



Ignite Robotics

Community Development Consulting Program

Project Manager: Khoi Dam

Consultants: Benjamin Strupinski, Chloe Song, Kameron Ly, Gunashree Rajendra Kumar, Arushi Choudhury, Mira Patel, Lainey Merrill

Agenda

- 01** Company Overview
- 02** Research and Findings
- 03** Recommendations
- 04** Implementations

Company Overviews

Company Overview

Ignite Robotics is a non-profit organization providing competitive after-school extracurriculars for middle and high school students. Ignite Robotics hosts mainly VEX robotics on both locally and national scales. More importantly, Ignite Robotics is among the most successful and biggest programs in Washington state well.

Operations At A Glance

17 High School Students

10 Middle School Students

Challenges Being Faced.

Management Accounting Planning

Difficult to maintain work load

Coexisting problem

On-boarding problem

Highschool management

Research and Findings

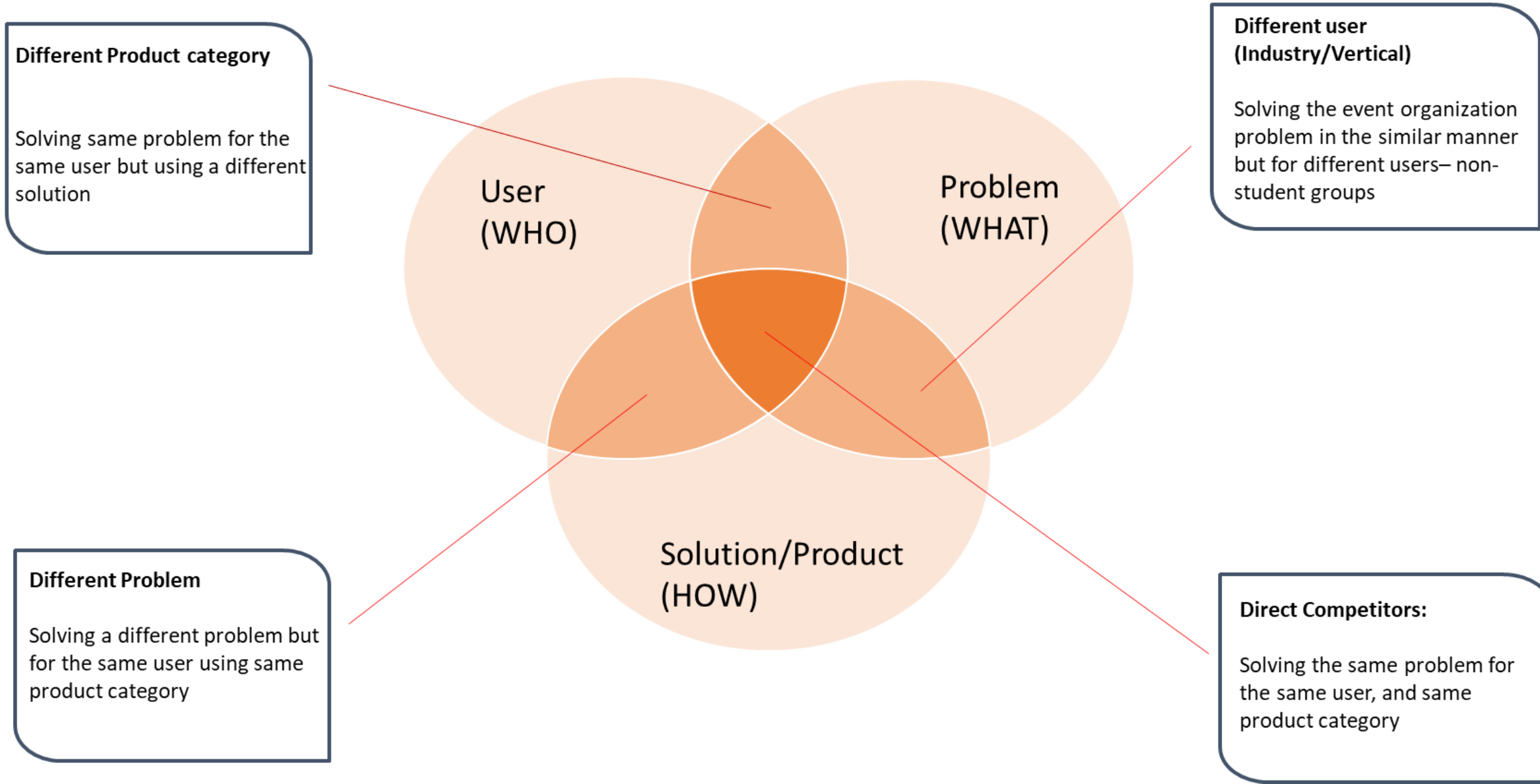
Work Area #1

SWOT Analysis Chart

Defining Current Problems and Finding Potential Next Steps

Strength	Weakness
<ul style="list-style-type: none">• The team has a proper organization.• Owns a great setting for users (buildings, etc.)• Engaging commitment for students' passion for STEM program	<ul style="list-style-type: none">• Lack of network/connection with schools.• Low participation for donation program.• Insufficient advertising in marketing efforts.
Opportunities	Threats
<ul style="list-style-type: none">• 28+ schools in Bellevue district= 28+ potential stakeholders• High academic enthusiasm of parents in Bellevue district.• Proven growth of the organization.	<ul style="list-style-type: none">• Need to create strong budget plans to make the organization stable.• Lack of network --> low advertisement.• May easily turn into an after-school study hall without proper explanation of the org.

Direct and Indirect Competitors



Direct Competitor Analysis



FIRST Robotics

- Central organization
- Regional events
- Recruits and trains volunteers
- Collaborates with partner organizations, sponsors, schools, and community
- **Technology platform** for event registration, team management, scorekeeping, communication.
- **Game Design Committee** for developing the rules, requirements, and theme for each year
- **Q&A forum**
- Updates and Clarifications
- Referee and Volunteer Training
- Feedback Mechanisms
- Continuous Improvement



RoboCup Federation

- **Central organizing committee** oversees the various leagues and competitions within RoboCup.
- **Event coordinators, judges, referees, technical staff**
- Events are hosted by a **local organizing committee (LOC)**.
- RoboCup utilizes **technology platforms** similar to FIRST
- Individual leagues focusing on specific robotics challenges. Each league has its own committee (**Technical League Committee**)
- Review and update the **rulebooks**
- The technical committees may introduce rule changes or updates based on **feedback**
- Makes official **announcements** regarding rule updates
- **Q&A forum**
- **Referee and Volunteer Training**
- **Feedback Mechanisms**



BEST Robotics

- Central Organization
- Regional Hubs
- Local Organizing Committees
- Volunteer Recruitment and Training
- **Event Planning and Execution:** Includes kickoff events, design workshops, build days, practice rounds, and the final competition
- Technology Platform
- **Sponsorships and Partnerships:** Partners with sponsors and industry partners to cover event costs, provide prizes and awards for participants
- Rule Development Committee
- Q&A Forum
- Volunteer Training
- Feedback Mechanisms

Research and Findings for Events and Planning

- Similarities with indirect competitors:
 - DECA and FBLA: Limited volunteer help, participation, and competing priorities
 - Optional short answer question at end for improvement ideas
 - Free response
 - Testimonials for website/socials and general marketing purposes



Work Area #2

Researching and Findings for Financials

Operating Expense Ratio

$$\left(\frac{\text{Operating Expenses}}{\text{Total Revenue}} \right) * 100$$

A rising ratio may indicate increased workload and need for more staff.

Profit Margins

$$\frac{\text{Net Income}}{\text{Total Revenue}}$$

Declining profit margins may indicate increased financial complexities and a need for more staff.

Revenue per Employee

$$\frac{\text{Total Revenue}}{\text{Number of Employees}}$$

A decreasing ratio suggests that current staff is stretched thin.

Researching and Findings for Financials

Create a budget for effective financial management

1. Accurate budget planning
2. Set financial and program goals
3. Evaluate prior year's finances
4. Financial analysis to refine budget to make it more accurate

Effective Fundraising

1. Increase fundraising allows for more income
2. Target audiences
3. Manage and set goals for sponsorship committee

Work Area #3

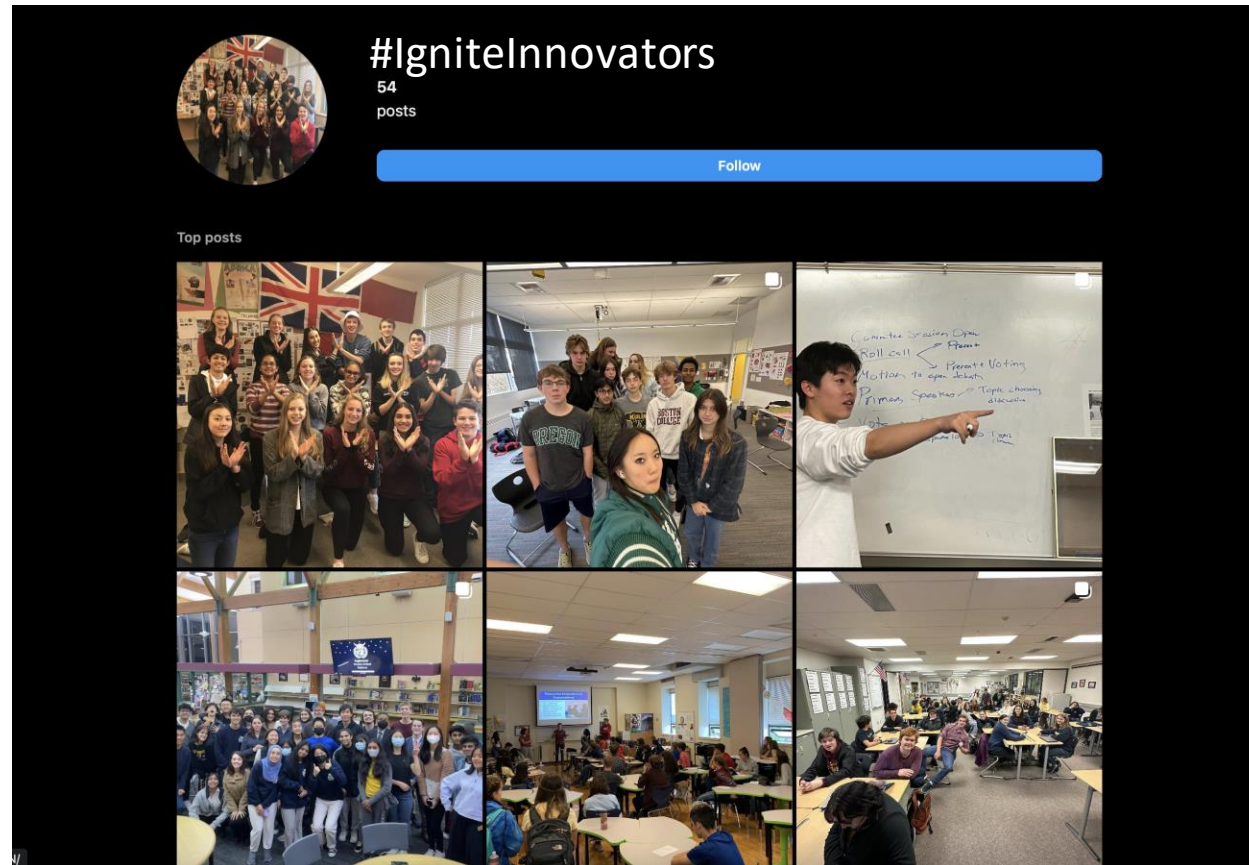
Research and Findings for Student Experience

- Surveys to interview students and parents
 - Incentivize with offers (stickers, pens, raffle for a free T-shirt, etc.)
 - Scale: strongly agree, agree, neutral, disagree, strongly disagree
 - Find most important areas of improvement
 - Questions revolving around coexistence, overall experience (student and parent), event organization
 - Optional short answer question at end for improvement ideas
 - Free response
 - Testimonials for website/socials and general marketing purposes

Recommendations

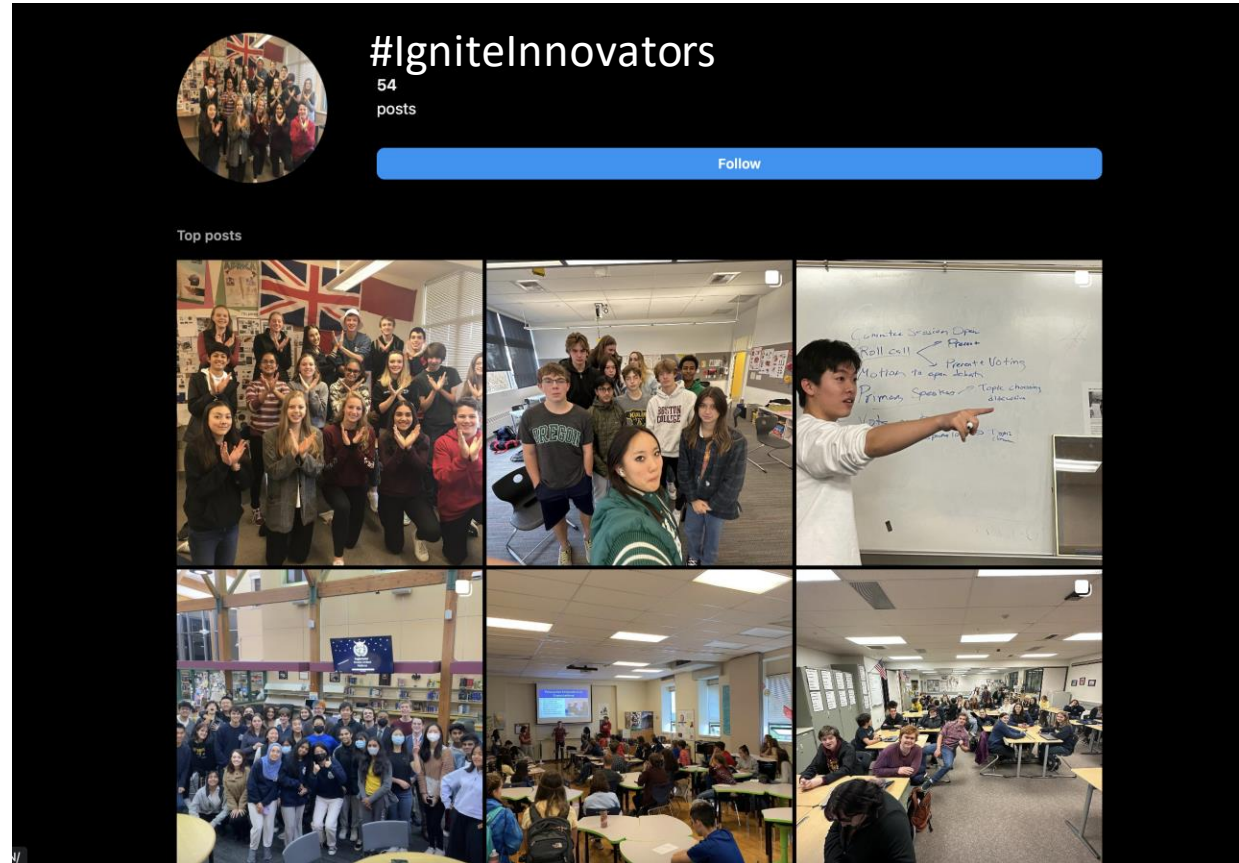
Work Area #1

#IgniteInnovators campaign



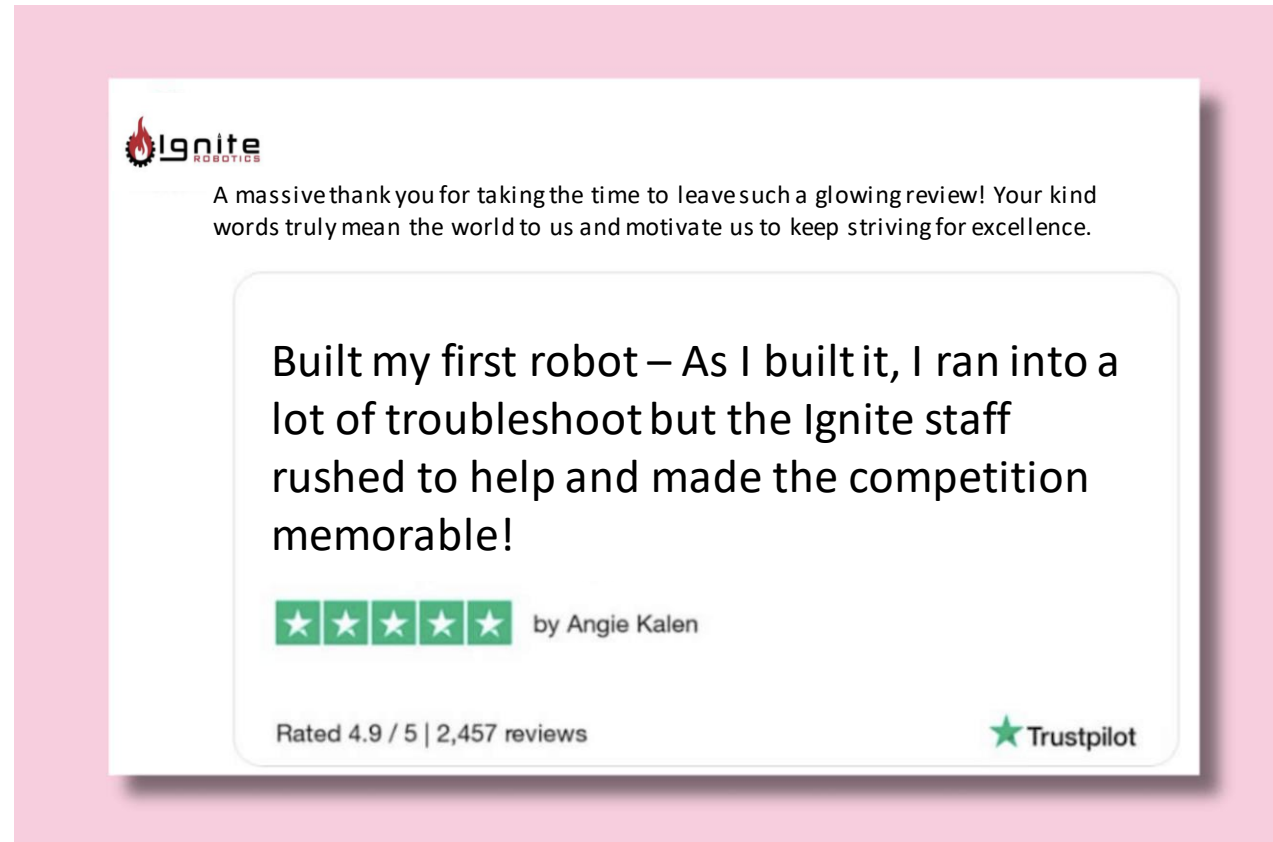
#IgniteInnovators campaign

Posts that include at least 1 hashtag get an average of 29% more interactions for accounts that have less than 1,000 total followers.



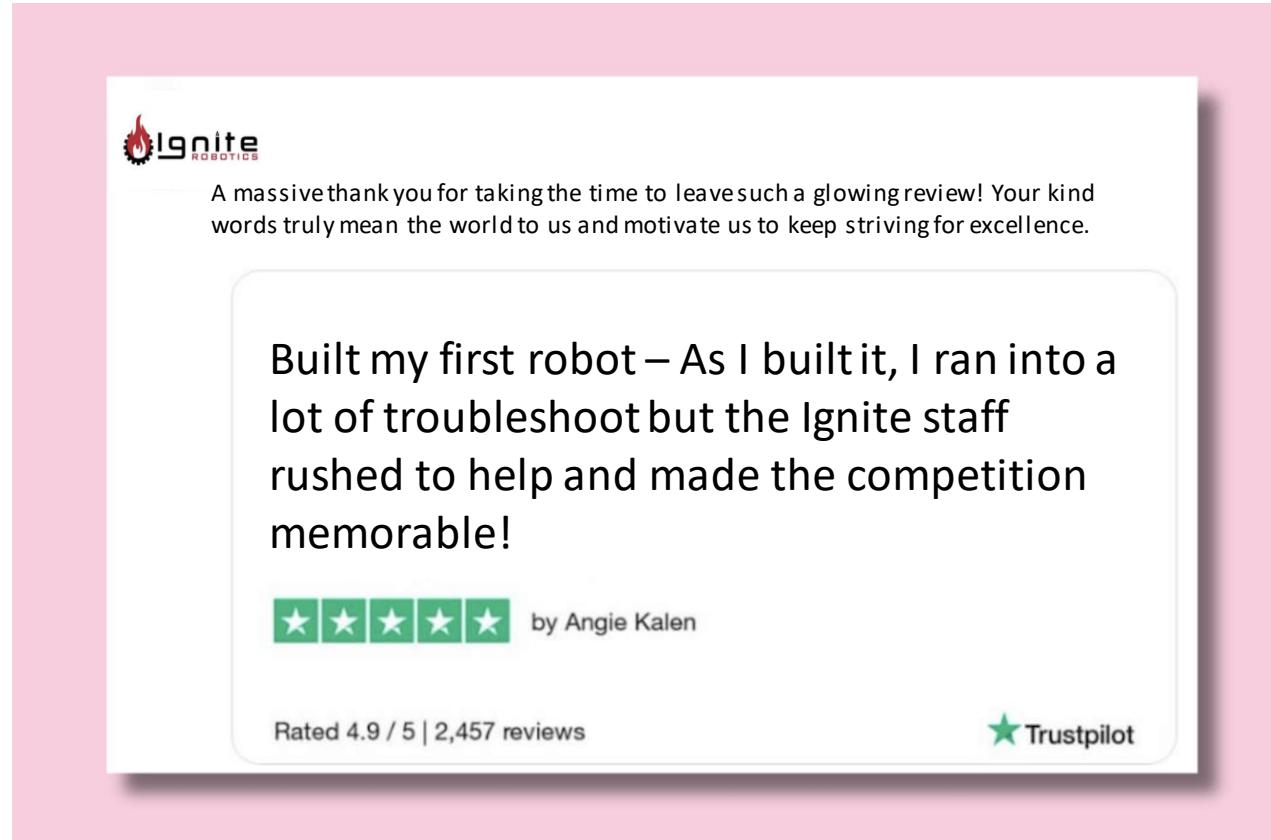
Using only 1 hashtag in a post on Facebook results in an average of 593 engagements per post.

Customer Feedback on Social Media



Customer Feedback on Social Media

Faster review response times are closely linked to having a positive reputation.



Example: When hotels start responding to customer reviews, they receive 12% more reviews and their ratings increase, on average, by 0.12 stars.

Local Media Outlets



- E-newsletter option as well to connect with a wider audience
- Lesser known

The Seattle Times

- Well-known newsletters available physically and virtually
- Delayed response time and costly



- STEM-centered newsletter
- Mostly targets the Tri-Cities area

Student Volunteers

How volunteer for Ignite Robotics?:



Building strong STEM connection



Cost-efficient learning experience



Getting to interact with advanced technical products to enhance your skills



Making a good experience for future resume and college application

How To Bring Volunteers In

Host Virtual Informational Sessions and Workshops

Organize virtual events that are accessible to a broader audience! Host workshops where students can try and see what they can gain from this opportunity and promote Ignite Robotics in detail. Make sure these sessions are informational and well-organized for professional presentations.

Career Networking Events

Organize events where students can network with professionals in STEM industries, including past volunteers who have successfully transitioned into professional roles. This way, students can learn how to use this volunteer opportunities to build their experience stronger and explore what this experience can take them to.

Preliminary Recommendations

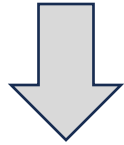
Standardization of Processes

*Establish
Standardized Setup
Procedures*



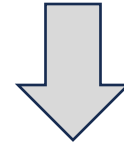
- *Field assembly*
- *Equipment setup*
- *Signage placement*
- *Layout configuration*

*Utilize Modular Setup
Components*



- *Easily assembled*
- *Disassembled*
- *Modular field elements*
- *Scoring system*
- *Signage*

*Centralized
Equipment Storage*



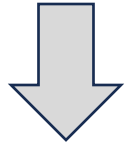
- *Organize competition materials*
- *Tools, and supplies*
- *Shelving*
- *Bins*
- *Labeling systems*

*Training and Skill
Development*



- *Workshops*
- *Rehearsals*
- *Familiarize with setup procedures*
- *Equipment operations*
- *Safety protocols*

Creation of Set-up Teams



- *Field setup*
- *Equipment setup*
- *Signage*
- *Layout*

Continuous Improvement



- *Refine the event setup procedures*
- *Feedback*
- *Lessons learned*
- *Best practices from previous competitions*

Pre-Event Setup Checklist



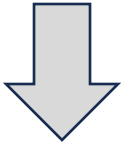
- *Setup tasks*
- *Equipment checks*
- *Safety precautions*

Real-time , Visual and Collaborative Documentation



- *Flowcharts*
- *Diagrams*
- *Infographics*

Post-Event Evaluation



- *Feedback from setup volunteers*
- *Competition organizers*
- *Participants*
- *Implement corrective actions as needed.*

Final Recommendation on Standardizing Processes



Modular Equipment Setup & Training

- Easily assembled and disassembled
- Re-configurable
- Signage placement
- Scoring Systems
- Workshops for Equipment operations and safety protocols

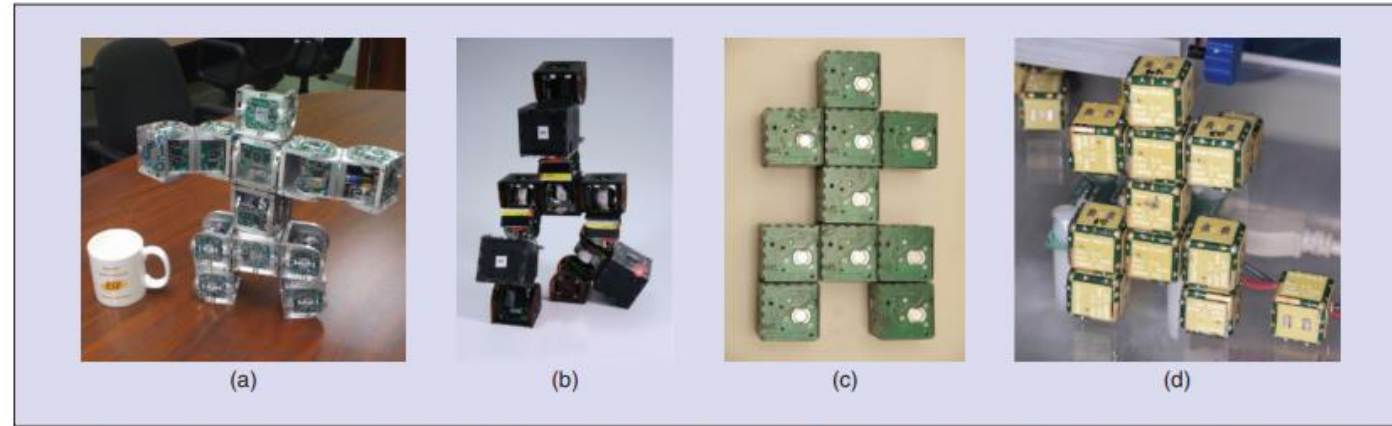


Figure 1. (a) Six Superbot modules assembled by hand to form a humanoid. (b) CKBot modules forming a similar structure that is able to self-repair itself after being damaged. (c) The Miche system lacks internal degrees of freedom, but it was produced through the self-disassembly of a 3×5 block of modules. (d) The humanoid formed by the Smart Pebbles system. (SuperBot picture courtesy of Polymorphic Robotics Laboratory, University of Southern California, Dr. Wei-Min Shen. CKBot picture courtesy of Prof. Mark Yim, University of Pennsylvania.)

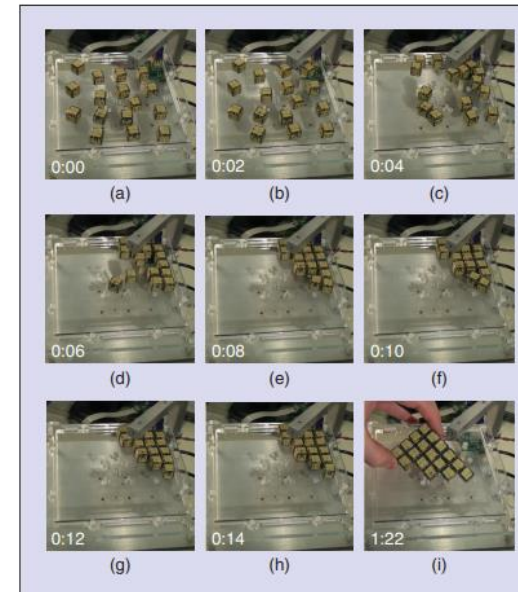
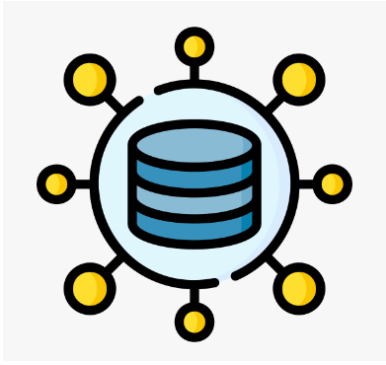


Figure 15. A collection of 16 randomly distributed Smart Pebble modules (each a 12-mm cube), and one fixed root module (back right of each video frame), self-assemble when placed on an inclined vibration table. (Picture courtesy of Daniela Rus, Distributed Robotics Laboratory at MIT.)



Centralized Storage

- Organize competition materials
- Tools, and supplies
- Shelving
- Bins
- Labeling systems





Real-time Visual and Collaborative Documentation

- Flowcharts
- Diagrams
- Infographics
- Pre-event Checklist

A screenshot of the JetStream collaborative documentation interface. The main workspace is a large grid with a central text box containing the text "What do we need to succeed?". A large play button icon is overlaid on this text. Surrounding the central text are several colored callout boxes: an orange box at the top left says "No more silos!" with a purple arrow pointing to it labeled "Andrea"; a pink circle on the right says "We've got some ideas!" with a black arrow pointing to it labeled "Natal"; and a blue box at the bottom left says "Meetings that don't put me to sleep!" with a red arrow pointing to it labeled "David". The interface includes a top navigation bar with icons for various functions, a left sidebar with a menu, and a bottom section titled "Snippets" which displays a list of captured knowledge items. The "Snippets" section includes a search bar, a "Read the docs" button, and a "Share your feedback" link. Below this, there are three cards: "Install our Slack app", "Capture with VS Code", and "Create your own snippet". At the bottom, there is a table listing captured snippets.

Source	Snippet title	Captured by
VS Code	Deleting a File in Linux	Steven Hall 2 hrs ago
VS Code	Walkthrough: Setting up a Python Environment	Samy Pesse 2 hrs ago
Slack	Enabling Visitor Authentication with Google SAML	Allison Bergson 2 hrs ago
Slack	GitBook Security Framework Overview	Steven Hall

Evaluations Mockup



Evaluations and Feedbacks

- Feedback from setup volunteers
- Competition organizers
- Participants
- Implement corrective actions as needed.



Ignite Robotics

Hi! Would you mind taking 2 minutes to complete this form? It would be great if you can submit your response by Mar 3, 2024. Thank you!

1. Rate the New Modular Equipment Setup



Ignite Robotics

Hi! Would you mind taking 2 minutes to complete this form? It would be great if you can submit your response by Mar 3, 2024. Thank you!

1. What went well for this competition?

Enter your answer

2. What needs improvement ?

Enter your answer

Work Area #2

Preliminary Financial Recommendations

Can Ignite hire a new employee?



Yes

How does Ignite address funding issues?



OPTION 1:

- Create an accurate budget
- Budget for new hire
- Need to increase income (student / event fees and fundraising)



OPTION 2:

Apply for loans and line of credit

Both options present a realistic opportunity for Ignite Robotics to create additional funding to support the hiring of an additional employee.

Option 1: Budgeting

Create an Accurate Budget

To account for the new employee, Ignite must properly allocate funding:

1. **Gather the data:** Gather all numbers (projected income, expense records, donors, programs, future goals, etc.)
2. **Allocate employee costs:** How much is Ignite wanting to pay the new hire? (Think about trainings costs, etc.)
3. **Create a budget workbook:** Organize information in one place. This can be automated via accounting software.
4. **Delegate responsibilities:** Have someone update projections and schedules consistently.
5. **Review and approve budgets:** Collaborate with the different programs, board, and staff to have the budget ready for review.
6. **Compare budgets vs. actuals:** Ask "where are the gaps?" And "what happened?" Adjust the new budget based on these findings.

Budget for New Employee

Finding out what costs are associated with hiring a new employee and their expected salary.

1. **Factors that influence employee costs:** cost of living in the city, local taxes, payroll taxes, benefits, etc.
2. **Costs of hiring process:** training costs, background checks.

Increase Income

After figuring out the projected employee costs, Ignite must adjust to cover the costs. Potential options include:

1. **Increase student fees**
2. **Increase fundraising**
3. **Make budget cuts**

Option 2: Loans

Government loans offer a reliable source of funding for small nonprofits looking to sustain their business model.

Working Capital Loans

Finance everyday business operations and short-term expenses.

- 501(c)(3) Working capital loans.
- There are several funding solutions from public and private sources.¹

SBA Loans

U.S. Small Business Administration loans and grants are government backed sources.

- Guaranteed by the government to cover a portion of lender's losses should the borrower fail to repay.
- Most popular is the SBA 7(a) loan because it offers longer repayment terms and lower down payments.

Nonprofit Line of Credit

Cashback plan that are mainly used for emergencies or new opportunities.

- Used for short term expenses, working capital, or until grants come in.
- Costs nothing when not being used.
- Able to pay off balance at any time or make installments.

¹<https://www.nerdwallet.com/best/small-business/small-business-working-capital-loans>

Non-Profit Line of Credit

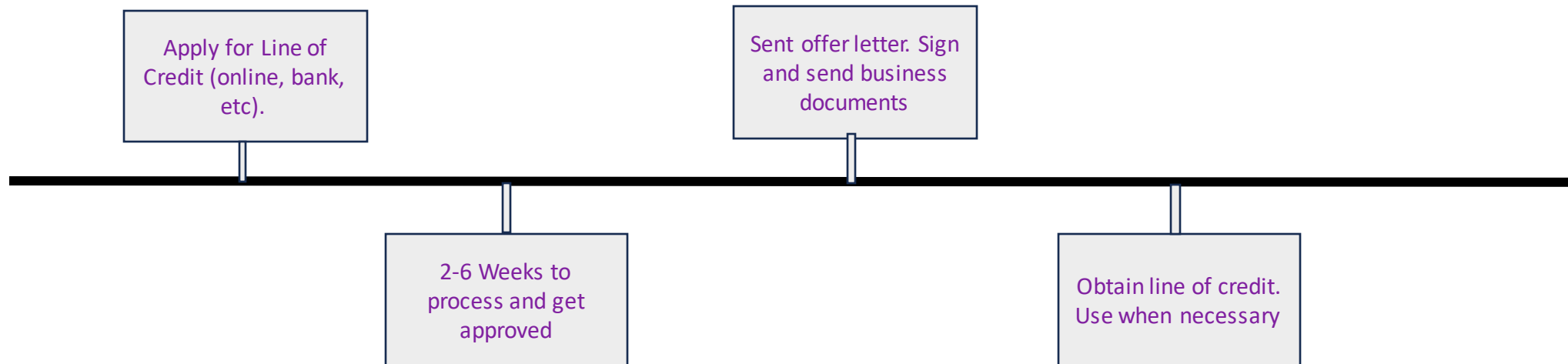
- Main recommendation
- Cost nothing to set up and nothing when not used
- Able to pay off at any time or make small minimum payments
- Offered through many banks and credit unions

STEPS

Online:

1. Fill out application
2. Review and sign offer letter
3. Send supporting business documents

<https://financingsolutionsnow.com/>



SBA Microloans

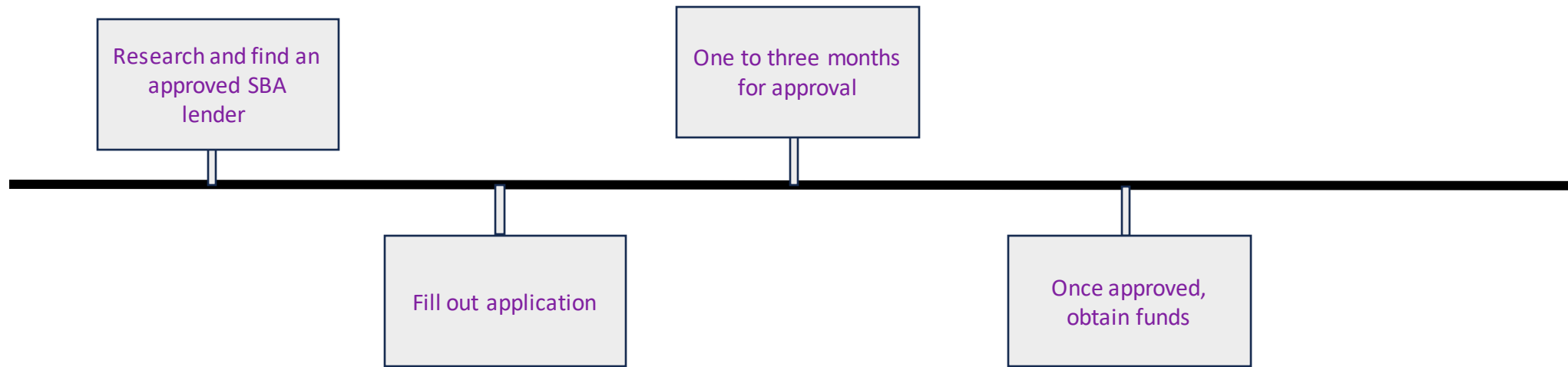
- Requirements and eligibility vary depending on SBA lender
- Average loan size is \$13,000
- Maximum repayment term allowed is six years
- Interest rates 8% - 13%

STEPS

1. Find SBA approved lender

Here is a link to approved SBA lenders

<https://www.sba.gov/funding-programs/loans/microloans/list-microlenders?state=WA>



LenDonate

- Facilitate and manage loans for nonprofit organizations
- Offers basic loan products
- Qualifications: 501(c)(3) organization with 3 years of operating history
- Loan minimum: \$50,000
- Includes a working capital loan (1-3 years with 3-10% interest)

STEPS

1. Submit application through website with funding request, program, impact summary, and financial history
2. Due diligence: LenDonate will assess the creditworthiness of the application
3. Get funds

<https://www.lendonate.com/borrowing/>



Accounting Software Comparison



- Costs upwards of \$15 per month for an early-stage business. Will move to around \$42 per month once the business is further established.
- Good for businesses that have only about 15 – 20 invoices per month.
- Offers 50% off for the first three months of using the software.



- Currently used by Ignite Robotics.
- Can cost anywhere from \$30 per month to \$200 per month depending on the amount of features that the business needs.
- One of the mostly commonly used accounting software for small businesses.
- Slightly costly and the level of upgrades required as the business grows is not ideal.



- Designed for businesses that provide a service (for Ignite that would be the educational programs they provide)
- Prices range from \$19 per month to \$60 per month depending on the membership form.
- Very good for creating budgets, sending estimates, and collecting payments from customers.

Financial Section KPIs

Loan Approval Timeline

- Track the time it takes from the loan application date to approval
- An employee should not be hired until after approval.

Monthly Accounting Savings

- If Ignite choses to switch to a different software, they should compare cost savings.
- Not necessary if Ignite sticks with QuickBooks.

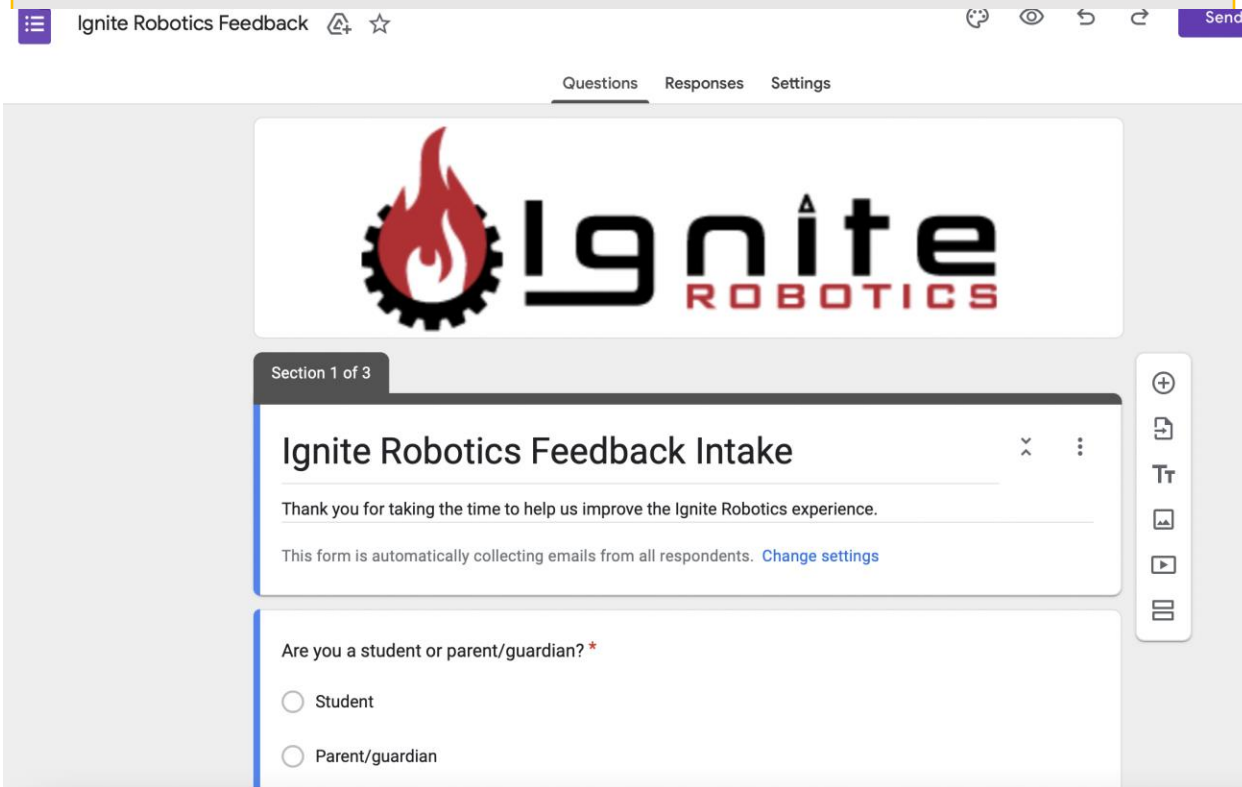
Gathering Continuous Feedback

- Continue conversations with the finance team to understand issues with current finance software.
- Keep an open line of communication.

Work Area #3

SURVEY MOCK UP

Google Forms



The screenshot shows a Google Form titled "Ignite Robotics Feedback Intake". At the top, there is a logo for "Ignite ROBOTICS" featuring a red flame inside a black gear. Below the logo, the text reads "Section 1 of 3". The form content includes a thank you message: "Thank you for taking the time to help us improve the Ignite Robotics experience." and a note: "This form is automatically collecting emails from all respondents. [Change settings](#)". The first question is "Are you a student or parent/guardian? *", with two radio button options: "Student" and "Parent/guardian". The form is displayed in a web browser interface with a "Send" button in the top right corner.

- Google Forms is approachable and simple to use, adjust, and navigate

Plan of Send Out

- Email survey to all participants, as well as participants' parents
- Send out a reminder to complete it a week after initial email
- Include incentive in subject line and place picture of product(s)
- Tuesdays + Thursdays 8-9 AM have high open rates*

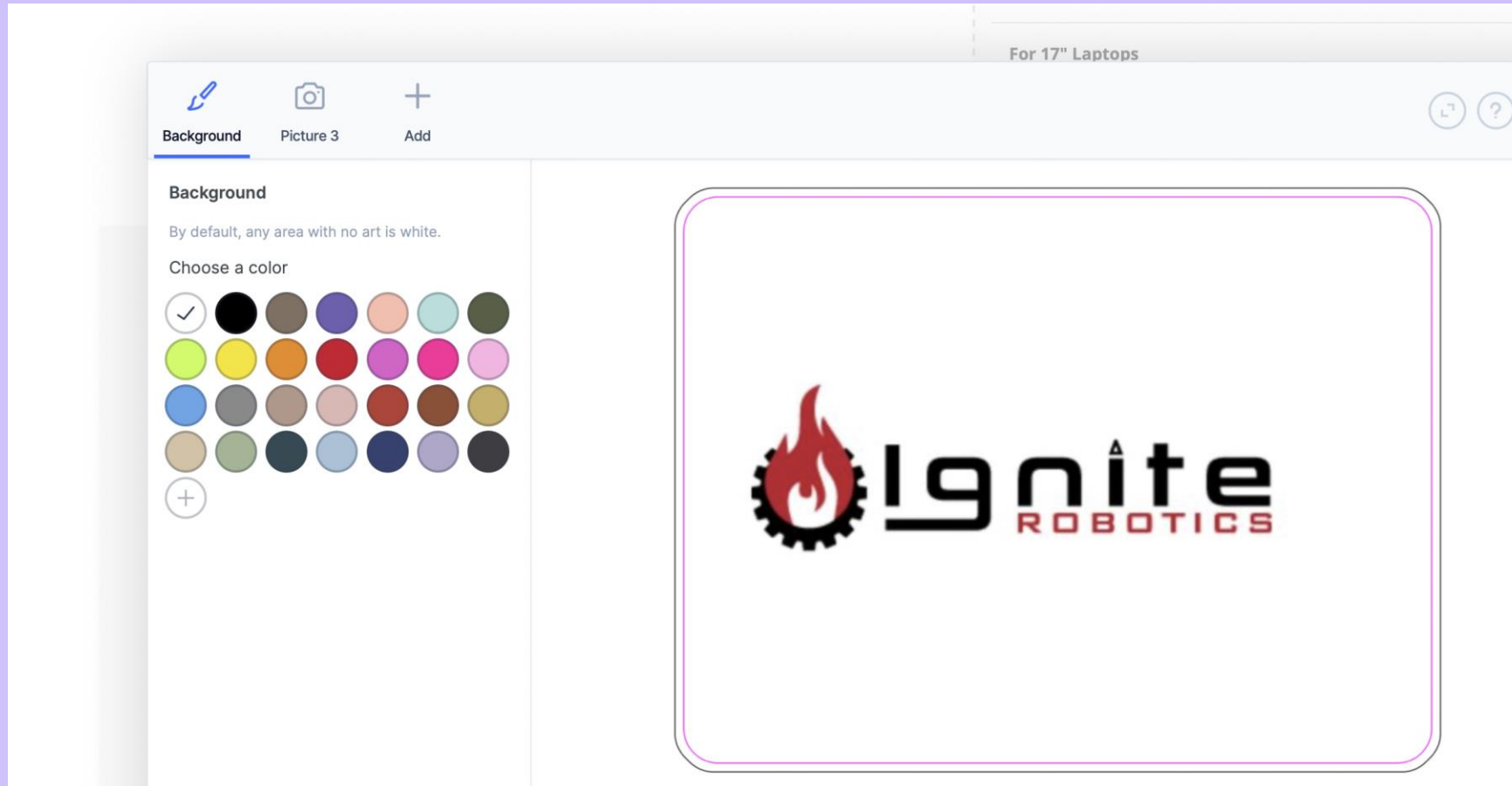
Incentives

- Everyone who applies is able to enter in a raffle for a Ignite Robotics laptop sleeve
- "incentives with reevaluation mechanism can increase user contribution levels after users reach the goals" **
 - o Shout-out the winner in the next survey email

*Source: Moosend

**Source: NLM

LAPTOP SLEEVE MOCK UP



- Roughly \$30
- Quick shipping
- For survey raffle winner

SURVEY MOCK UP

Which age group do you/does your student fall into? *

☐ Middle school

☐ High school

Which event(s) did you/your student attend? Please select all. *

☐ Ignite the Northwest Signature Event (1/13-1/15)

☐ Blaze's Tri-Ball Match-Up Middle School Competition (2/2)

☐ Add more

☐ Other

Section 3 of 3

Free Response

We appreciate your responses to these questions and look forward to reading them.

What should be Ignite Robotics's first priority for improving the student experience?

Long answer text

Is there anything else you'd like to tell the Ignite Robotics team?

Long answer text

Section 2 of 3

General Questions

Description (optional)

On a scale from strongly disagree to strongly agree, please answer the following questions: *

	Strongly disag...	Disagree	Neutral	Agree	Strongly agree
Overall, I had a...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel Ignite Ro...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel Ignite Ro...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I/my student w...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There should b...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Social Event Idea

Create an Evite

Title: "RoboSocial: Uniting Minds, Powering Futures"

Date: March 27, 2024

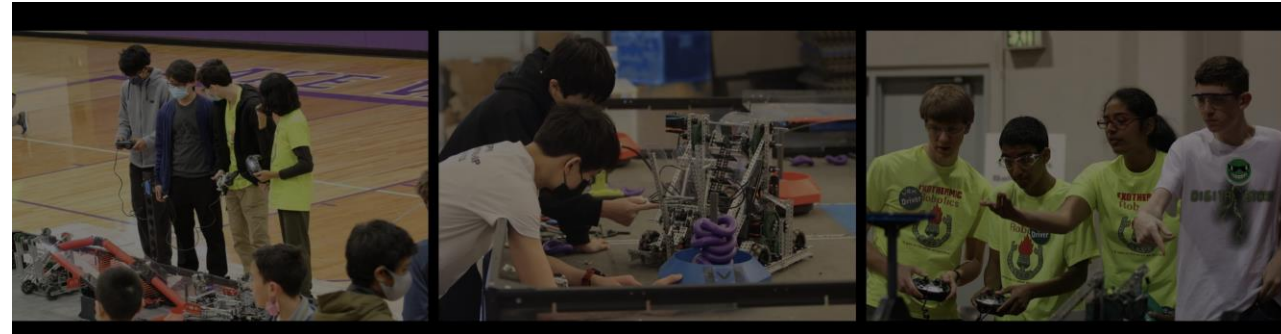
Description: Join us for an electrifying evening at RoboSocial! 🤖⚡ Dive into a world where innovation meets excitement as robotics enthusiasts gather to celebrate technology, creativity, and collaboration.

Event Highlights:

- **Interactive Demonstrations:** Engage with cutting-edge robotics projects up close.
- **Panel Discussions:** Hear from industry experts as they explore the latest trends and advancements shaping the future of robotics.
- **Networking :** Connect with fellow students, professionals, and innovators about robotics.
- **Core Competition:** Watch or compete in a robotics competition to win a sweatshirt.

Location: Lake Washington High School

RSVP Today! Limited spots available. Don't miss out!



SUMMARY

IGNITE FUNDING SOCIAL EVENT

- Create an event, showcase robots, offer purchasable merch
- Students and parents both involved, show the fun side of robotics

SURVEY AND LAPTOP SLEEVE IDEA

- Send out survey on Thursday around 1-3 PM
- Raffle winner, for entering survey, wins a ignite robotics laptop sleeve

MARKET VIDEOS

- Idea to show the fun side of robotics and take videos at the next competition
- Post the videos on the website for a more interactive experience

Implementations

Key Performance Indicators

Work Area #1

- Students and parents both involved, show the fun side of robotics

Work Area #2

- Raffle winner, for entering survey, wins a ignite robotics laptop sleeve

Work Area #3

- Post the videos on the website for a more interactive experience

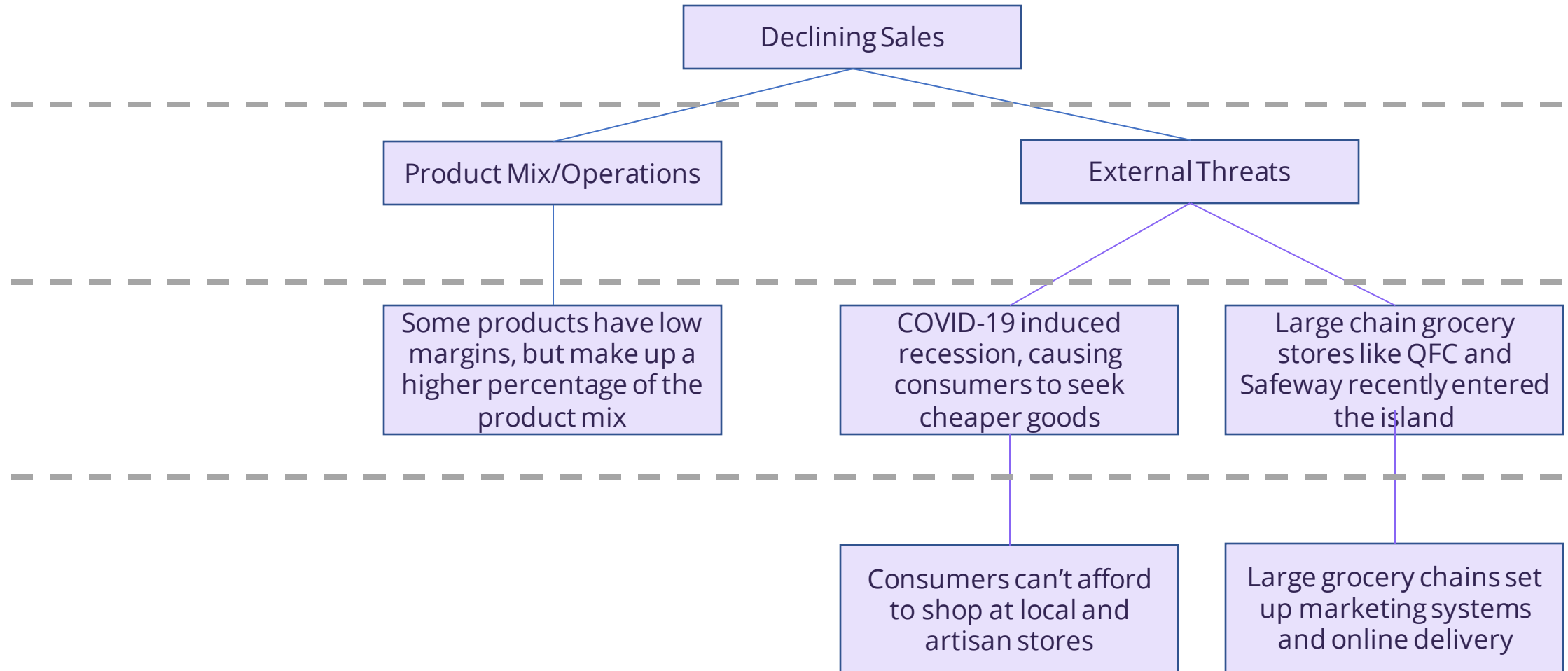


Thank you

SWOT Analysis

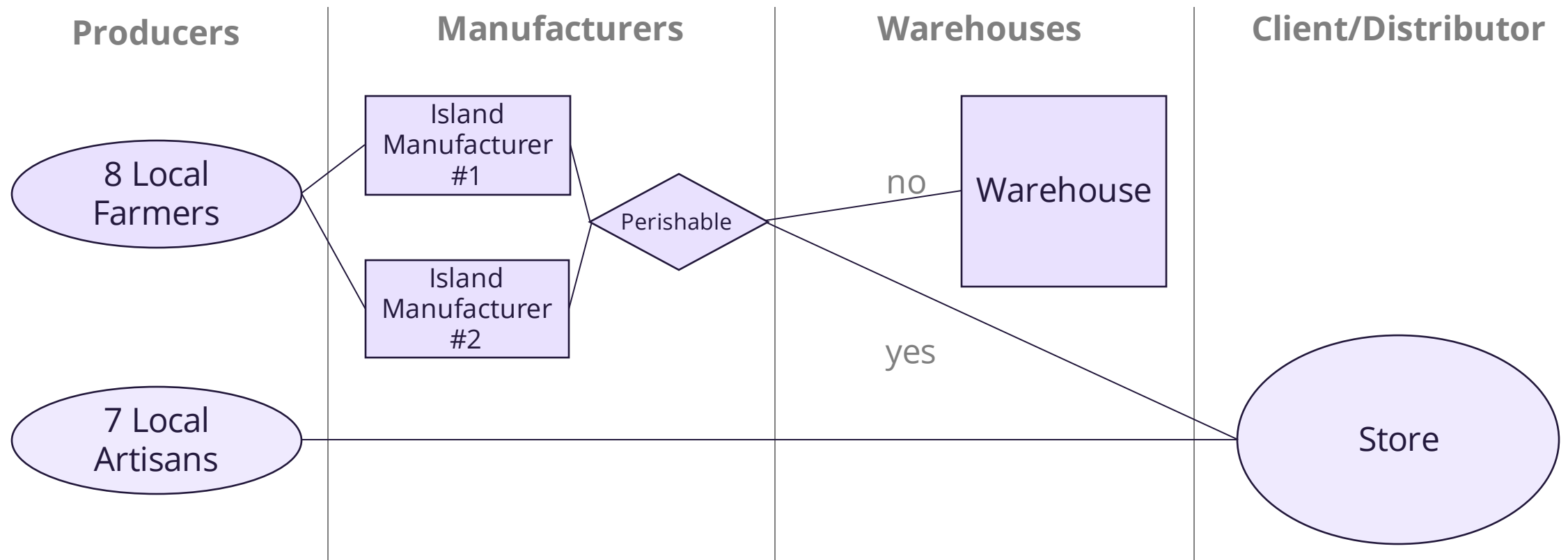
STRENGTHS	WEAKNESSES
OPPORTUNITY	THREATS

ROOT CAUSE ANALYSIS



PROCESS FLOW DIAGRAM

This Process Flow Diagram illustrates the client's supply chain process starting from producers to distributor.



SCOPE PROPOSAL

Areas of Work 1: Marketing

Insert: Description of area of work (what the client wants to accomplish and what we will do to reach that goal)

1. Industry Best Practice
2. Competitor Analysis
3. Strategic Recommendation
4. Website and Online Marketing Implementation Plan

Areas of Work 2: Finance

Insert: Description of area of work (what the client wants to accomplish and what we will do to reach that goal)

1. Industry Best Practice
2. Product Mix Analysis
3. Strategic Recommendation
4. Inventory Tableau Dashboard Implementation Plan

QUESTIONS

We would like to learn more about the following areas:



Current Customer
Base Demographics



Financial Statements



Product Mix & Performance



Supply Chain

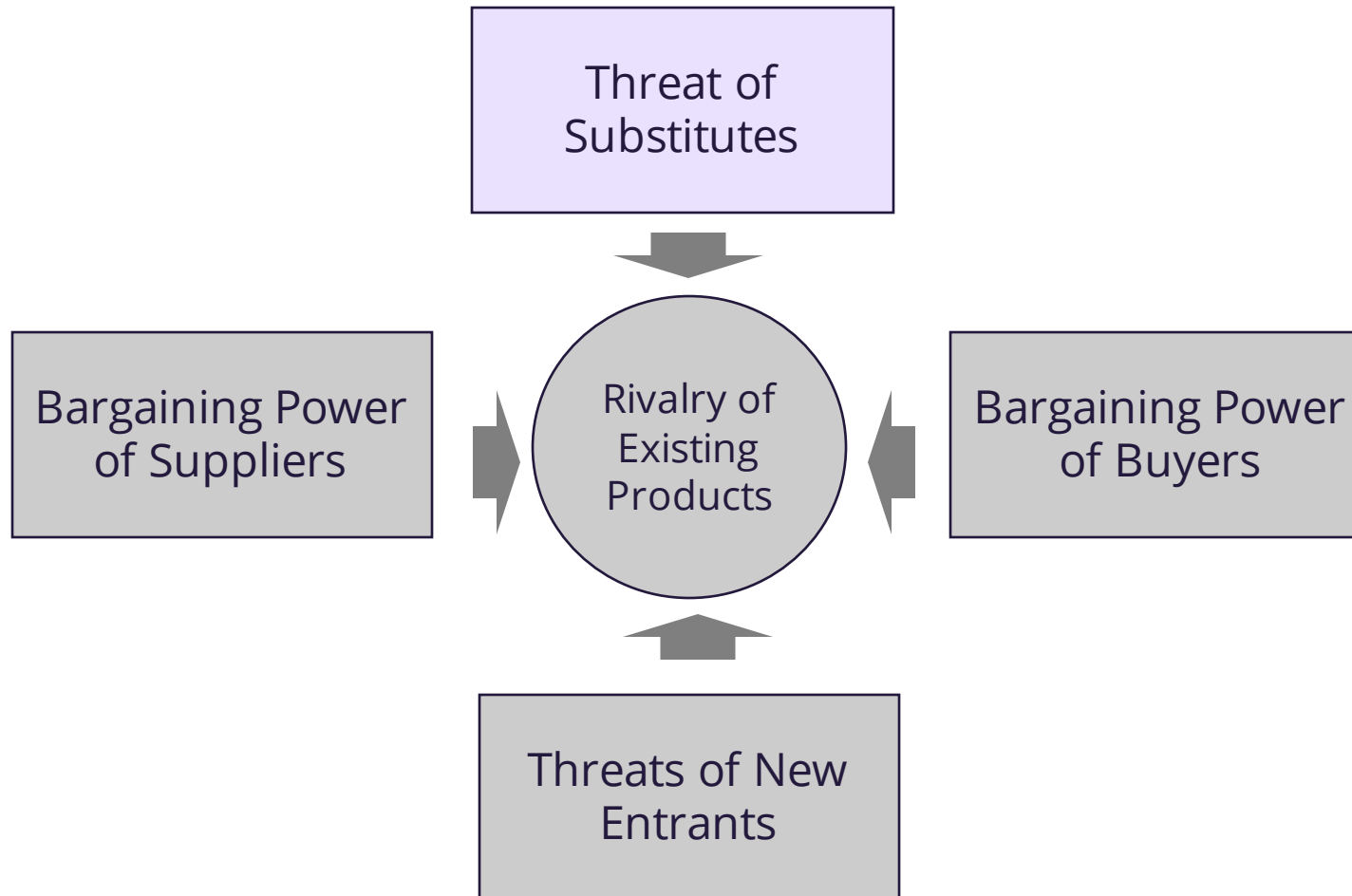
NEXT STEPS

- 01** Implement Feedback
- 02** Present Updated Analysis
- 03** Industry Best Practice Research

Action Items:

- Inventory List
- Income Statement

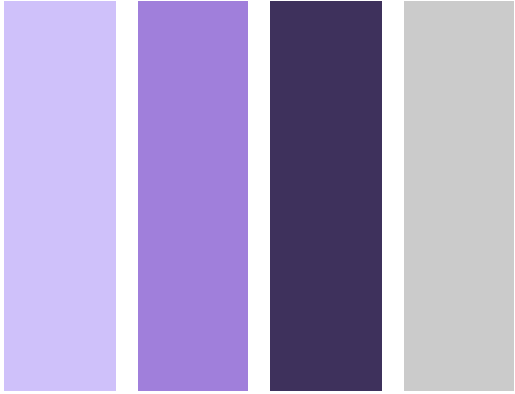
PORTER'S FIVE FORCES



Threat of Substitutes

- As a grocery chain, BIGMart faces a high threat of substitutes.
- While groceries are essential household items, other large grocers like Safeway, Kroger, or even small independent markets could become substitutes for BIGMart.
- Switching cost is low.

COLOR PALETTE



ANSOFF MATRIX

		Product/Service	
		Existing	New
Market	Existing	Market Penetration	Product Development
	New	Market Development	Diversification

Upcoming Deliverables

Final Q and A

Another Q&A session with clients to further round out the final strategy

1. Fundraising strategy
2. Management Accounting Strategy
3. Parent Interaction Strategy
4. Event Hosting Reorganization

Final Presentation

Team will present the final presentation to the client and set up some KPIs and potential next steps

1. Business Overview
2. Research and Findings
3. Strategic Recommendation
4. Next Step