Rural Tech Project

Builder: Premont Independent School District

RURAL TECH PROJECT

Table of contents

Builder overview

This builder is organized into six sections, arranged in chronological order: program introduction, foundational considerations, program design and planning, community engagement, program evaluation, and sustainability. Each section describes opportunities and decisions, processes, and outcomes made by one Rural Tech Project finalist team — and offers considerations for developing a similar program in your own community.

About the Rural Tech Project

The Rural Tech Project was a $600,000 challenge to advance technology education, support rural educators, and prepare students for the careers of today and tomorrow. The challenge, which launched in June 2020, invited high schools and local educational agencies to propose technology education programs that use competency-based distance learning.

Five finalist teams each won $100,000 and received on-the-ground support to implement their programs over the 2021-2022 and 2022-2023 school years.

- **iLEAD Academy (Carrollton, Kentucky)**. The Virtual Computer Science Career Academy offers students across five high schools the opportunity to take virtual, dual-credit courses leading to the completion of computer science degrees.
- **Louisa County Public Schools (Mineral, Virginia)**. The Louisa County Cybersecurity Program prepares students to meet a critical need in the workforce through sequential, high-quality course work, work-based learning, and leading industry certifications.
- **Premont Independent School District (Premont, Texas)**. In collaboration with the Rural Schools Innovation Zone, the Leaders in Future Technology Startup Incubator helps students learn about technology and use it to solve real-world problems in their community.
- **Ravenna Public Schools (Ravenna, Michigan)**. The Start the Buzz Let's Grow MainStreet project empowers students to develop competencies and build portfolio experiences in technology, science, and business — with the goal of stimulating economic growth within the Ravenna agricultural community.
- **Woodlake High School (Woodlake, California)**. The Woodlake Aviation Pathway prepares students for regional aviation careers or postsecondary degrees, utilizing drone operations, geometry, and aerodynamic principles.

1. Program introduction: Premont

Learn more about Premont Independent School District's program, its history and context, and its team.

Description

The Rural Schools Innovation Zone (RSIZ) partnered with Premont Independent School District to launch the Leaders in Future Technology (LIFT) Startup Incubator. Through capstone projects and field trips, students develop entrepreneurship and technology skills.

Students are divided into two teams: the Grow Your Own Educator team, for aspiring educators and educational leaders, and the STEM Discovery Zone team, for aspiring engineers and technology professionals. Each team aligns with an existing career and technical education (CTE) pathway.

Students in both teams earn competency-based badges — "Explore Emerging Tech" and "Working in a Digital World: Professional Skills" — through IBM SkillsBuild while learning entrepreneurship principles through a series of classroom-based lessons and guided activities.

Outcomes

During its first two years, the program demonstrated success through student engagement, development of career-readiness skills, and attainment of industry credentials.

- **Student engagement.** Students demonstrated engagement with the content by completing entrepreneurship projects aligned with their interests. For example, the first-year STEM Discovery Zone team developed a concept for an online marketplace to help communities identify grant opportunities to fund public projects. In the program's second year, the STEM Discovery Zone team developed an idea for a drone response system to fight forest fires in their community. In each year of the initial implementation phase, the Grow Your Own Educator team designed a concept for a portable X-ray machine for sports.
- **Career-readiness skills.** Through group projects and interaction with subject matter experts, students developed skills in collaboration, problem framing and solving, comfort with ambiguity, and communication. The exposure to professionals outside of students' families and educators was particularly valuable in building confidence in communication. Students also participated in a summer field trip to Austin, Texas, to learn more about the intersection of technology and entrepreneurship.

- **Industry credentials**. All of the Grow Your Own Educator students and 80% of the STEM Discovery Zone students obtained IBM SkillsBuild badges. These credentials demonstrate skills and provide a sense of accomplishment for both students and educators.

Team

The schools and core team members involved are listed below.

- Schools involved: Premont Collegiate High School, Falfurrias High School, Freer High School
- Team Lead: Michael Gonzalez (Executive Director, RSIZ)
- Community Engagement Manager: Heather Thomas (Program Manager, CareerCraft)
- Classroom educators: Robert Ross (STEM Discovery Zone), Velma Marin (Grow Your Own Educator)

As you reflect on Premont's program, consider:

- What outcomes are you hoping to achieve for your students and broader school community?
- Who within your community might support program design and delivery?

2. Foundational considerations

Before your own planning begins, consider the following foundational elements that were in place when the team at Premont first developed its program.

Summary

The Leaders in Future Technology (LIFT) Startup Incubator is an initiative of the Rural Schools Innovation Zone (RSIZ), first implemented at Premont Collegiate High School. The RSIZ is a partnership between three independent school districts in South Texas: Brooks County, Freer, and Premont independent school districts. The RSIZ includes five "career academies" that align to specific CTE pathways. The structure of the RSIZ allows students in any of the three districts to attend programs at other academies while maintaining enrollment within their home school and district.

Opportunity

Located in south central Texas, Premont's local economy is primarily driven by farming. In the surrounding region, the largest industry sectors include healthcare, mining, quarrying, oil extraction, and education.

To improve student outcomes and career readiness, the RSIZ established CTE pathways such as engineering and education. The RSIZ's mission is to reinvent the rural education experience by providing students in rural communities with high-quality opportunities for postsecondary success. LIFT was designed to strengthen entrepreneurship skills in two existing academies (engineering and education) as an elective. This made the RSIZ well-suited to a program like LIFT, due to its alignment with the RSIZ's mission and core activities.

LIFT's project-based learning was designed to equip students with entrepreneurial experience and skills to prepare them for a wide variety of careers. These skills include communication, cooperation, organization, self-motivation, adaptability, and trustworthiness.

Community support

The presence of existing champions for entrepreneurship education in the local community contributed to the program's success. The RSIZ is run by Michael Gonzalez, who was previously the principal of Premont Collegiate High School and is the team lead for LIFT.

The superintendent at the time, was supportive of the academies. Premont's principal, Claudette Garcia, was also influential in continuing the schools' academic improvement efforts founded upon the RSIZ academies.

Budget

A high-level overview of Premont's budget can be found in Appendix A. Student laptops, third party student trainings and expenses associated with the summer field trip – including transportation and hotels for students and chaperones – comprised the bulk of the costs. In addition to what is noted in Appendix A, the Community Engagement Manager role was a substantial development cost.

Premont funded its program primarily from the prize purse awarded through the Rural Tech Project.

As you explore designing your own program, consider:

- What does your school have in common with Premont's community? What is different about your school?
- What student, community, and/or workforce needs would this program meet?
- What support already exists within your community?
- What funding sources are available?

3. Program details

As you begin thinking about implementation, learn from how Premont structured its program design and how it achieved its desired outcomes.

Summary

The Leaders in Future Technology (LIFT) Startup Incubator is a one-year program. As part of an elective capstone project, students proceed through a series of lessons that teach them how to develop a technology product to solve a local problem. They complete market research and speak to industry experts, learning about various technologies that could support their work. They then prototype their product and create a final presentation to share their solution.

Teachers use lessons and modules designed by CareerCraft to support project development and skill-building lessons. The Community Engagement Manager (CEM) regularly meets with students and teachers to support progress on projects. The program also utilizes IBM SkillsBuild self-paced courses.

The capstone project was formatted as a weekly club for students in both academies. This was done to accommodate the variation in student schedules due to enrollment in other pathways, work-based learning commitments, and limited transportation options.

Primary objectives

The program is designed for students to build career readiness skills and obtain industry credentials. These outcomes grow career confidence and knowledge, ensuring students can thrive in their local communities and beyond. The program also helps students develop a better understanding of product development and entrepreneurship.

Program activities

The program includes capstone project work and community engagement activities, such as field trips. Below is a description of these activities.

Capstone project work

The program's lessons provide students with step-by-step instructions for each stage of product development. Students learn how to collaborate on problem discovery, problem framing, market and subject matter expert research and analysis, and prototyping. Students then learn how to communicate the strength and viability of their product ideas through a pitch deck. In doing so, students build skills in clear, concise storytelling and visioning.

Students also learn about different technologies and their applications, in part through IBM SkillsBuild. This includes short courses on blockchain, cloud computing, and artificial

intelligence. Students then include speculative applications of these technologies in relation to their product in their pitch deck presentations.

Community engagement

As part of the research process, students gather insights and product feedback from relevant subject matter experts.

During the initial phase of the program, students connected with industry leaders during a three-day field trip to Austin, Texas. This included visits to five incubators across the city, many of which are connected to universities interested in preparing students to become entrepreneurs or work in the entrepreneurship ecosystem.

Competencies

Competencies developed were predominantly tracked through qualitative data and the industry credentials. These competencies include:

- **Technical skills**, such as product development, ideation, and prototyping. This also includes exposure to new technologies, like blockchain and cloud computing.
- **Career-readiness skills**, such as communication, collaboration, time management, and adaptability.

Staffing

Premont collaborated with community leaders across the district to design and pilot this program. Roles and responsibilities included:

Role	Responsibilities	Expertise
'STEM Discovery Zone' educator	Teach hands-on entrepreneurship curriculum to engineering academy students (approximately 5-10 students).	STEM education, project-based learning, student engagement.
'Grow Your Own Educator' educator	Teach hands-on entrepreneurship curriculum to education academy students (approximately 5-10 students).	Early childhood development and education, project-based learning, student engagement.
CEM	Support students, provide on-the-ground assessment, connect community members to relevant school staff.	Community outreach and industry relationship building.
Principal	Collaborate with team lead, classroom educators, and CEM.	Program design and community engagement.

Role	Responsibilities	Expertise
Executive Director of RSIZ (team lead)	Manage strategy and execution of program.	Program design, school administration, strategic planning.

Time commitment

Before considering capacity to build a program, a team must determine if students, classroom educators, administrators, and local community leaders have time available. This includes time to collaborate and iterate with each other and with other community stakeholders.

Program design and implementation. As part of the Rural Tech Project challenge, Premont's entrepreneurship program development spanned three years between proposal and refinement.

Propose	Plan	Run	Refine
June - Oct. 2020	Jan. - July 2021	July 2021 - June 2022	July 2022 - June 2023

In the proposal phase, the team lead created the vision for the program; generated buy-in from district leaders, administrators, educators, and students; and recruited the right talent. The classroom educators then developed and tested new curriculum while the CEM acted as on-the-ground eyes and support. The CEM worked with the team lead and classroom educators to refine or adjust strategy, providing real-time assessment and student counseling. The CEM also found, built, and maintained relationships with community members.

Below is a table that provides insights into the amount of time Premont stakeholders dedicated to the design and initial implementation of the program over the three years.

Stakeholder	Activities	Time required
CEM	Curriculum-building	80 hours one time
	Community outreach and engagement	10-20 hours per semester
	Student support	10-20 hours per semester
	Reporting	10-20 hours per semester
Classroom educators	Iterating and reporting on curriculum	1-2 hours per week

Stakeholder	Activities	Time required
Administrator	Program design and planning	30-40 hours one time
Community member	Program consulting	20-30 hours one time

Ongoing program execution. Below is a table that describes the amount of time needed to administer and participate in Premont's entrepreneurship program after the initial implementation phase.

Stakeholder	Activities	Time required
Students	Capstone project	1-2 hours of class time and coursework per week
	Field trip (optional)	6-10 hours for preparation; 3-day event
Classroom educators	Onboarding	5-10 hours one time
	Capstone project	1-2 hours of class time and coursework per week
	Cross-team communication and collaboration	1 hour per week
	Planning and reporting	1 hour per week
Administrators	Cross-team communication and collaboration	5 hours per semester
	Planning and reporting	5 hours per semester
Community members	Cross-team communication and collaboration	1 hour per month
	Mentoring	1 hour per month

Resources

In addition to the human resources required for this program, the team utilizes the following technologies in their courses.

- Chromebook laptops

As you move your program from concept to implementation, consider:

- What program activities will you need to create or adapt to meet the needs of your school community?
- What competencies are you hoping students will develop?
- Within the school community, who will work on this program? How much time could participants (including students, educators, and administrators) spend?
- If current staff cannot fill all the needed roles, who and how will you recruit?
- What additional resources will you need?

4. Community engagement

Learn from Premont's community engagement strategy, including the specific individuals and entities involved, and why and how they were engaged.

Summary

Community engagement is vital for CTE pathway development. During the implementation phase of the program, the Premont team leveraged student excitement in the first year to build and maintain momentum in the school and wider local community.

Engaging the school community

As mentioned, the program is an elective capstone project within the Rural Schools Innovation Zone (RSIZ) engineering and education academies. This allows Premont to target its student recruitment efforts on an already invested, close-knit cohort of students.

The Premont team first presented to the academy directors to gauge interest. Directors of the engineering and education academies both expressed interest; instructors within those academies then shared the opportunity with students in their classes.

Students interested in strengthening their employability skills were encouraged to submit applications. The nature of an application-only elective helped self-select students who were interested and committed to the content.

Engaging external partners

The field trip to Austin was a key touchpoint for community engagement and industry exposure. In the first year, students visited various incubators, including Capital Factory, IMPACT Lab at Austin Community College, and the Fashion Incubator at Austin Community College. Students also visited Trinity University in San Antonio to learn about its entrepreneurship and technology programs.

The final student presentations were another key touchpoint for community engagement. In the second year, attendance included superintendents from two of the three schools in the RSIZ, the county commissioner, the chief of police, a Texas Ranger, the Mayor of Premont, four Premont ISD school board members, one RSIZ board member, and two parents.

Students connected with local community leaders during design and market research activities. Students also communicated virtually with industry experts for market research. For example, the 2022-2023 Grow Your Own Educator students met with Marissa Holliday from the University of Colorado and C.J. Neumann from the Seattle Seahawks. And the STEM Discovery Zone team talked to a student's grandfather, who is a local farmer, to get his perspective on local wildfire issues and the team's drone solution.

As you design your community engagement strategy, consider:

- How are you already connected with each stakeholder group? Who are your existing champions?
- Who would a dream industry or postsecondary partner be, and what would their partnership bring to the program?
- Who from your existing school community can help forge connections?
- What is your outreach strategy, and what are your expectations?

5. Program evaluation

Learn more about Premont's approach to evaluating program outcomes and the tools used to track results over time.

As part of the Rural Tech Project, Premont created a logic model (template for reference in Appendix B) to align on the goals, activities, and outcomes they would like to track. When the program was in its second year, the Rural Tech Project provided a tool to facilitate iterative program improvements over a 90-day period: the Plan / Study / Do / Act framework (Appendix C).

Program milestones

Program milestones typically follow school calendars. Given this program's involvement in the Rural Tech Project challenge, Premont's program milestones were also situated within the challenge phases. The program milestones listed below follow the challenge structure.

Run	Refine
July 2021 - June 2022	July 2022 - June 2023
• Students visited five technology incubators during their field trip to Austin, Texas. • Teams completed their capstone pitch decks.	• Grow Your Own Educator students added details for how new technologies applied to their products. STEM Discovery Zone students restarted with a new product. • Second-year students presented product ideas at a community event with educators, district leaders, families, and local law enforcement. • Additional modules were created to support students in building technology and leadership skills.

Data collection

The program collected data on student engagement, student success, and career outcomes over the course of the two years.

Student engagement

The program collects relevant student demographic data, including gender, ethnicity, and socioeconomic status to better understand the diversity and inclusivity of their student body.

Student success

Student success is predominantly evaluated through the attainment of industry credentials (for example, IBM SkillsBuild badges) and qualitative data (for example, caliber of student presentations).

Career outcomes

Career outcomes data collection is focused on qualitative insights about students' employability skills. The team also tracks interest in technology by the number of students who enroll in a technology-related postsecondary program, builds technology products to solve community problems, and enters the workforce in a technology-related occupation after completing this elective. In addition, the team tracks the number of students in the academies (and specifically in this elective) who enroll in postsecondary institutions.

Key improvements

Over the first two years, Premont implemented key programmatic improvements based on qualitative and quantitative data collection and assessment.

- **Increasing support.** In the second year, the Community Engagement Manager (CEM) built in more time to support LIFT educators and students. This included meeting on a regular cadence with students to help them move forward on their projects, connect to relevant subject matter experts, and practice their presentations.
- **Implementing a train-the-trainer model.** The CEM also codified content for lessons and projects to support a train-the-trainer model. Materials included: Pacing Guide, Master Entrepreneurship Facilitator Guide, Master Entrepreneurship Facilitator Guide Slide Deck, Grow Your Own Educator Student Guide and Portfolio, and STEM Discovery Zone Student Guide and Portfolio.
- **Expanding content**. During the initial planning phase, the Google Analytics certification was identified as a prime certification opportunity for LIFT students to pursue and obtain. Feedback from instructors indicated that this year's students did not yet have the foundational knowledge necessary to successfully obtain the certification. The team transitioned to competency-based badges from IBM SkillsBuild.

As you determine your own program evaluation approach, consider:

- What are the major milestones you would like to accomplish in the first 30, 60, and 90 days? What would success look like in years one, two, and three of the program?
- What data would help you understand your program's performance?
- How would you collect that data within the systems that currently exist? What could you build or change to collect and analyze that data?
- What would a logic model for your program look like?

6. Sustainability

Learn more about Premont's short-term and long-term visions for its program.

Summary

Premont designed its program to be self-sustaining and not reliant on specific people for long-term sustainability. Most of the curriculum and modules can be incorporated into other classes or academies across the Rural Schools Innovation Zone.

Moving forward, the team plans to integrate the content directly into CTE pathways, rather than living outside the classroom as a standalone program. For example, the engineering educator plans to integrate the content into their course next year. This will

expand the program's reach to include more students who participate in Premont's existing CTE pathways.

Community engagement

Premont intends to continue building relationships with Austin-based entrepreneurs and technology leaders, along with local community leaders. The University of Texas-Rio Grande Valley's entrepreneurship incubator will also be contacted for future engagement and program support.

Staffing

Given the importance of the Community Engagement Manager (CEM) role in ensuring the success of the program, the team intends to continue working with CareerCraft to facilitate community engagement and build industry partnerships.

Funding

There were no significant additional material needs to sustain the program. The biggest need for ongoing supplemental funding is to cover the ongoing cost of a CEM, as noted above.

As you determine your own program's longevity, consider:

- What are your goals around sustaining and growing your program?
- What is the intended length of the program? Will your program continue indefinitely, or will it be designed to last for a certain number of years?
- For programs designed to exist indefinitely, how might the program adapt to evolving student, school, industry, and community needs over time?
- What would be needed to achieve the goals and vision described above? What staffing, funding, and community engagement would be required?

Appendix A: High-level budget

Budget item	Relevant notes	Approximate amount ($)
EXPENSES		
Laptops	One-time purchase	25,000
Entrepreneurship training with 3 Day Startup for students in year one (including how to prototype, conduct customer discovery and pitch)	One-time purchase	15,000
Technology training with Del Mar College for students in year one (including how to create marketing campaigns)	One-time purchase Switched to IBM SkillsBuild (free) in year two	2,500
Field trip to Austin	Reoccurring	4,000
Total spent		**46,500**

Appendix B: Logic model template

PROGRAM GOALS What are your latest program goals? Make updates as needed.	1. 2...

CURRENT CONDITIONS What are the starting resources available for your program? Consider **strengths**, **challenges**, or any neutral conditions you assume will be true and necessary for your program to launch.	**EXTERNAL FACTORS** What are the external factors — **risks** and **opportunities** — that may impact your work? Some factors you might consider to be unpredictable or beyond your control, but others may benefit your program or be manageable with forward planning.
1. 2...	1. 2...

RESOURCES	→	**ACTIVITIES**	**OUTPUTS**	→	**OUTCOMES**	
What resources do you need to achieve your goals?		What are students and staff doing as part of the program?	What staff or structural changes will result from each activity?		What short-term outcomes and measures do you anticipate as a result of each activity?	What long-term outcomes and measures do you anticipate as a result of each activity?
1. 2...		1. 2...	1. 2...		1. 2...	1. 2...

VALIDATION Why are these the right activities to help you reach your target outcomes and goals?	

GAPS What is missing that you will need to consider in order to achieve the desired outcomes?	

Appendix C: Plan / Study / Do / Act framework

Beginning of cycle	**PLAN**	What is the specific process change that you will test and why? What are you hoping to learn? What are your prediction(s)? What specific steps have you planned to enact this change? What data collection tool(s) will you use? When and for long will you test? Who is the project owner(s)? Who else will be involved, including who will be the tester(s)?
End of cycle	**STUDY**	How well were you able to answer each learning question? How do the results compare to your prediction(s)? What did you learn?
	DO	What happened, including what data and observations did you collect?
	ACT	What will you adapt, adopt, abandon, or repeat again — and why?