

**Knowledge of the Marketplace**

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| IntroductionMarket research is the process of systematically gathering, recording, and analyzing data about a product, process, or service; the customers; the competitors; and the market demand. The information gathered during market research can help a research engineer or designer make decisions, create a plan of action, fine tune an existing product or service, expand into new markets, or create a totally new invention. This process may result in a new product, process, or service. You have already determined that the problem your team wants to solve exists and is valid. Now you want to ensure that the problem is worth solving so that your efforts are not wasted on developing a product that will not be used or purchased. This project will help you justify the effort and expense that will be required to solve the problem. The information you collect and organize for this project will become components of **Problem Proposal**. ProcedureGather information for each of the following sections of Project 2.2.4 Problem Proposal. Be sure to document all of your research and include, if applicable, contact information and references in the appropriate sections of your engineering notebook. Create a preliminary draft for each section, using the headings listed below, to present the required information. As with the technical writing that you have completed in other PLTW courses, all information should be succinct and well organized.Existing Similar ProductsUse your research from **Choosing a Problem** and additional research, as necessary, to gather information about existing products that address your team’s problem. For each similar product that you identify, describe the product (including images), explain why the product solution falls short, and detail why your solution will be more valuable or desirable.Evaluating the CompetitionWhen examining the competition, you will likely detail some products or systems that you previewed when you were investigating similar products. While those are important to evaluate, it is especially important to consider how people are avoiding the problem or solving the problem in an unanticipated way. What is currently being done to avoid the problem might be your biggest competition. Consider asking people what they do to solve or avoid your problem. Remember to also consider unlikely competition. For example, bicycles and cars are different but do compete on a certain level.Answer these questions:* Who/what are your major competitors?
* On what basis do you compete?
* How do you compare?
* Who are potential future competitors?
* What are the barriers to entry for new competitors?

Identifying Users and BuyersThis section will identify and describe in detail the anticipated users and buyers of your product. A graphic organizer is likely the best method for documentation. Include descriptive notes.The MarketSpecifically identify your anticipated target market (including, at a minimum, age, income, education level, and geographic location) and explain why this is or should be the target market. Many times demonstrating the existence of a market can be accomplished using indirect evidence. For example, if you propose to solve a problem with unintentional dialing of a particular model of cell phone, you can document evidence on the number of users of this model of cell phone. Make an educated guess to estimate what you believe could be your market share. Determine as accurately as possible the Total Available Market.JustificationJustify the effort and expense that will be required to design a solution to your team’s problem by discussing the relative size of the target market and your preliminary plan to reach the target market.**Conclusion**1. Why is it important to know the marketplace before deciding whether a solution is worth pursuing?
2. What kinds of people or organizations would be interested in market information throughout the problem solving process?
3. How did your research influence or change how you think about the problem that you plan to solve?
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