

Unit 1.0 *Entrepreneurship – Business Plan*

INTRODUCTION

The founder of FIRST Robotics, Dean Kamen states, “FIRST is more than robots. The robots are a vehicle for students to learn important life skills. Kids come in not knowing what to expect – of the program nor of themselves. They leave, even after the first season, with a vision, with confidence, and with a sense that they can create their own future.” As part of this learning and vision, entrepreneurship is an expected fundamental way to spread the message of FIRST guided through a business plan. A business plan in FIRST is fueled to gain and maintain support from the local community increasing the number of girls, underrepresented and minority subgroups in STEM. As a continued effort to market STEM we inspire young people to want to become the next scientist and engineers through engaging the community. As part of this process we will focus on the entrepreneurial spirit, developing a comprehensive business plan in order to define, manage, and achieve the team’s objectives. A team that displays an entrepreneurial enthusiasm will demonstrate vital business skills to ensure a self-sustaining program. A formal business plan will meet these objectives:

- The team has a clear concept or approach to building their team and functions as a complete unit.
- They assumed risks and were successful in managing that risk, dealing appropriately with adversity and unexpected events.
- They had a plan and executed it successfully.
- They understood the goals of the competition and the goals of FIRST.
- They demonstrated sustainability through, for example, succession and contingency planning.

In this unit you will complete Activities following this Business Plan Template:

- 1.1 Team Mission Statement
- 1.2 Team Origin
- 1.3 Organizational Structure
- 1.4 Relationships
- 1.5 Development of Resources
- 1.6 Future Plans
- 1.7 Financial Statement
- 1.8 Risk Analysis
- 1.9 Organizational Charts and Budgets

RESOURCES

- <https://www.firstinspires.org/resource-library/fundraising-toolkit>

Activity 1.1 Team Mission Statement

INTRODUCTION

A Mission Statement defines the company's business, its objectives and its approach to reach those objectives. A Vision Statement describes the desired future position of the company. Elements of Mission and Vision Statements are often combined to provide a statement of the company's purposes, goals and values. However, sometimes the two terms are used interchangeably. Use FIRST as an example:

FIRST Vision Statement: *"To transform our culture by creating a world where science and technology are celebrated and where young people dream of becoming science and technology leaders." Dean Kamen, Founder*

FIRST Mission Statement: *The mission of FIRST is to inspire young people to be science and technology leaders and innovators, by engaging them in exciting Mentor-based programs that build science, engineering, and technology skills, that inspire innovation, and that foster well-rounded life capabilities including self-confidence, communication, and leadership.*

Vision/Mission: *Where will you be in the future? How will you reach your vision?*

Goals: *What goals will you create to accomplish the vision and mission?*

Priorities: *What action items will you do this season to meet your goals?*

Core Value's: *What are the underlining beliefs of your team? What are you passionate about and what drives your team?*

Procedure

In the business sub-team, work as a group to review last year's vision, mission, goals and priorities for the team if you have them. Work as a sub-team to discuss and brainstorm improvements that can be reflected in your core beliefs and goals, or work to create them. Assign a team lead to run the sub-team so that the use of time, organization, and management is efficient and productive. Create and follow team norms so everyone has a voice and everyone can speak with their ideas freely without criticism. If you do not have team norms, they are a set of rules that everyone on the

team is willing to follow. Following team norms such as being on time, being nice to one another, always contributing, will help the team to work better together and be unified. If you do not have norms, create them. Remember that this sub-team is taking the thoughts and ideas of the entire team to be reflected in the vision, mission, goals, priorities and core values. Core Values, Vision, Mission, Goals and Priorities will be discussed and voted on for approval as a team.

- ① Develop a set of core values that reflects the team. These values should embrace spreading the message of FIRST and the growth of the team.
- ② Develop a vision and mission statement. Create at least three goals, but no more than five as the guiding goals to meet the mission of the team. Indicate what you believe to be the “driving engine” of your team. Your mission should be clear and concise. It should represent to any reader exactly what your business plan strives to accomplish.
- ③ Develop a set of priorities or action items for this season that are new and different from past seasons. Ask yourself, “what can we do that will have a lasting impact to increase girls and minority subgroup members on the team? What can we do that we have never done before that will have a lasting impact to our team and other teams?”

RESOURCES



Activity 1.1.1 Mission Statement & Goals

Activity 1.1.1 Mission Statement & Goals

In order to develop your Mission statement and develop goals, you first need to identify what the team values. What are the teams Core Values? What are the underlining beliefs of your team? What drives the team? What is the team passionate about?

CORE VALUES	
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A Vision Statement describes the desired future position of the team. *Where will you be in the future?*

VISION STATEMENT	

A Mission Statement defines the teams business, its objectives and its approach to reach those objectives. *How will you reach your vision?*

MISSION STATEMENT	

Goals are long term directives to accomplish the vision and mission. *What goals will you create to accomplish the vision and mission?*

GOALS	
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Priorities are what you plan to put into action for the current year. *What action items will you do this season to meet your goals?*

CURRENT YEAR PRIORITIES	
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Activity 1.2 *Team Origin*

INTRODUCTION

The Team Origin is the historical background of your team. Help the community understand why your team was created, when and how you were formed. Allow the community to embrace your team as if they feel part of the team by participating in your journey.

There are several ways to find the origin and historical background of your team. The best way is to look at past award submissions, archived photos, documents and literature, or if you are a new team, begin by documenting your journey. You can also interview veteran students and alumni. Discuss with mentors and coaches or even past ones. The origin of the team might surprise you and all members of the team need this knowledge to be able to communicate with your community. As your team grows overtime, the historical background becomes even more important to understand how robotics has affected your community.

Procedure

As a business team you will reach out with your historian to learn about the origins and the historical background of the team, or if you're a new team start with documenting your story. You will discuss together how you will gather this information, update it and improve it from last year. As you make a plan through the brainstorming processes to gather information, you will reach out to veteran students, alumni, coaches and mentors (past and present).

- ① Record the team's origin, how the name of the team came to be, how the team evolved, and where the team is going? What unique historical background and experiences should the public know about your team? What awards has our team one? Is our team a role model to other teams? What impact have we had on our community? Provide the date that your team formed, the location of your team, the current number of team members (highlighting any growth over past years) and describe the challenges the team had to overcome in order to participate in FIRST events.

Activity 1.3 *Organizational Structure*

INTRODUCTION

The Organizational Structure of a team consists of systems and procedures that are developed and used to run your team. Charts and diagrams (see 1.9 Organizational Charts and Budgets) show the internal structure of the business. They make it easy to identify the specific roles and responsibilities of staff. They also show how various work roles and responsibilities are delegated, controlled and coordinated as they relate to one another and the structure of sub-teams within the whole.

Procedure

The student treasurer will meet with leadership and the business sub-team to develop a budget and financial plan for the team. Once the budget and plan is agreed upon it will be presented to the team, discussed, refined, and voted on for approval. The final plan will include sustainability systems in place with potential revenue streams planned out. Funding sources will be decided by the team, but all fundraising efforts will be worked on later and are optional, not graded and separate from this unit as guided by school and district procedures, regulations and policy.

Develop a plan for financial sustainability:

- ① Develop a needs assessment for the team based upon the goals and competitive competition.
- ② Create a team budget with line items representing the needs assessment of the team. Factor in all consumables, travel, logistics, lodging, food and other expenses anticipated for one year. Have the team vote and approve the budget.
- ③ Ensure and develop a procedure for any revenues obtained. Utilize the entire team, parents, mentors, and coaches to develop a contact list of donors and sponsors to create a plan to ensure a revenue stream (It takes a village to raise a child). This is a contact list and strategic plan to develop relationships for team sustainability. Find and engage sponsors/donors. Recruit team members/mentors for current & future seasons. Ensure that FIRST principles remain core to the team's efforts.

RESOURCES



Activity 1.3.1 Needs Assessment Plan Guide



Activity 1.3.2 Budget Outline Worksheet



Activity 1.3.3 Strategic Plan & Contact List Worksheet

Activity 1.3.1 Needs Assessment Plan Guide

To create a needs assessment, you must first look at your goals and identify the needs per events and activity that you will be conducting to accomplish your goals. You will then identify the needs for competition preparation and attendance. Use this guide to help you identify the needs of the team:

Needs Assessment Plan Guide:

Needs Assessment Plan Guide – Event or Activity Name _____

GOAL 1	Preparation	
	Setup	
GOAL 2	Preparation	
	Setup	
GOAL 3	Preparation	
	Setup	
GOAL 4	Preparation	
	Setup	
GOAL 5	Preparation	
	Setup	
	Logistics	

Needs Assessment Plan Guide – Competition Name _____

ROBOT A/B	Gantt Chart	
	Brainstorm	
	CAD	
	Order Parts	
	Prototype	
	Electrical	
	Fabricate	
	Physics	
	Coding	
	Other	
PIT	Pit Parts	
	Organize Totes	
	Order Parts	
	Robot Parts	
	Electrical Tools	
	Fabricate Tools	
	Books/Flyers	
	5 Person Plan	
	Register Team	
Other		
TOOLS	Hand Tools	
	Machines	
	Maintenance	
	Order Parts	
	Order Supplies	
	Other	
FIELD	Plans	
	Order Supplies	
	Build Plan	
	Construction	
	Other	
SHIPPING	Crate	
	Quote Rate	
	Ship Docs	
	Pack	
	Pick Up Call	
	Return Docs	
	Return Ship	
	Other	

Activity 1.3.2 Budget Outline Worksheet

A Budget is a plan addressing your team needs from your team needs assessment and should be directly linked to meeting your goals and mission. The total income and total expenditures should be either the same number or the income should be more. Use the Budget Outline Worksheet below to indicate your potential income and expenditures. You will need to work together on the Budget Outline Worksheet and Strategic Plan & Contact List Worksheet together.

Example from Team FRC Team 1625 Winnovation:

Income	Cost
Sponsor Donations	\$28,000.00
Team Efforts	\$12,000.00
Total:	\$40,000.00

Expenditure:	Cost
Initial Competition Registration	\$5,000.00
Second Competition Registration	\$4,000.00
Additional Robot Parts	\$5,000.00
Shipping Costs (estimated)	\$350.00
Bot Shop Utilities	\$2,400.00
Spirit Team Materials	\$1,000.00
Hotels and Meals	\$5,000.00
Mileage Reimbursements	\$5,000.00
Championship Competition Registration	\$5,000.00
Off-Season Competitions	\$1,250.00
Rollover Into Next Season	\$6,000.00
Total:	\$40,000.00

For more examples of budgets, go to: <https://www.firstinspires.org/resource-library>

Budget Outline Worksheet:

Income:		
	Description	Cost
	Community Donations	\$
		\$
		\$
		\$
		\$
	Team Efforts	\$
		\$

Activity 1.3.3 Strategic Plan & Contact List Worksheet

Now that you have developed your needs assessment and team budget, your team will need to rely on your community to maintain team sustainability. As the African proverb states, “It takes a village to raise a child”, which means that it takes an entire community to raise a child. In other words, “A child has the best ability to become a healthy adult if the entire community takes an active role in contributing to the rearing of the child. In parallel, it will take the entire community for the team to be sustainable. For this to occur, the entire team (students, parents, mentors, community members and coaches) will need to develop a plan to find and engage donors and sponsors to ensure a revenue stream. The entire team will identify their current relationships in the form of a donor and sponsorship contact list worksheet. It does not matter where they live, even if they live in another state or country. Relationships are very personal and private, so there will be no collecting of the lists from you. You do not have to write them down; you can just show the instructor in a digital format. The entire team will also identify potential sponsors.

Strategic plan to develop relationships for team sustainability:

What will the team do to find donors and sponsors? How will you actively engage them? (See Potential Donors & Sponsors Contact List Worksheet below)

How will you ensure that their sponsorship or donation expectations are met? What will you do to ensure that they will be annual donors/ sponsors?

What will you do to recruit team members/ mentors for the current & future seasons? How will you focus on growing minority populations on the team?

How will you ensure that FIRST principles remain core to the team’s efforts?

Potential Donors & Sponsors Contact List Worksheet: (Do not include teachers or students)

40 CURRENT RELATIONSHIPS						
Examples:		NAME	CELL PHONE	EMAIL	TWITTER	FACEBOOK
		John Smith	858-748-0121	Jsmith@gmail.com	@JohnSmith123	https://www.facebook.com/johnsmith
1	1 ST Parent/Guardian					
2	2 ND Parent/Guardian					
3	Paternal Grandma					
4	Paternal Grandpa					
5	Maternal Grandma					
6	Maternal Grandpa					
7	Paternal Aunt					
8	Maternal Aunt					
9	Paternal Uncle					
10	Maternal Uncle					
11	Cousin					
12	Cousin					
13	Parent Co-Worker					
14	Parent Co-Worker					
15	Parent best friend					
16	Family best friend					
17	Family best friend					
18	Great Uncle					
19	Great Aunt					
20	Church/Social Friend					
21	Church/Social Friend					
22	Pastor/Youth Group					

23	Street Neighbor					
24	Family Optometrist					
25	Family Dentist					
26	Family Doctor					
27	Family Orthodontist					
28	Barber/ Hairdresser					
29	Youth/Club Coach					
30	Music Tutor					
31	Academic Tutor					
32	Athletic Trainer					
33	Team Alumni					
34	School Alumni					
35	Babysit/Dog Sit For					
36	Boss you work for					
37	Student Co-workers					
38	Boy/Girl Scout Leader					
39	Kiwanis/Rotary/Other					
40	Community Leader					

5 CURRENT BUSINESS/INDUSTRY RELATIONSHIPS						
Examples:		COMPANY NAME	CONTACT NAME	WORK PHONE	CELL PHONE	EMAIL
		General Mechanics	John Smith	858-748-3143	858-748-0121	Jsmith@generalmechanics.com
1	Local Store/Supermarket					
2	Auto/Car/Service					
3	Business Park Industry					
4	Manufacturing					
5	Defense Contractor					

NOTE: The examples are to help you compose your family current relationships. You do not have to follow these examples, they are just a suggestion or guide.

Activity 1.4 Relationships

INTRODUCTION

Retaining and maintaining relationships are part of your business plan utilizing a process that the entire team will follow. This process should engage the entire community to work together to accomplish the mission of the team. Relationships are the key to a successful business or team. Your ability to create and maintain relationships of trust with team members, mentors, parents, industry, and community sponsors is essential. The business team will guide this process and record the team's efforts and results.

Procedure

- ① To become better public speakers, be comfortable with speaking to judges and work on your ability to make new relationships with adults, each student will speak to 20 adults that they know, or are acquainted with, to share the FIRST message. This can be done door to door in your neighborhood, at social events, parents work, church, and school or community events. As you go through this process, remember to maximize your team efforts and result, by specifically engaging, inspiring, educating and thinking long-term to add, maintain and retain 1) Team members, 2) Mentors, and 3) Sponsors/Community/Donors.

RESOURCES



Activity 1.4.1 Develop Relationships Worksheet

Activity 1.4.1 *Develop Relationships Worksheet*

Students will use this worksheet to record the names and signatures of each adult that they speak to about the FIRST message. This assignment will help you to become better public speakers, be comfortable with speaking to judges and work on your ability to make new relationships with adults. Each student will speak to 20 adults. This can be done door to door in your neighborhood, at social events, parents work, church, and school or community events. Use the example script below with the worksheet.

COMMUNICATING THE MESSAGE OF FIRST		
	NAME	SIGNATURE
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Example of a FIRST awareness message to community:

Did you know that _____ School has a Robotics Team that it was founded in _____?

The _____ **School Robotics Team** has (or will be) competed in the international FIRST Robotics competition. We have been competing for over ___ years, winning more than ___ awards. We have attended the World Championships ___ times.

Have you heard of our **community events** that we host at _____ our School?

This year we have hosted _____, and plan to host _____, and _____.

The _____ Robotics program supports the entire community through **“inspiring young people to learn about engineering throughout the community.”** We also are involved in supporting the community through helping out in many volunteer based capacities such as the _____.

The vision of the FIRST Founder Dean Kamen is **“... to create a world where science and technology are celebrated, where young people dream of becoming science and technology heroes”**.

What do you think about scientists, engineers and technologists as our student heroes?

Each year the team builds a robot and competes in ___ competition(s). This year we hope to go to the _____ competition.

Would you be interested in being a mentor for our team, in helping kids build a robot and competing for other awards in FIRST?

Thank you,

_____YOUR NAME_____

Activity 1.5 *Deployment of Resources*

INTRODUCTION

Your resources are a valuable asset in spreading the message of FIRST to recruit and retain members on your team. As your team grows you need to ensure that you have a plan in place in which you can continue to acquire more resources to meet the needs of all team members.

Procedure

- ① Detail how the resources of your team (financial, school or otherwise) have been deployed to 1) Engage the community to spread the message of FIRST; 2) Inspire others to get involved so that FIRST continues to grow; 3) Ensure all team members get the most out of their FIRST experience. This is about achieving the overall message (vision and mission) of FIRST.

Activity 1.6 *Future Plans*

INTRODUCTION

Your vision, mission and goals are the driving factor for your team to grow in the future. An underlining purpose for you team is to grow in the number of girls, underrepresented and minority subgroups desiring STEM as a future. Thinking of this year's priorities and your long term goals – what are your action items to achieve your goals? This is similar to a business projecting their budget three years out, developing long-term goals and yearly priorities with specific action items and benchmarks indicators showing results.

Procedure

- ① Indicate specific plans the team has for the next 3 years in regards to sponsorship, team and community outreach (including helping FIRST grow) and detail how you expect to be able to accomplish these goals.

Activity 1.7 *Financial Statement*

INTRODUCTION

The team treasurer will work with team leadership to ensure that proper accounting and controls are developed, followed and managed for income and expenditures recording. The team will develop a detailed spreadsheet to keep all actual revenues of income and expenditures, in parallel with the school reconciliation report. All financial practices will be with the guidance of the school and district procedures, regulations and policy.

Procedure

- ① Keep a record of your actual revenues and expenditures through bookkeeping. Include and document every revenue source, expenditure and information on team finances. This is your bookkeeping of all finances or what is actually happening. These are called actuals unlike the budget which is a proposal or guide.

Activity 1.8 *Risk Analysis*

INTRODUCTION

Risk analysis is the process of defining and analyzing threats to the business (team) and individual members of your team. Threats could include what to do if you lose a mentor, a coach or a veteran key student. You need to think about your action plan to be proactive by training others ahead of time and also the plan if someone was to abruptly leave.

Procedure

- 1 Describe the team's risk mitigation plan. Present a SwOT (Strengths, weaknesses, Opportunities, and Threats) analysis or narrative that describes the team's plan to identify and respond to sustainability threats. Think of what would happen if? Answer, what would you do if? This is a plan of proactivity instead of being faced with a difficult experience without knowing what to do.

RESOURCES



1.8.1 SwOT – Risk Mitigation Plan

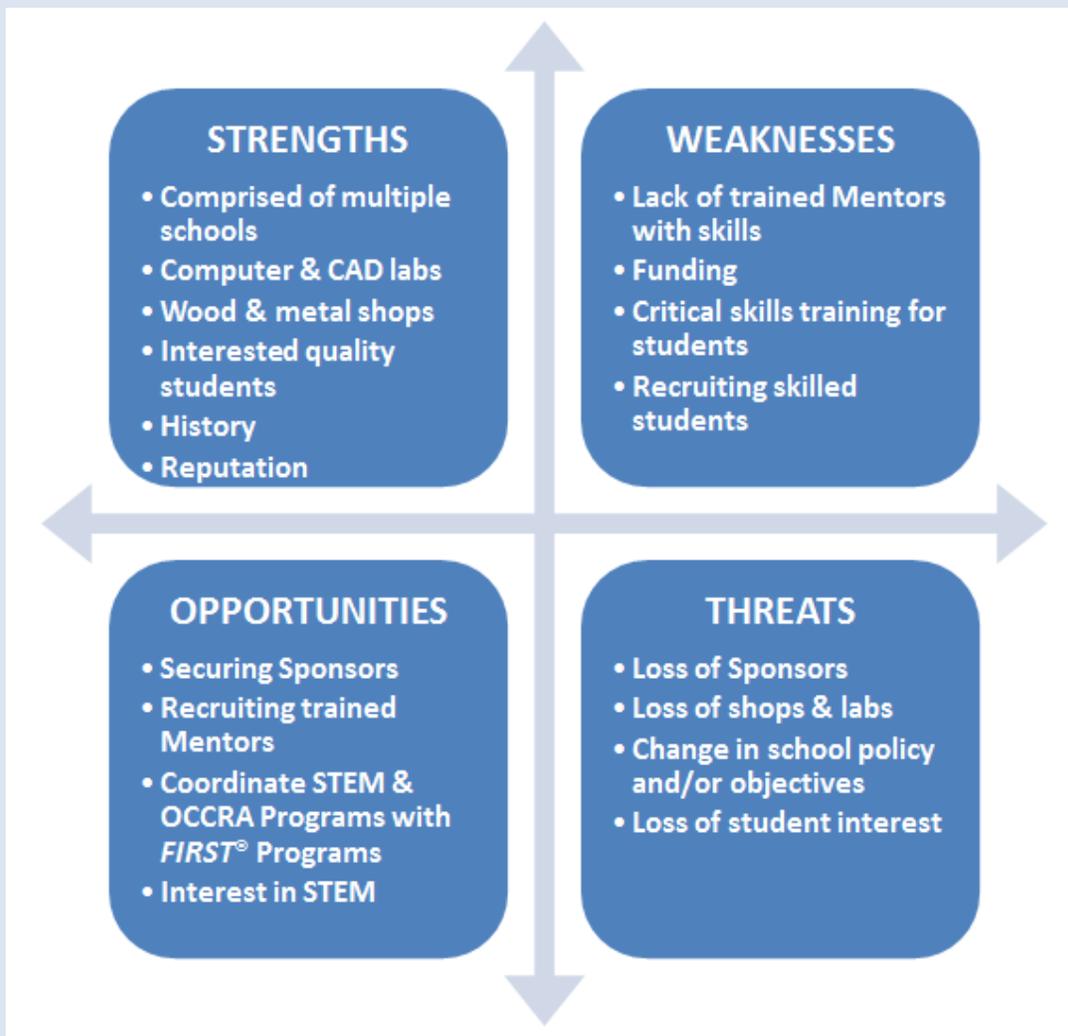
Activity 1.8.1 *SwOT – Risk Mitigation Plan*

It is important to identify the areas a team has successfully developed and what areas need work. Reviewing the Strengths, Weaknesses, Opportunities, and Threats in a SWOT Analysis is the first step to knowing what a team has to do to avoid threats. Once a team analyzes their situation, they can build on their strengths, correct weaknesses, pursue opportunities, and avoid threats.

Example from FRC Team 68, Truck Town Thunder:

Example SWOT Analysis:

“The SWOT Analysis was used to evaluate the **S**trengths, **W**eaknesses, **O**pportunities, and **T**hreats to *FIRST* Team 68 Truck Town Thunder’s organization. The strengths and weaknesses refer to internal factors of the team. The opportunities and threats refer to external factors the team may encounter.”



Contingency Plans

(Modeled after FRC#234 Cyber Blue)

The following standard format is used:

RISK	Statement of the Risk Item
Likelihood	(Probability) What is the "probability" of the risk occurring <input type="checkbox"/> 3 High Greater than 50% chance <input type="checkbox"/> 2 Medium between 25 and 50% chance <input type="checkbox"/> 1 Low Less than a 25% chance
Impact Level	If the event occurs, what is the impact to the team? <input type="checkbox"/> 3 High Major disruption to the team, Threatened team continuation <input type="checkbox"/> 2 Medium Reduced participation in FIRST events <input type="checkbox"/> 1 Low Minor impact, Reduced activity level
Risk Score	1 – 9 Likelihood (Probability) x Impact Score Higher scores require increased attention <input type="checkbox"/> 9 Key Risks (RED) – Critical and Require Significant Attention <input type="checkbox"/> 4 – 8 Major Risks (YELLOW) – Require Action and Management <input type="checkbox"/> 1 – 3 Minor Risks (GREEN) – Require Some Action but are Lower Importance
Impact on Team	Basic Description of what the impact to the team would be
Action	Actions the team is taking to alleviate the occurrence of the risk, or to minimize the impact if it does occur

RISK: Loss of Engineering Coach

Likelihood: 2 - Medium

Impact Level: 3 - High

Risk Score: 6 - Major

Impact on Team:

- Team can sustain for a short period of time with volunteer mentors from the school and parents
- Difficult to coordinate travel and building use
- The school administrations would need to recruit a new Engineering Coach

Action:

- Acquire a strong volunteer mentor base
- Document activities and procedures (travel forms, reimbursements, suppliers)
- GOAL: Work to maintain two main mentors on team

RISK: Engineering Coach not able to travel/sick at competition

Likelihood: 1 - Low

Impact Level: 2 - Medium

Risk Score: 2 - Minor

Impact on Team:

- Team would have trouble transporting itself to competition
- Students would fill the roles of the main mentor
- Volunteer staff would travel with the team

Action:

- Have volunteers in place in case main mentor unable to drive students to competition
- Document activities and procedures of main mentor (travel forms, tasks, etc.)

RISK: Serious Injury in the Lab

Likelihood: 1 - Low

Impact Level: 2 -

Medium **Risk Score:** 2 - Minor

Impact on Team:

- A student or mentor is injured
- Parents and Administration start to question safety of the lab
- Possible ban on machine tool usage or other potentially dangerous work in the school lab.

Action:

- Have all members go through training before using any tool they are unfamiliar with.
- Update and review safety manual regularly and distribute it to the team.
- Have a safety captain that is responsible for making sure tools are in working and safe condition to reduce injury risk.

RISK: Robot Damaged or Lost During Transit

Likelihood: 1 -

Low **Impact Level:** 3 -

High **Risk Score:** 3 -

Minor Impact on Team:

- Could not compete in competition with out building a new machine
- Have to do major robot repair/rebuild on practice day
- Limited Practice time
- Loss or Damage of assets

Action:

- Robot securely fastened in vehicle or crate
- Robot has padding around it to avoid damage
- Vehicles are operated by a safe driver and all precautions are taken to ensure safe arrival

RISK: Broken Machines, Broken Equipment

Likelihood: 2 -

Medium **Impact Level:** 1 -

Low **Risk Score:** 2 - Minor

Impact on Team:

- Loss of build time
- Added expense of repair or replacement
- Possible injury risk

Action:

- Maintain equipment
- Include repair and replacement costs in teams equipment budget
- Maintain relationships with other teams in the area so we can use their equipment if ours malfunctions

Activity 1.9 *Organizational Charts and Budgets*

INTRODUCTION

For a FIRST team it is essential that you put everything into a visual representation so that you community and team has understanding a clarity. Not everyone has a good grasp of numbers and most people need to see to understand.

Procedure

- ① Create a visual Organizational Chart and Budget and post these on your website, in the classroom on the wall and in all other literature that is deemed appropriate. As you speaking to the community, it is important that community members can see what you are talking about. This is in preparation of the next step, which is fundraising efforts.

RESOURCES



1.9.1 Organizational Chart

Activity 1.9.1 Organizational Chart

Example from FRC Team 1622 Team Spyder:

