

# **Barre Brain Barn Project**

Draft

## **PROGRAM PLAN AND PROPOSAL**



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Version 0.42**

DRAFT

## Revision Log

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# 1 PREFACE: THE VERMONT BRAIN BARN PROJECT

This document was originally developed as an exercise in a Grantsmanship course given at Capstone in December of 2014, the scope of which includes ten regions of the State of Vermont as shown in the following table.

## 1.1 Locations And Service Areas

In an attempt to follow existing state protocols for the distribution of the BrainBarn facilities, our initial proposal would be to locate BrainBarn facilities in underutilized educational spaces.

Locations include:

VDOL Area	Geographic Location	Proposed Geographic Location
00	Montpelier (HQ)	
01	Barre	Old Ward 5 School, 4 Humbert St.
03	Bennington	Old Bennington High School
05	Brattleboro	??
06	Burlington	Generator
07	Middlebury	
09	Morrisville	??
10	Newport – Derby Line	Butterfield – Tivoli
11	Rutland	The MINT, Makerspace
12	St Albans	??
13	St Johnsbury	The Foundry
14	Springfield	??
15	White River Junction	

**Figure 1 Notional BrainBarn Locations**

Note that our initial configuration is for ten facilities, and that at least 3 of these regions already have facilities operating.

Previous revisions of this document were modified to add new baseline features such as, the Vermont Contractors Credit Union (VCCU) and BbCare, which we consider vital to the successful operation of the overall BrainBarn concept. Revision of this document attempts to localize this proposal for use in Barre City as the **Barre Brain Barn Project**, and contains many local features and organizational accommodations. For further information about the development and implementation of the Vermont BrainBarn concept, please refer to this website:

- <http://docbox.flint.com:8081/brainbarn>

Finally, one syntactic point - each individual BrainBarn in this document is referred to “stet”, thus this specific project is referred to as the “Barre Brain Barn (BBB) Project”.

## 2 SUMMARY

Vermont Brain Barns is a non-profit organization dedicated to the creation of intellectual environments that foster Science Technology Engineering Arts and Math (STEAM) initiatives. The participants in the Vermont BrainBarns are local school systems, libraries, companies, students, apprentices and individuals in Vermont technology sector that are aware that we need to grow our economic base and workforce viability rapidly, and are seeking to expand their community connections. In each of the proposed ten regional shared “maker” type environments, new or existing small business or established companies can, with the help of the public-private partnership that the Barre BrainBarn represents; create opportunities for internship, marketing, sales, research and development.

The “maker” movement came to Chittendon County, Vermont in 2012 and is currently flourishing there as the Generator organization in Burlington City, the MINT in Rutland and The Foundry in St Johnsbury. These are manifestations of a world-wide movement based upon the work of the Massachusetts Institute of Technology (MIT) scholar Dr. Neil A. Gershenfeld, an American professor at MIT and the director of MIT's Center for Bits and Atoms, a sister lab to the MIT Media Lab, who realized that the next industrial revolution would come from decentralized yet highly connected manufacturing systems. Dr. Gershenfeld’s original maker facilities generally are facilities equipped with an array of flexible computer-controlled tools that cover several different length scales and various materials, with the aim to make "almost anything", this includes technology-enabled products generally perceived as limited to mass production<sup>1</sup>. From this beginning the number of “maker spaces” facilities available for small smart production has boomed<sup>2</sup>.

The Barre Open Systems Institute (BOSI), The Renyolds Corporation, Generator, SeaLANData and ?? intend a public-private partnership to establish high-technology research and manufacturing facilities in order to enhance the economic well being of the citizens of Vermont.

### 2.1 Cost

The summary costs for this project are included here:

- \$475,000 for establishing the Barre BrainBarn location in Barre City
  - \$150,000 Full time coordinator position (\$75,000/year for 2 years)
  - \$150,000 for promotion and supporting development.
  - \$175,000 for building maintenance renovation and asset purchase

We expect all of the regional sites to have this level of startup and initial operating cost. The third year shall either involve a profit or possibly additional grant funding in some cases.

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<sup>1</sup>Gershenfeld, Neil A. (2005). *Fab: the coming revolution on your desktop—from personal computers to personal fabrication*. New York: Basic Books.

<sup>2</sup>Hackerspaces: An economic development wheel in a wheel (<https://gigaom.com/2014/11/30/sacramentos-hacker-lab-calls-atts-gigabit-bluff/>)

## 2.2 Benefit

The benefit is all about employment. Through this Barre City facility, employment-oriented organizations shall develop. These partnering efforts will allow for a broader scope of technology enterprise offerings to be created in the Barre BrainBarn. This is the problem that the BrainBarn project expects to address within Barre City.

## 3 BARRE BRAINBARN INTRODUCTION

As we have the luxury to examine the three current operating maker spaces in Vermont, we are using the models of the MINT, The Foundry and Generator in order to develop a successful social and business model for Barre City. The plan is for the Barre City municipality to gain maker spaces using the Vermont Brain Barn Project model based upon the selective emulation and innovation of the three existing maker spaces, but capable of much more.

### 3.1 Description:

- The Barre BrainBarns shall establish and renovate the Old Ward 5 School building at 4 Humbert street to act as a central “campus” where educational, research, development, technology and software enterprises can incubate.
- These facilities shall provide individuals, tenant small businesses and companies with benefits such as:
  - Shared resources, e.g. conference rooms, class rooms, high-speed internet, tech support, administrative services, business advice, banking, infant-elder care and marketing services, etc.
  - Proximity to other tech companies both physically and virtually.
  - Built-in networking of both the customer and individuals of both the social and digital variety.
  - Reduced business facilities and infrastructure cost.
  - Support for growing businesses and their recruiting goals via high-profile work venues.
- Give entry point to owner’s adjacent commercial office facilities with focused marketing opportunities.
- Make Barre City technology companies more visible both within the state and outside the state.

### 3.2 Objectives

The immediate objectives are to:

- Create the Barre BrainBarn facility, proving a sustainable model over the first 2 years.
- Attract 5 or more companies (customers) to locate in the first BrainBarn over the same period.
- Identify locations of future facilities throughout the state based on demand and available resources
- Foster arts and educational programs as the opportunity arises.

### 3.3 Potential Partners:

As the nature of this proposal revolves around local economic empowerment, potential and immediate partnerships are listed here with the most local being the first in consideration with State and Federal consideration as later partners.

#### 3.3.1 Private Participants

- Technology startups and innovators.
- Building owners and/or developers.
- Business support service providers and consultants.
- Startup and established software and technology companies.
- 2014 Northeast Kingdom Fund Grants
- Other Maker spaces.
- Reynolds Corporation, Barre, Vermont
- Existing facility owners
- Artists, Sculptors, Musicians, Dancers, Performers

#### 3.3.2 State Government

- Vermont Department of Economic Development
- Vermont Department of Education
- Vermont Agency of Commerce

#### 3.3.3 Federal Government

- Defense Advanced Research Projects Agency
- Homeland Security
- Department of Labor
- Department of Education

### 3.4 Services Provided

The Barre Brain Barn shall offer the following services and facilities in conjunction with the overall guidance and policies of the Vermont Brain Barn Project, including:

- 1 **Technical Facilities:** Including but not limited to research and development training programs and laboratories for Software Development, Digital and Analog Electronics, Digital Fabrication, Garage Facilities, Geothermal as well as alternate emerging energy and transportation technologies.



- 2 **Classroom, Rehearsal, Studio and Performance Spaces:** As part of the renovation, spaces shall be provided in order to assure and enhance any and all aspects of the arts, including but not limited to teaching, rehearsal and performance.
- 3 **Banking and Financial Services:** The deployment of the Vermont Contractors Credit Union (VCCU), a specialized financial institution, which is a critical component to the development of the Barre BrainBarn. While details of the VCCU are beyond the scope of this document, and available elsewhere, the purpose of this financial institution is to advocate for the individuals and groups involved with BrainBarns in general and the financial well being of participants in the Barre Brain Barn in particular.<sup>3</sup>
- 4 **Infant-Elder Care:** Child and elder care has a major impact on the development of the Vermont workforce. The Barre BrainBarn shall contain facilities and personnel to allow for proper care, supervision and support for elder and infant care.
- 5 **Facility Procurement - Renovation:** Renovate the Old Ward 5 Barre City Elementary School. Assist in placement of participating companies within a regional BrainBarn and match for projected growth needs.
- 6 **Needs Analysis:** Determine what gaps exist in both the arts and technology, and recommend changes.
- 7 **Coaching and Consulting:** Guide both customers and participating individuals through various scenarios, assist in the acquisition of tools and technology, build on artistic and technological synergies with client's customers, push customers to test the limits of their artistic and technological capabilities and potential.
- 8 **Staff Development:** Educational and business consulting, business organization, hardware and software skills development. Business development, tax advice, and other general businesses development services.
- 9 **Sales Support:** Provide sales support staff on the areas of sales, marketing, and lead generation for new business opportunities.

### 3.5 Facilities

The Barre BrainBarn proposed location is at 4 Humbert street. The initial Barre BrainBarn activity shall include renovation activity as well as and maintain as common Vermont Brain Barn Project characteristics the following :

- Gersensfield-style Fab Lab facilities
- Infant-elder care facilities
- Vermont Contractors Credit Union

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<sup>3</sup>Details regarding the Vermont Contractors Credit Union shall be available in a separate publication.

- Office and organizational space
- Storage and inventory space
- Shipping facilities
- Garage facilities
- Internet and telecommunications capability

#### 4 INTRODUCTION TO APPLICANT AGENCY

As a potential partner or participant in the Barre BrainBarn project, you are being asked to fund and expand an existing model already successfully operating in other Vermont municipalities. Vermont is all about two vastly different survival models, one is the “Country Club” model, and generates a very rosy perception of this state as a paradise, while the other is a “Life Boat” model which for the majority of the residents of this State is far closer to the truth. Postindustrial Vermont is a region of vast economic inequality; the rural countryside of Vermont might be considered part of the “Second World” – not quite in the economic inequity of the “Third World” but nowhere near the prosperity of the “First World”, which is what we consider the norm in this country.

##### 4.1 Organization Purpose

The Barre Brain Barn shall be dedicated to using educational, financial, social and organizational elements towards the development of both educational and entrepreneurial institutions. This purpose is in concert with existing Vermont Brain Barn Project at existing or soon to become operational maker spaces.

##### 4.2 Staff Volunteers – Board Of Directors

The Barre BrainBarn shall, like each node of the Vermont BrainBarn Project have local direction and guidance. The following Table Lists the proposed Board of Directors for the Barre BrainBarn.

Name	Title	Phone	Email
Paul Flint	Director	802 595 9365	<a href="mailto:flint@flint.com">flint@flint.com</a>
Renaldo Azotea	Chairman		
Wendy Reys	Treasurer		
Sarah Costa	Secretary		
Andy Boutin	Technical Director		

**Table 1 Barre BrainBarn Notional Board of Directors**

As each BrainBarn Facility has the same type of management structure, the Barre Brain Barn Board of Directors table above must be validated and completed for each of the Barre BrainBarns as an immediate prerequisite for participating in the Vermont Brain Barn Project.

### 4.3 Collaboration – Partnership

The following table details possible local partners that the Barre Brain Barn intends to qualify:

Partner Name	Contact
Barre Open Systems Institute	Paul Flint
Vermont Adult Basic Education	
Renyolds Corporation	Scott Hellman
Central Vermont Economic Development Corporation	
Studio Place Arts	Sue Higby
Barre Partnership	Josh Jerome
Vermont Information Technology Alliance	Jeff Couture

**Table 1 Notional Barre Brain Barn Partners**

### 4.4 Organizational Infrastructure

While the greatest organizational guidance shall come from the basic precepts of the Vermont Brain Barn Project as determined by the Barre BrainBarn Board of Directors, other areas of organizational and policy infrastructure will arrive from various sources. ADA compliance shall be a goal, but will likely require minor modification and enhancement of the past efforts of previous occupants of the facility at 4 Humbert Street.

### 4.5 Funding Sources

??Narrow the focus down...and transition to the problem or need.??

#### 4.5.1 Crowdfunding

Go fund me  
Indegogo

#### 4.5.2 Initial Startup

#### 4.5.3 Sustaining Operations and Maintenance

Customers

## 5 DISCUSSION OF PROBLEM OR NEED

Barre City Vermont is distinguished as the only town in the state of Vermont, which has no degree granting higher learning institutions. It is stipulated here that the ultimate goal of the Barre BrainBarn and it's local partners is to ultimately create a vital institution capable of advanced learning with a degree granting capability. Note that this is a unique goal of the Barre

City Brain Barn and as such is not entirely compliant with the goals of the Vermont Brain Barn Project.

The civic economic impact of higher educational facilities is evidenced both within the State Country and the World. Locally travel to Randolph or Rutland. Travel to Harrisburg Virginia, Columbus, Ohio, or numerous other “land grant” colleges and entire communities thrive in the shadow of great higher educational institutions<sup>4</sup>. Barre last had this type of economic advantage in 1938 when the Goddard Seminary vacated the city and moved to Greatwood Farm in Plainfield. Could this be one of the ingredients missing in the development of Barre City?

??Value added??

## 6 METHODS

The methods employed in order for the Barre BrainBarn to operate and succeed boil down to the basic elements of the acronym STEAM. There are detailed below:

### 6.1 Science

Science education, research and development is a principal driver of entrepreneurial and job creation activities. Our entire civilization is based upon the exploitation of Basic Science. Thus this is the first and foremost goal – scientific education research and development.

### 6.2 Technology

Scientific education research and development is transformed into applications which rely on technology. Thus the development and exploitation of scientific knowledge is dependent on the rendering of scientific knowledge into useful technology. The agents of change who perform this task use the discipline of.

### 6.3 Engineering

One of the ultimate goals of the Barre BrainBarn is to become a full fledged engineering school, where engineering is not taught entirely as a an application of mathematics but through the revolutionary FabLab technologies that are part of the new industrial revolution.

### 6.4 Art and

In society art is often considered and burdensome aprotuberance to Sience Technology and Engineering. The Barre BrainBarn follow the policy of the Vermont Brain Barn Project in dispelling this concept and incorporating all of the arts into the Barre BrainBarn as needs or opportunities make themselves available. The Arts are a vital part of the technological entrepreneurial process and goes foreword hand in hand with...

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<sup>4</sup> Refer to The Economic Impact Of Higher Education Institutions In England  
(<http://www.universitiesuk.ac.uk/policy-and-analysis/reports/Documents/2014/the-economic-impact-of-heis-in-england.pdf>)

## 6.5 Mathematics

Without mathematics science and engineering are blind and technological progress comes to an end. The art of Mathematics is the basis for all of the tools available in the FabLab technology, and thus must be emphasized at the last but not least of the fundamental disciplines of the Barre BrainBarn.

These are the guiding principals of the Vermont Brain Barn Project, and shall be the guiding principals of the Barre BrainBarn, and thus shall be the educational and change elements directly applied to the welfare and improvement of Barre City and it's inhabitants.

## 6.6 Overview

The Barre BrainBarn is designed to benefit two different groups, these are:

- 1 Participants
- 2 Customers

The Participants are the unemployed or underemployed individuals who need core technical education, training and apprenticeship activities.

The Customers are the entrepreneurs and small business owners who need the knowledge and skills of the participants along with the aptitude necessary to operate and manage an enterprise.

## 6.7 Target Populations

The target populations either live and own a small business located in Vermont, and may have been in business for one or more years or are unemployed or underemployed program participants in a poverty situation.

The business customers are chosen according to their need for growth with specific focus on the technical needs within the required space, and their inability to reach higher levels of productivity through technological innovation of both processes and methods. These customers may operate companies that produce software applications, or technology related services and products. The development of the participants is as much part of the product as the actual successful outcome of the customer's entrepreneurial activity.

What matters the most are both the customer and the participant's experience. We are trying to educate and develop both of these groups and the development of the businesses customer and the participants are the elements that we are interested in improving.

It is our goal that both the customers and the participants shall reside within an SBA qualified empowerment zone. This will hold us to the parameters we believe shall stipulated by the grant authorization office, and ensure that we are serving those most in need of business education, training and advice. It will also give us the opportunity to build ties in communities in which commerce growth could be substantial.

## 6.8 Full Description of Activities

??Education?? and i??Entrepreneurial Development??

### 6.8.1 Technical

#### 6.8.1.1 Arts

##### 6.8.1.1.1 Graphic

##### 6.8.1.1.2 Music

##### 6.8.1.1.3 Dance

##### 6.8.1.1.4 Web Design

## 6.9 Implementation timeline

The following is the representative time line for the Barre BrainBarn.

Additional milestones and time lines will be necessary for the other participating sites.

### *Milestones*

Milestone	Start Date	End Date	Budget	Manager	Department
Creation of Vermont BrainBarns Inc.	5/7/2018	8/5/2018	\$0	VBB Committee	Admin
First BrainBarn Location secured	5/7/2018	8/5/2018	\$0	Paul Flint	Admin
First VBB Company moves in	5/7/2018	8/5/2018	\$0	Property Mgr.	Admin
Totals			\$0		

**Table 3Barre BrainBarn Time Implementation Time-Line**

## 6.10 Collaboration

??Develop section??

## 6.11 Staffing

?? Develop Section ??

## 6.12 Facilities & Equipment

?? Develop Section ??

### 6.12.1 Facility

### 6.12.2 Equipment

## 7 EVALUATION PLANS

Process Objective kept within the method section.

An outcome objective details the result of the method.

Program reports

## 8 FUTURE AND OTHER NECESSARY FUNDING

## 9 BUDGET

Direct

### 9.1 Executive Summary

- 1 **Procurement Sourcing:** Establish long-term channels and determine technology suppliers. Manage sourcing and recommend upgrades on a quarterly basis.

Direct	Year 1	Year 2	Total	
<b>Personnel</b>				
Full Time Coordinator		75,000	75,000	150,000
Promotion		30,000	10,000	40,000
Support		25,000	25,000	50,000
Development		25,000	35,000	60,000
Total (includes G&A)				300,000

**Table 4Barre Facility Direct Personnel Expenses**

Non Personnel	Year 1	Year 2	Total	
Direct				
Fab Lab		50,000	10,000	60,000
Welding Lab		12,000	4,000	16,000
Electronic Lab		22,000	2,000	24,000
HVAC Lab		19,000	2,000	21,000
Facility Renovation		75,000	746,000	146,000
	GRAND	TOTAL		575,000

**Table 5Barre Facility Non Personnel Expenses**

### 9.2 Personnel

A Full Time Employee (FTE) with the position of coordinating Director in enhanced with Promotion Support and Development personnel assets for the two-year operational cycle of the facility

Their qualifications are as follows:

- Full Time Coordinator
- Promotion
- Support

- Development

### 9.3 Non personnel

The following are the sections and departments necessary to open these facilities and to allow for the customer and participant use of the BrainBarn:

- Building Renovation
- Infant-Elder Care Area (BbCare)
- Credit Union (VCCU)
- Fabrication Lab (FabLab)
  - Welding
  - Woodworking
  - Electronics
  - Alternate Energy research laboratories
- Studio, Rehearsal and Performance Spaces

### 9.4 Indirect

Indirect expenses include:

#### 9.4.1 Strategy and Implementation Summary

The Vermont BrainBarns' strategic focus is centered on helping small rural technology research and development businesses find specialized funding and helping them use that funding to enhance their business through the use of trained technologists. If the company will not benefit from VBB services, as per the evaluation, VBB will not offer its services to those clients.

#### 9.4.2 Competitive Edge

The Vermont BrainBarns' competitive edge is in its ability to leverage our relationships in the technology community throughout the State of Vermont. Our partnership with the Vermont Technology Alliance (VtTA) has shown us that technology companies are enthusiastic and committed toward the development of the participants and the creation of "Brain Communities" within these BrainBarns.

#### 9.4.3 Marketing Strategy

The associated regional Vermont BrainBarns plan to market their services through strategic partnerships with multiple profit and non-profit organizations that have a focus within the technology sector of Vermont. Websites for the VBB exist and will be enhanced to market to company participants, new hires searching for positions, apprentices searching for internship opportunities. E-mail campaigns and outreach will be ongoing to promote BrainBarn participation.



#### 9.4.4 Fundraising Strategy

Fundraising and revenue will be generated through a combination of Federal grants and local ?? (WETF) grants. In addition, clients will be expected to pay for a percentage of the costs involved, depending on their financial status. We expect the largest revenue generator to be the USDA's Federal Partnership Program. Under this program, The Vermont BrainBarns may qualify for additional Vermont State grants of up to \$50,000, and a matching Federal Grant of up to \$125,000. In addition, smaller business development grants at the State and Federal level will help continue funding for the organization.

Federal and State grants alone, or even combined with small business client revenue is still not enough to allow the company to achieve its mission. A low cost monthly retainer fee will be required of all rural participants. Depending upon the participant or customer, this fee might range from between \$50-100 monthly with additional revenue being a percentage of sales generated by the VBB affiliate program. In exchange for this low monthly fee, the client will have 100% access to BrainBarn services, and they will often find that the cost savings, and revenue developed through a relationship with The VBB will more than pay for the low monthly retainer. The retainer may go up or down depending on the level of funding achieved each year by VBB.