



Strategy Dictates Design: How to Prioritize

The first step to letting Strategy Dictate the Design of your Team's Robot is to identify every individual strategy a Robot can perform.

Focus on what a Robot can do, not how it can be done.

“Shoot the Ball” describes a how; “Score the Ball” describes what.

Group Strategies into sub-sections based on type and complexity, then arrange in a prioritized list based on the criteria listed below.

MOVE

- The ability to MOVE reliably every match should always be your first priority.
- You cannot effectively achieve the game challenge if you do not have the ability to MOVE. No matter how awesome your scorer is, if you can't move to the goal, you can't score.
- By designing a dependable, easy to maintain Drive Train as your initial feature, Teams can then focus their efforts on creating a second subsystem. The KoP Chassis is a great option for Rookie Teams or those with only a few members.

What will score the most points?

- Examine the “Game” section of the FRC Manual to determine every way to score points, and calculate maximum scores for each section of the game.
- Remember that you don't have to do “everything” and score “all the points”
- Consider the amount of time and effort it takes to achieve a game objective. FIRST always creates multiple ways to score; pick a task that is appropriate for your Team's abilities and resources. Don't ignore low-hanging fruit. 10 small apples are as valuable as the big, 10-point apple at the top of the tree, but much easier to grab.

Machining & Fabrication Abilities

- Determine the Machining & Fabrication abilities your Team has access to, whether in-house or outsourced. Don't sell yourself short, but make sure you don't overestimate your odds.
- Take “Return on Investment” into consideration when deciding whether to “make something” or “order” an approved component. Machining allows you to make custom parts, but takes time.
- Remember that you don't *have* to make everything; there are lots of resources for purchasing FIRST-legal parts and pieces that may save you time and money. If it's in your budget, there's no shame in buying stuff.

Resources

- Time: Build Season has a hard fast deadline: February 18th. Machining, lead-time on orders and unmet deliverables all cost you time, which cannot be replaced.
- Money: All Teams have a budget. Find out how your Team has allocated its money, and make or order items that are within your monetary resources. Consider getting items and materials donated
- Man-Power: Be sure not to bite off more than your Team can chew. Small teams may need to create a simpler strategy with fewer subsystems and components.

Knowledge & Skills of Team Members

- A few Teams have an army of engineers, some are ran by a non-engineering Mentor, but most are somewhere in between. Have realistic expectations of what you can produce with the skills you have.
- Students often “think” they know how to create a professionally engineered machine, over-complicate designs, or don't know about industry standards. It's up to the Mentors to teach Students skills, extend their knowledge of engineering concepts, and encourage designs that are within the Team's capabilities.
- Some of your Students and Mentors may have participated in FIRST before. This knowledge should be taken into consideration, but remember that each robot and game could require a different strategy of play and design.