

***Bridging talent, generations  
and futures  
in technology, science  
engineering and design***

***Introduction and Invitation  
May, 2019***

**Robotics And Beyond**

***A Connecticut 501(c)3***

***Since 2004 . . . and still learning***



Thank you for your interest in our story. We will share why our organization exists, its importance in the now and future world, our vision and how we can get there.



We believe that dreams, talent  
and a desire for fulfillment  
exist in every individual.

Robotics Beyond

We create opportunities for young people  
to discover and develop their talents

in fields of  
science, engineering, technology and design

Robotics Beyond

Our approach is

effective,

efficient

scalable.

Robotics Beyond

Over 16 years of discovery and learning, we have created ways to reverse this trend, capture amazing talent and change lives, families, futures and our world. Our approach is effective, efficient and scalable. Our vision is to capture and spread what we have learned.



## Why we exist

To help young people  
discover and develop their  
talents in technology,  
science, engineering and  
design

so they can achieve  
confidence, success and  
fulfillment in their careers  
and in their lives.



Robotics Beyond

We exist to help youngsters and young adults to discover and develop their talents in technology, science, engineering and design, and to help guide them to confidence, success and fulfillment in their careers and lives.

## How we do this

Create an environment  
that embraces setbacks,  
critical thinking and creativity...



Provide a diverse community of peers and role models,  
leadership experience and career insight and opportunities.

Believe in the talent and potential of every individual  
and their desire to discover and develop that potential.

Robotics and Beyond

To accomplish this we **create** an environment that embraces setbacks, critical thinking and creativity...We **provide** a diverse community of peers and role models, leadership experience and career insight and opportunities. And we **believe** in the talent and potential of every individual and their desire to discover and develop that potential.

## What we do

We create and deliver highly impactful  
discovery and learning experiences  
for grades k-12, young adults and teachers

through in-house and off-site programs and  
workshops for groups and individuals.

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To provide these critical pieces, we create highly impactful, relevant experiences of discovery and learning for children from kindergarten through high school years, to young adults in alternative education programs and to teachers. We deliver these programs as workshops and classes at our facilities and to many off-site locations such as town agencies, youth organizations, libraries and private and public schools. Individuals with special learning needs also find resources and outlets for their talents in technology and design.

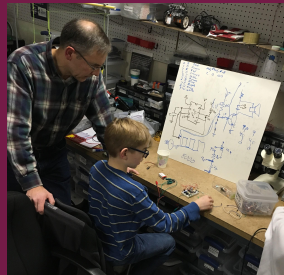
## Who we are

personally invested  
career professionals

from fields of science,  
technology,  
design and education

sharing knowledge,  
perspective and passion

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Robotics And Beyond's founders, staff and adult volunteers are personally invested professionals from many fields of science, engineering, technology, design and education sharing our knowledge, perspective and passion.

# Impact

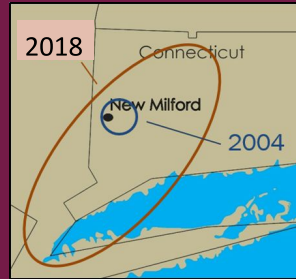
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## Reach & number served



**2004**  
**11 students**  
**from 2 towns**



**2016 - 2018**  
**300-400 students/yr**  
**50+ towns, 60 mile radius**  
**Avg. 25 hours/student/year**

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In 2004 with our first summer program we drew 11 students from 2 towns.

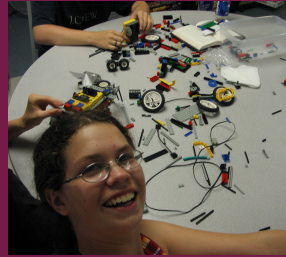
In 2012 we began offering year-round programs and by 2016 we had grown to serve over 300 students a year from more than 50 towns and a 60 mile radius including the greater NYC area.

We receive almost weekly requests from other towns and states asking for programs or advice on how to create such a resource.

## Then and now - outcomes



Louise, 2014, gr.8  
Presenting string theory to campers.  
Freshman, Univ. Chicago, Physics



Katie, 2004, gr.7  
Our first mentor, intern and graduate  
Quality assurance manager for  
electrical components, and mother.

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As examples of student involvement and outcomes, Louise first came to us as when in 6th grade. In 8th grade she asked if she could give a seminar to campers about “the theory of everything” and string theory. She is now studying physics at the Univ. of Chicago. Katie was in our very first program in 2004 and was our first mentor, first intern, first “graduate.” Katie is now a quality assurance manager and is also a mother.

## Then ...

3 students from 3 towns  
meet at RAB summer camps

attend 3 colleges  
electrical eng. and computer sci.



Zach  
2009  
gr.11



Pat, 2006, gr.8



Kerry, 2005, gr.7

Three other long-time students had a total of 8 co-ops and became key members of the iPhone development team. They are also 3 of our 5 largest individual donors, with over \$10k total in gifts and employer matching. (Universities were Worcester Polytechnic, Northeastern Univ. and Renssalaer Polytechnic)



... and now



4+ years on the  
Apple iPhone team

3 of our 5 biggest  
individual donors

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These students had a total of 8 co-ops or internships with various companies and became key members of the iPhone development team. They are also 3 of our 5 largest individual donors, with over \$10k total in gifts and employer matching.

## In the words of students and parents



Louise, long time student (since 6th gr.)  
now a Univ. of Chicago freshman in physics.



James, research scientist, parent of long-time student  
now in 11th gr. and member of our server team.



Different gifts. different needs.

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These videos reveal how some of our students and their parents feel about the impact Robotics And Beyond has had. Let's start with Louise.

## More words of students and parents

"Is there anything like RAB in (San Francisco, Florida, Vermont, Maine, Ohio)"

"I owe a lot of what I have now to Robotics And Beyond"

"I finally feel like I belong."

"Robotics and Beyond was the reason I became interested in electrical engineering in the first place."

"She's excited and I'm thrilled she's excited!"

"Volunteering as a mentor really builds his self esteem.  
I appreciate how much you believe in him!!!  
Thank you from the bottom of my heart."

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These comments are just a few of dozens we have received over our years of service, from parents, grandparents and students.

## Impact Numbers (Summary) 2004 to 2018

<b>Individual students served</b>	<b>2,700</b>
<b>Student activity hrs</b>	<b>49,000</b>
<b>Student &amp; adult volunteer hrs</b>	<b>35,000</b>
<b>Student Mentors</b>	<b>130</b>
<b>Student teaching hrs</b>	<b>15,600 (50+ topics)</b>
<b>Operating Budget (2019)</b>	<b>\$120,000</b>
<b>Public Support v. Program Revenue</b>	<b>15 / 85</b>

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The yearly and cumulative result of our impact and belief in our work by volunteers, students and parents is extraordinary.

Over 15 years, from 2004 to 2018m we have engaged over 2700 individual students in 49,000 hours of activities in our core topics.

We have catalyzed over 35,000 hours of student and adult volunteer time.

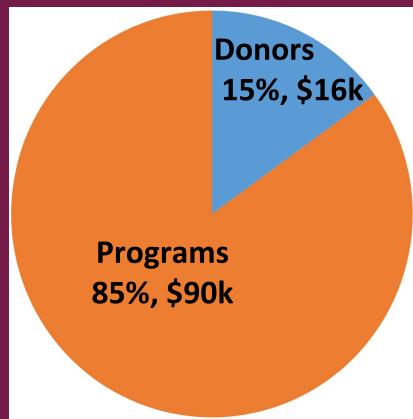
We have provided 130 teen and college student mentors with over 15,000 hours of teaching experience in over 50 topics.

We have done this with an annual budget reaching only \$120k at its highest level, consisting of just 15% public and private support and 85% program revenue.

## Donor support\* vs. program revenue

2017 & 2018  
(most recent  
Phase 1 years)

\* individuals,  
foundations,  
businesses



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This chart shows our average total revenue for 2017 and 2018 and the split between revenue from programs and donor support. Highly efficient and impactful not-for-profit organizations typically operate with 50 to 70% or more public support. We have operated and developed our model at a reverse of a typical ratio demonstrating the demand and revenue strength of our programs and the support from founders and volunteers totalling many 1000's of hours. This is our sweat equity and demonstrates our passion and commitment. But this is not sustainable to maintain our impact or achieve our vision.

## Demographics- current and goals: number (%)

	2018	2021+	Region (%)
Racial minorities**	30 (10)	240 (30)	65*
Poverty/Income Constrained*	30 (10)	400 (50)	11 / 33*
Female	60 (20)	320 (40)	50
Special learning needs:	30 (15)	240 (30)	

\* datausa.io and unwesternct.org/alice

\*\* African Amer., Hispanic, Asian, others

We have aggressive goals for our demographics. Our user base has a high ratio of males to females.

We are currently unable to expand our reach to income-limited households due to lack of tuition support.

Our reach to individuals with special learning needs is impressive but is far below the potential.

Attendance by non-caucasian groups is far below our regional composition.

<https://datausa.io/profile/geo/danbury-ct/#demographics>

<https://www.uwwesternct.org/alice>

## Potential reach and impact

- Home region can reach 800+ users by 2021
- Exponential scaling is possible
  - model adoption elsewhere
  - organic growth of original and new centers (power of compound “interest”)
- Demographic goals are feasible

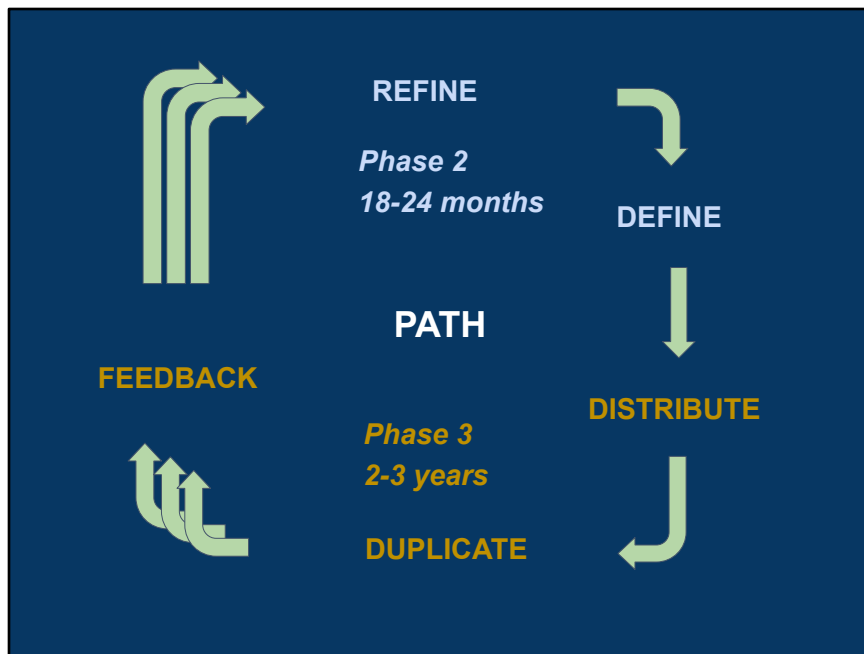
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We believe we can triple our current annual number served of 300-400 in our home region and raise the average number of active hours per individual (now about 25 hours).

We believe that we can achieve exponential growth through adoption of our model in other regions and subsequent growth of those efforts.

We envision 1500 or more individuals served in 2023-24 and the potential for doubling the impact every 2-3 years beyond that through expanding awareness and support from organizations, individuals and local, state and federal agencies.



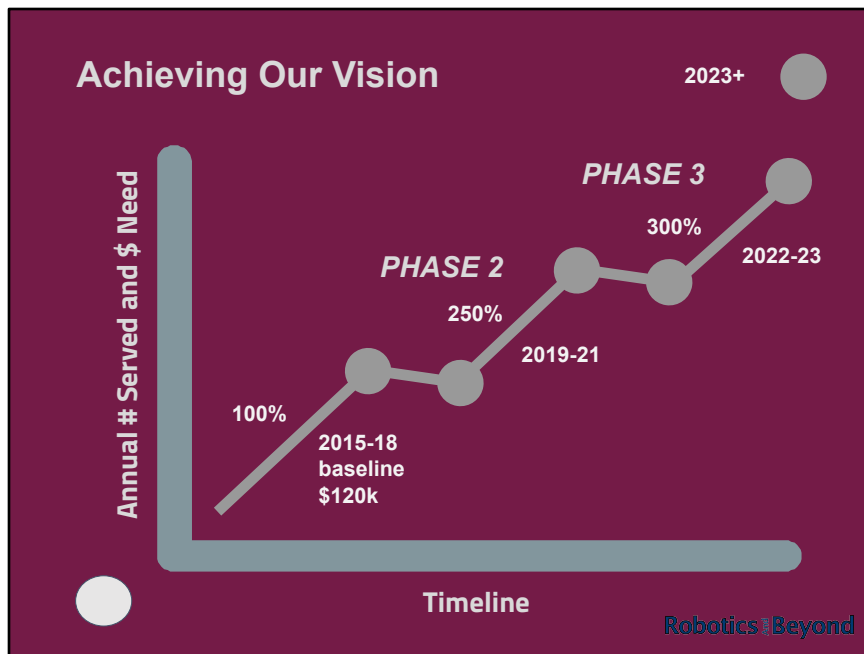
To achieve our vision, we must first refine our organizational operations, systems and staffing, and determine our true regional capacity. Then define and document our model so we can communicate it clearly. Those two steps comprise Phase 2 of our plan.

In phase 3 we will make an outline of the model publicly available and actively promote it for adoption - regionally, nationally, globally..

We can then support adoption of the model, in part or whole, with fee-based detail and assistance. We envision a “modeled after” approach rather than a strictly defined and enforced franchise model.

User feedback and continuous development at our home base will enable a smart, crowd-sourced evolution.





We believe that refining and defining our operations and programming in Phase 2 will require 18-24 months and 150% increase in total budget requiring \$180k in additional donor support. Phase 3 will take an additional 2-3 years and \$160k annual donor support aided by an increasing portion of program revenue.

## Timeline summary

- **Phase 2: 18-24 months**
  - refine, define
- **Phase 3: 2-3 years**
  - publish, distribute, duplicate
  - adapt, improve, communicate

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We believe that Phase 2 will require 18-24 months and Phase 3 will take an additional 2-3 years.

## Critical needs for Phase 2: 2019-2021

- **Facilities (\$35k)**
  - more space, equipment
- **Tuition assistance fund (\$20k)**
  - reduce barriers for disadvantaged families
- **Staffing (\$125k)**
  - part-time paid admin positions (communications, development, scheduling, others)
  - raise Director to fully-paid status
- **Increased programming, more instructors**
- **\$180k/year total added donor support**
  - \$160k in Phase 3 with increased program revenue

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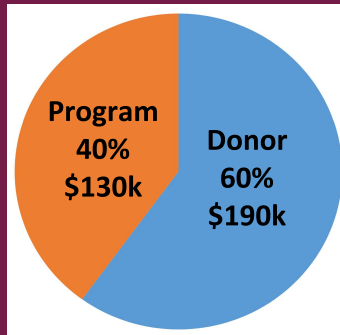
Our plan involves significant financial requirements. Both space and equipment must be increased at an estimated cost of \$35k. Program affordability barrier must be reduced with much greater tuition assistance funds which we estimate at \$20k. Support must be added for paid part time staff and fully-paid director (not ¾ time volunteer) est. at \$125k total.

Program offerings must be increased through addition of instructors.

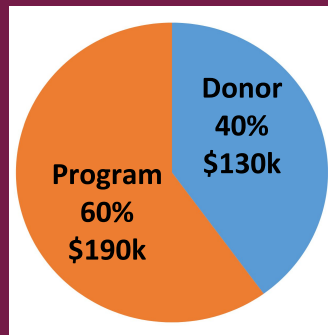
Qualified, motivated staff and instructors are known and available.

While total added organization costs to pursue our vision is around \$180k/year, increased programming will result in greater program revenue resulting in lower future public support required to around \$160k/year.

## Funding and sources for Phases 2 & 3



**Phase 2**  
**2019-2021**



**Phase 3**  
**2022-2023**

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We believe that a highly favorable balance is sustainable in the future with the majority of funding coming from program revenue and the remainder from motivated, engaged supporters of operations and outreach. In both 2019 and 2020 we will need about \$180k from public and private donors, or about \$160k more than received in 2018. From 2021 on we believe we can shift to a majority of funding coming from program revenue.

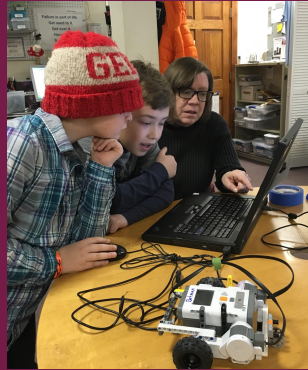
## What helped you on your path?

A parent?

Teacher or other adult who took an interest?

Internship or summer job?

Enrichment program or a competition?



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Who or what was a key factor in helping you early in your chosen field and on your path?

**What if that never happened?**

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What would your path have been without those opportunities and support?

## - How to be involved -

- **Primary supporter and visionary**
  - one-time or renewable support
  - \$10-180k/year
- **Sponsor of a topic or field**
  - content, materials, instructors, tuition aid...
  - \$3-5k/year, one-time or renewable
- **Referral to potential supporters**
- **Advisor or board member**
- **Host for interns**
- **Mentor to students**

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We require financial support, advisory support and hosts for interns to gain experience.

We are looking for support at the \$10-180k per year level for up to 3 years as a primary supporter through phases 2 and 3. This will support the growth of operations, model development and capacity.

At the \$3-5k/year level we need sponsors of specific topics to cover content development, materials, equipment and maintenance, mentor training, instructors and tuition assistance.

We welcome referrals and introductions to other potential supporters who might resonate with our mission, as well as board member candidates, advisors for our content in specific topics, Internship or co-op hosts for our older students, and mentors for students in particular topic areas and special projects.

**Be part of something remarkable.  
Inspire minds and futures.**



**Believe  
Support  
Live forever**



Our approach has had life changing impact for hundreds of young people, their families and our staff and volunteers.

We believe that our approach can benefit other regions and can have a great impact on our society and nation.

We invite you to join our efforts to achieve our goals.

Additional information is available on topics such as our work with special needs individuals, collaborations with other organizations, demographics and other aspects of our work.



## Robotics And Beyond Supplemental Information Available by PDF or link

- Capacity growth charts for Phases 1, 2 & 3
- Student entry points, impact areas and impact number detail
- Groups served, Special needs students
- Demographics served
- Collaborations
- Approach
- Subject area examples
- Video of a typical camp week
- A student's path from K to career and detail
- Mission detail
- Review of the RAB model
- Cost of implementing vision (\$ detail)
- Vision flowchart with detail
- Uniqueness of our model
- Yearly calendar
- Success and impact detail

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