-resources in these lean start up projects as a part of their service learning. The collaborative effort between a university and regional not-for-profit organizations creates a platform for developing a sustainable network by identifying innovative core projects for the region and then create a sustainable infrastructure and process. This paper highlights how a single-semester service learning project can become a sustainable long-term project that can be extended beyond one semester. The implications are discussed.*

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### **Introduction**

*“As a pedagogy, service-learning is grounded in experience as a basis for learning and on the centrality and intentionality of reflection designed to enable learning to occur” (Jacoby, 1996)*

### **Service learning**

Service-learning has proven to be a popular and effective means for universities to provide students with an opportunity to develop important skills while doing meaningful work (Fredericksen, 2000). Extant research on service learning, based on the philosophy of integrating academics and community service, demonstrated several benefits viz., enriched learning, student development and academic performance and benefits to community.

Researchers argue that service learning results in cognitive, behavioral, emotional, and social engagement of students, and “by being actively involved in their learning experience—as opposed to passively receiving it—the students view the material as relevant, interesting, and absorbing” (Simonet, 2008: p.1). Service-learning students tend to perform better on the complex, applied aspects of course as they are always in the constant state of learning (Rose et al, 2005). Research also documented that service learning students are more likely to persist because of positive faculty interactions and encouragement (Keup, 2005); increased satisfaction with courses and curriculum (Gray et al, 1996); foster autonomy and control of learning process (Hart & King, 2007); and improved academic performance (Kamuche, 2006). A meta-analysis of 62 studies involving 11,837 students revealed that students participating in the service learning programs demonstrated gains in (a) attitude toward self, (b) attitudes toward school and learning, (c) civic engagement, (d) social skills, and (c) academic performance (Celio et al, 2011). Though there is some confusion among scholars whether to consider service-learning as a philosophy, a curricular tool, an educational reform, a model or an enrichment activity (Billig, 2002), most view that service learning is a vehicle to cultivate social and civic responsibilities among students so that they address problems in community (McElpohaney, 1998). In a typology of service learning by Eyler & Giles (1999), learning goals become primary when the emphasis is on ‘learning’ and ‘service’ become primary when the emphasis is on ‘service’. When emphasis is on both, then service and learning goals have equal weight. Though there is disagreement about how service learning is defined and interpreted, there is unanimity in the benefits of service learning and hence most of the schools implement the service learning in their programs (Chong, 2014). Particularly over the last decade, service learning has become a popular teaching method in schools. It is also become fashionable for the educational institutions to interact with and contribute to their local communities.

In one recent study (Berr, 2016), 90 percent of college graduates thought they were well prepared for their jobs. Only 50 percent of the companies agreed, noting significant skill gaps in: (a) Critical thinking, (b) Attention to detail, (c) Writing, and (d) Public speaking. With employers today clamoring for students with skills beyond the classroom, service-learning projects help to fill the gap. Available empirical evidence suggests that service learning results in several benefits in terms of 21<sup>st</sup> century skills (GenerationOn, 2017). These are: (a) critical-thinking, problem-solving, leadership, decision-making, collaboration, and communication, (b) Real-world experience connected to academic subjects, (c) Greater sense of the purpose for learning, (d) Deeper understanding of themselves and empathy and respect for others, (e) Opportunities to explore skills and interests and to network for career readiness, (f) Guided practice in taking action as socially responsible global citizens, and, (g) Increased self-efficacy as they address community needs.

Service-Learning projects go a long way, as explained above, to fill the gaps perceived by employers. Peter Drucker, a leading management theorist in the 20<sup>th</sup> century, saw similar benefits in the corporate sector when managers provided community service for non-profits (Drucker, 2000). “The real development I’ve seen of people in organizations, especially in big ones, comes from their being volunteers in a nonprofit organization - where you have responsibility, you see results, and you quickly learn what your values are. There is no better way to understand your strengths and discover where you belong than to volunteer in a nonprofit” (Drucker, 2000, p.4).

While the benefits to the students are quite clear, there has been some criticism about the benefits for the organizations that participate in the service-learning projects. Service-learning is much more about learning by the student than service to the organization (Stoecker, 2016). Some argue that “Students count their hours. Programs count their participants. When community members or nonprofit organizations are surveyed . . . They aren’t asked about results” (Wexler, 2016).

One way to avoid this type of criticism is to integrate the service learning projects into classroom curriculum such that projects are defined within the semester structure. “Community organizations, by themselves, do not feel like they are in a position to press higher education institutions to structure service-learning so that it better fits community needs” (Tryon, et. al., 2008, p.24).

However, maintaining a happy balance the relationship between organizations and educational institutions remains a challenge. It is important to find a win-win situation for both organizations and students involved in service learning projects. In other words, the question boils down to finding balance in the relationship, so the agencies reap the same level of benefits as the student doing service-learning. Looking from their side, what do community agencies and nonprofits need today?

According to the National Council of Nonprofits, three important trends are the resource squeeze, increased need in the communities, and the government shifting their burdens to the nonprofits (Chandler, 2015). These are dramatic trends. Non-profits need projects that will help them become more relevant, focused, productive and impactful. It may be the case that, more than ever, non-profits need to collaborate in order to meet the serious challenges of today. Going forward, service-learning projects may be more important than ever to non-profits, so it is more important than ever to create a win-win scenario for both the students and the agencies involved.

**Objectives:** The objective of this paper is to describe long-term effort towards making service-learning projects as meaningful to the agencies as the students. The story begins with a multi-year collaborative effort to create and sustain a regional network comprised of one public university and several dozen regional agencies and not-for-profits. After several years, the network was functioning well. Conversations started about needs across agencies, to the benefit of the region. A core project for the region emerged – the focus of this paper. The current challenge, with the core project underway, is the need for a sustainable infrastructure defined by the needs of the project and not just the constraints of the student’s semester calendar. Students are still an important part of the project. Service-learning projects within each semester are still happening, but now within an overall, longer-term project plan where the agencies equally benefit.

The following sections begin with a literature search focused on two concepts – nonprofits working together and creating innovative products. We, then, discuss how these projects are done through lean start-up. We also briefly present the methodology underlying lean start-up. Then, a detailed description of the current project will be presented.

### *Literature Review*

#### *Nonprofits Working Together*

In *Where Good Ideas Come From*, Mr. Johnson (2011) makes the case that innovation and evolution thrive in large networks. Given the added pressures today for nonprofits -- as discussed above -- nonprofits may need to work together, as networks, more than ever. It seems like an easy idea on the surface but collaboration among agencies is challenging and time consuming. Why is it a good idea?

According to the Grantmakers for Effective Organizations, “Collective action is an effective way for nonprofits to increase their impact” (GEO, 2013, p.1). Also, collaborations are being a way for “achieving innovative solutions to deeply entrenched issues and breaking down traditional barriers between regions and across sectors” (Ontario Trillium Foundation, 2010, p.4). As a result, funders are showing interest in supporting such collaborations.

However, a collaboration will only work if there is added value and shared objectives (World Bank, 1998). As an example, the Ontario Nonprofit Network “brings people and groups together to strengthen the capacity of the nonprofit sector” (Ontario Trillium Foundation, 2010, p.2). Put another way, “the test to determine if these partnerships are effective is whether they actually contribute to what will empower people for social and economic change” (CCF, 2010, p.9).

The “benefits of effective partnerships do not appear overnight. Establishing effective and inclusive partnerships takes time” (CCF, 2010, p.4). The cornerstone of a functioning network is trust built through authentic working relationships (Ontario Trillium Foundation, 2010). Some core capacities needed for nonprofits to be collaborative include strong leadership, an open mindset, the ability to share power, adaptability and flexibility at all levels of the organization, and strong connectivity (GEO, 2013). Other characteristics in the early stages of the network include establishing buy-in, being realistic, having measurable results and being accountable. Four litmus tests suggesting a functioning network community include a sense of community, a level of commitment, mechanisms for problem solving, and access to resources (human and financial) through commitments of institutional partners (CCF, 2010).

Developing such a network is not an easy endeavor. Simply put, “many nonprofits . . . simply do not have the time or the resources to do collective work” (GEO, 2013, p.5). The long-term nature of network development also typically goes against the normal activities of the agency -- small, program restricted, one-year grants. Members of the network might also be competing against each other for support from the same funders (Cole, 2010). Other constraints can include a lack of long-term planning, lack of support of the program staff by senior management and a loyalty by the board to the way things have always been (Ontario Trillium Foundation, 2010).

Finally, “for most universities, partnering . . . does not come naturally . . . too often the potential for synergy is thwarted by failures of communication” (AISBL, 2013, p.6)

The CCF (2010) also offers many reasons why collaborative networks might not work: limited vision/failure to inspire; one partner manipulates or dominates, or partners compete for the lead; lack of clear purpose and inconsistent level of understanding purpose, lack of understanding roles/responsibilities; lack of support from partner organizations with ultimate decision-making power; differences of philosophies and manners of working; lack of commitment; unwilling participants; unequal and/or unacceptable balance of power and control; key interests and/or people missing from the partnership; hidden agendas; failure to communicate; lack of evaluation or monitoring systems; failure to learn; financial and time commitments outweigh potential benefits; [and] too little time for effective consultation.

No doubt, working collaboratively across organizational boundaries is different. “Being innovative means allowing for surprises and unintended consequences, being comfortable with the unknown, and learning from mistakes” (Pearson, 2006, p.21). It is also difficult – “collaboration is complex and to be successful consumes money, time and resources” (Blickstead, et. al., 2008, p.24). While the challenges are real, the rewards for being collaborative are the opportunity to be innovative and serve your constituencies with more creative and effective solutions.

### ***Creating Innovative Products***

Research on innovation supporting the use of networks in non-profit organizations has been very exhaustive and “Nurture nonprofit networks” is one of the six practices necessary to be a high-impact nonprofit (Grant & Crutchfield, 2007). Grant and Crutchfield (2007) state that “Nurture nonprofit networks” is one of 6 practices necessary to be a “high-impact” nonprofit. However, Salamon, et. al., (2010, p.i) reported that “[m]ore than two-thirds of the organizations reported having at least one innovation in the past two years alone that they wanted to adopt but were unable to”. Even though a “great deal of research is available on frameworks, typologies, and models as well as key success factors and ingredients of effective collaboration . . . this knowledge is not readily accessible or translated into easily applied tools and resources” (Ontario Trillium Foundation, 2010, p.4).

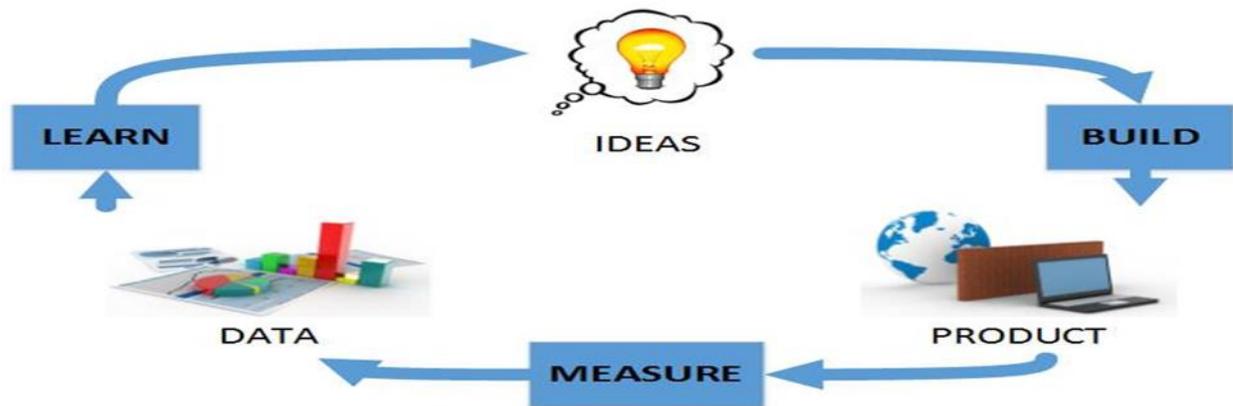
There is evidence for a growing need for innovative solutions that a collaborative nonprofit network can facilitate. There is now interest by funders in the potential of collaborative networks. There is also “a growing number of collaborations and a critical mass of mature collaborations within the [nonprofit] sector” (Ontario Trillium Foundation, 2010, p.11). Put simply, “It takes a village to do a lot of things these days, and innovation is no exception (Thomson Reuters, p.4).

For our project -- the development of a database, website and smart phone app --we are borrowing from current business practices and applying the principles of Lean Startup – a process for promoting continuous innovation (Ries, 2011).

### ***The Lean Startup Overview***

Traditionally, before launching a new enterprise or event, companies follow the process of writing a business plan, identify the sources of finance, identify the potential customers, introduce a product, and start selling the product. This process is very cumbersome and risky, and research reveals that over three-fourths of startups fail (Blank, 2013). The new entrepreneurs and the companies venturing into new projects want to increase their chances of success. The lean start-up, a new methodology that has emerged a few years back, is simply a temporary organization searching for an iterative business model based on experimentation. Instead of elaborative planning which is most of the time irreversible, lean start up model helps an organization to avoid the pitfalls of launching big venture without testing.

The basic philosophy underlying lean start up is not to see whether an organization ‘can build a product’, what it should answer is whether an organization ‘should build a product’. The feasibility is studied with minimum cost and if the project does not work out then the risk of venturing is reduced. Blank contends “Using lean methods across a portfolio of start-ups will result in fewer failures than using traditional methods” (Blank, 2013: p.63). The steps involved in lean start-up are presented in Figure 1.

**Figure 1: The Lean Startup Build/Measure/Learn Cycle (Reis, 2011)**

The sequence of steps in lean start up is: ideas, build, code, measure, data, and learn. It all starts with ideas. This is also called build-measure-learn loop. In brief, “Ideas” represent the vision for the research which includes specific technical specifications as well as qualitative assumptions about user needs. “Build” requires the definition of an MVP or Minimal Viable Product (could be a single feature) to be built in the current cycle including specific metrics to “Measure” success. The data at the end of the current cycle is assessed (“Learning”) leading to a “Pivot or Persevere” decision. The loop then repeats.

A traditional product development effort might include defining a product based on market research and technical feasibility, going to the IT department to develop it, and then testing the results. Feedback would then help determine whether to expand the distribution of the product or move it back into development. Given the dynamic, rapidly evolving needs today, the traditional approach is too slow and too inefficient. Large companies, such as Proctor & Gamble and General Electric, have adopted the Lean Startup methodology in order to encourage speed and focus on new projects – qualities that can be difficult to find in a large organization (Reis, 2016; Lashinsky, 2018). This project, as a proof-of-concept, seeks to apply the same methodology in a service-learning environment between a university and a network of regional agencies and nonprofits. The Lean Startup approach helps to prevent inadequate customer involvement and a slow development process – both anathema to the needs of organizations today, whether corporate or nonprofits.

In practice, Lean Startup means repeatedly and rapidly running through the Build/Measure/Learn cycle and, periodically, revisiting with the users for evaluation and recommendations. The goal is to speed up the development process as well as have product characteristics and assumptions that are quite thoroughly tested by the intended users early and often.

### ***The Lean Startup Loop***

Specifically, what does Lean Startup do that is new? Build/Measure/Learn looks like a dozen other models, with the DMAIC model perhaps being the most famous (DMAIC Tools, 2017). The difference is in the focus on speed and the willingness to adopt the philosophy of building smaller, discrete components for evaluation. The basic philosophy also includes the idea that research leading to new product development is really an experiment – better said, a series of experiments. As such, experiments can be designed, implemented and reviewed with rigor. The Lean Startup methodology encourages explicit assumptions, hypotheses, and metrics for measuring success for each loop, for each cycle of development and review.

The Lean Startup methodology, when developing an IT application, incorporates a growing trend in IT development -- using the Agile development approach. Agile software development (ASD) is defined as focusing “on keeping code simple, testing often, and delivering functional bits of the application as soon as they're ready. The goal of ASD is to build upon small client-approved parts as the project progresses, as opposed to delivering one large application at the end of the project” (ASQ, 2017)

In the next section, the project for applying the Lean Startup methodology is discussed.

## **The Project – Food Security in the Northeastern Region of Massachusetts, USA.**

As introduced earlier, the specific project under discussion here is part of a multi-year collaborative effort between a state university in northeastern region of United States, and regional not-for-profits to: develop such a network; identify an innovative, core project; and create a sustainable infrastructure that goes far beyond a one-semester, service-learning project. The following provides some history on the creation and evolution of food security based in the southeast part of the United States – along with the path leading to a core project -- followed by the early execution of the project.

### ***History of Southcoast Serves and the Core Project***

Coinciding with the passage of the Kennedy Service Act, in 2009 one State University in northeastern region of United States, through its Center for Civic Engagement -- a network of community partners was started called Southcoast Serves with a mission to “foster service and volunteerism to meet the needs of our community by leveraging resources, expertise and capacity to maximize impact” (<http://www.southcoastserve.org/about> ). Beyond engaging more people in service, the venture was a leap of faith by the partners that they would be stronger together, become an incubator for innovative projects along with being more attractive to funders. The collaborative has met on the second Tuesday of the month since its inception – that is, for seven years -- and has grown to over fifty partners.

Although the Kennedy Service Act was never fully funded, in 2014 the collaborative -- now a set of trusted, collaborative partners -- began focusing on a food justice campaign that has facilitated a variety of one-time service-learning projects that have resulted in innovation both on and off the campus. Beginning in the summer of 2016, a larger, long-term project took shape to build a full-featured Food Justice web-site and smart phone application, supported by a common database. The main goal of the project is to create full connectivity among those working for food justice in the Southcoast region of Massachusetts as well as those who need food services.

The Southcoast Serves network understood this was not a simple, incremental change in scope. The challenge of creating a sustainable infrastructure, one that will last beyond key individual contributors and single semesters, was significant. Fortunately, the Southcoast Serves network, a long-standing network, was a solid place to start. A network where the university and regional not-for profits have been communicating and conducting one-semester service-learning projects for years.

The challenges of institutionalization then became more specific. During the fall 2016, a pilot project was proposed to define and develop a prototype for a database, website and smart phone app that will be the foundation for the long-term application. With an eye towards institutionalization, several key players from local not-for-profits -- in conjunction with several separate resources from UMass Dartmouth, including 3 students -- become the development team for the fall.

### ***Applying the Lean Startup Methodology***

Using the approach of rapid, repeated prototypes, the first prototype of the application was scheduled to be defined and developed during the fall 2016 semester. Lean Startup means using the agile approach in order to have regular, discrete components for the intended users to evaluate and to involve the end-users early and often throughout the development process.

The goal for the first prototype, or Minimal Viable Product (MVP), was to build a basic web site connected to a working database where a user could find food suppliers from a chosen area within the Southcoast region. Each chosen supplier was presented with relevant information such as address, phone number and hours open – along with a Google map showing all the selected suppliers. However, the first prototype was only populated with a subset of the food suppliers in the region. Proof of Concept of the basic functionality of the website and the database was the goal.

The project team consisted of a representative from the university’s Center for Civic Engagement, a carefully selected committee of SME’s (Subject Matter Experts) from the Southcoast Serves network to represent the user base, and a team of students connected with a business school in Northeastern region of United States service-learning class which developed IT solutions for regional small businesses and nonprofits. Finally, there was an additional graduate assistant hired by a research center within the college of business with specific, higher level technical skills. The targeted, sustainable infrastructure would have one member of the Southcoast Serves Network – the Southeastern Massachusetts Food Security Network (<http://semafoodsecurity.com/>) -- host the website while ABC company would host and maintain the database of food suppliers.

The first prototype/MVP was introduced as a regional summit in February 2017. After the demonstration, the Lean Startup loop (Build / Measure / Learn) was completed with the user group reviewing/measuring the MVP for success, evaluating the results and making decisions whether to “Pivot or Persevere” (Learn).

Development of prototype/MVP #2 is happening during the spring semester of 2017. Targeted features are the full population of the database with the region’s food suppliers, an upgraded website and an early prototype of the smart app so users can use their smart phones. Issues of web-site maintenance, data-base maintenance, and long-term product development are being worked out with an eye for sustainability. While the Southeastern Massachusetts Food Security network is responsible for fully populating the database, student support is being provided by the Center and database maintenance and upgrades are supported by a graduate assistant.

Overall, in terms of the Lean Startup approach, the methodology is being followed but the duration of each prototype is longer than one would typically see in a company. Simply put, all the participants in this project are working part time so the size of the prototype is like a typical industry implementation, but the time needed to complete is longer. Users were involved early and often as full participants in the development process and completed the Lean Startup cycle of Build / Measure / Learn for MVP #1. In relation to service-learning, students remain as key participants in the project – service-learning opportunities exist throughout the project -- but the overall focus is on the project, not the students. However, students expressed that they learnt a lot by engaging in this service learning project.

### **Conclusion**

Since service-learning improves or helps community, educational institutions are advised to develop community partnerships associated with long-term program sustainability (Ammon et al, 2002; Billig, 2002). What is important for the institutions is to design service-learning into course curriculum and invite projects from the community that encourage involvement of faculty, students and staff.

“[C]ollaborations evolve organically” (Ontario Trillium Foundation, 2010, p.13). Challenges persist with an informal network and students engaged in service-learning to keep the project team engaged and moving towards deadlines. However, the foundation of the Southcoast Serves network is strong – anchored in seven years of working together – and using the Lean Startup methodology means there are frequent user/developer interactions along with persistent deadlines looming. Overall, the project has been successful to date. A second prototype/MVP is due soon and the Lean Startup loop will be completed a second time with a “Pivot or Persevere” decision.

It should be noted that the Lean Startup methodology is equally applicable to non-IT projects. The only change, if the project is a service-based project, is that the agile software development component would not be involved.

As we move forward, we will develop and monitor metrics that can apply to the success of the network we have created. Additionally, we will investigate social network analysis as a means for analyzing the micro and meso effectiveness of the network. (Grieve & Salaff, 2003; Johnson et. al., 2010; Motoyam & Knowlton, 2016).

In sum, the service learning project, from the viewpoint of both organizations and students has become a win-win situation and has created a convenient platform for the university to extend such programs with other organizations. The successful implementation of lean start-up methodology in this network development has been applauded by the organization and the participant students. We have little doubt that application of lean start-up in service learning projects will pave the way for higher education in future.

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