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## MARKET RESEARCH BACKGROUND

Whether an innovation is incremental (building on another technology) or disruptive (a technology which will redefine market), understanding the market landscape and how the market works is crucial to overcoming barriers that prevent a successful product launch. The market landscape includes, among other things, increasing or decreasing trends, competition, distributors and distribution channels, conferences, key opinion leaders, and new technologies.

**Marketing** is communication to raise awareness about the product/service among potential customers. This is different from **Market Research**, which is about collecting data to analyze market need, market size, and competition informing a project's viability.

Market Research is comprised of two categories of activities;

- Primary Market Research - which involves information gathered personally (Customer Discovery interviews, surveys and focus groups)
- Secondary Market Research - which utilizes data that has previously been collected and compiled.

Both categories are required to gain an understanding of the market and opportunity. The focus of this section is on Secondary Market Research. Sources that fall into this category include existing reports, journal articles, studies by government agencies, trade associations, web portals, and other businesses within the same industry. The innovator should search each category as appropriate for the specific subject of their innovation. Look for trends, market size, who key opinion leaders (KOLs) are and popular distribution methods.

Market research should be recorded in enough detail to segment the information into meaningful groups of data. The actual segments will be unique to the market; some categories might be consumers, businesses, countries, common needs, interests, and priorities. The advantage of having this level of detail is the ability to identify and estimate the value of a given market segment, for example, which customer group has the greatest need, who has the highest sales potential, and who may be the easiest to reach.



### HOW NEED AND OPPORTUNITY FITS IN EVALUATION STRATEGY

Need and Opportunity Analysis is a critical step that innovators undertake to guide the decision to invest resources in product development. Sometimes, the decision is not to move forward or to make a major shift. If the decision is made to move forward, information from the Need and Opportunity Analysis should be brought forward into relevant components of the Evaluation Strategy.

An overview of the evaluation strategy is provided in Table 1 below.

Evaluation Strategy	Potential Approaches	Necessary Version of Product	Outcome
1. Validate Societal Problem	Literature search and synthesis	None	Go/no-go decision
2. Validate the Customer Need	One-on-one interviews with customers	None	Go/no-go decision, initial market requirements
3. Validate Concept	Focus groups, interviews with customers	Concept	Revised market requirements
4. Validate Solution	Focus groups, interviews, surveys	Rough mockup	Yes/No Answer
		Beta prototype	Revised market requirements
		Pre-production model	Revised product requirements
5. Validate the Business Model	One-on-one interviews with customers	None	Draft business model List of outcomes required
6. Component Testing	Laboratory tests to meet requirements	Pre-production model	Study reports, documentation of properties & function
7. Safety and Usability Testing	Feasibility, safety, and usability testing in laboratory or ideal setting	Pre-production model	Study reports, documentation of confirming safety & usability
8. Clinical/Comparative Effectiveness Research	Clinical research	Final production model	Evidence of effectiveness in real-world settings

Table 1: Overview of the evaluation steps to be conducted for product development.

For each of the evaluation steps, identify the tests, what tools are necessary, and what outcomes must be measured:

**The Question:** What is the question I need to answer to evaluate the technology at this stage of development?

**The Test/Procedure:** What test can be devised to answer the question? How would the test be structured? What tools, skills and facilities will be needed? Who would conduct the test? What is the target population? Where will the test be conducted?

**Prototype Needed:** The evaluation steps go hand-in-hand with technology development steps. In planning evaluation activities, the innovator will need to consider timing of technology development milestones.

**Outcomes:** What outcomes will be measured and how? How will success or failure be determined? The feedback will provide an early opportunity for the team to 'pivot', i.e. make changes to the product before development begins.



# NEED AND OPPORTUNITY ANALYSIS

## SUPPLEMENTAL READING

### VALIDATING THE SOCIETAL NEED

Customer Discovery Interviews will inform the customers' needs or problems, however, it is important for the innovator to have a broad understanding of the challenges patients face, if they are clinically relevant, if a technology can be developed, and if there is a viable business case from the perspective of scientific evidence and the policy and funding priorities of provider, policy, or advocacy groups. Communicating what is known about the problem and what priorities have been established at the community or societal level serves as a powerful advantage in the journey toward commercialization. A market research is the main method employed at this stage, however preliminary interviews may be conducted, as necessary, to confirm and/or include additional stakeholder perspectives to ensure capture of an adequate market sample. In the case of Need and Opportunity Analysis the objectives are to answer questions about the overall market trends. Is this a growing or dying industry? Is there a potential business case for a new technology in this space?

Evaluation Strategy	The Question(s)	The Test/ Procedure	Prototype Needed	The Outcome
1. Validate Societal the Need	Is there evidence of need from the perspective of advocacy, provider, or research groups?	Literature search and synthesis	No	Yes or no answer; A written summary of the specific evidence about prevalence, incidence, individual or societal impact, research or clinical priorities, guidelines or standards. Appropriate for the Significance section of grant application or an Executive Summary

Table 2: Questions to keep in mind while conducting Step 1 of the Evaluation Strategy.

### ADDITIONAL RESOURCES

#### STATISTICS ON DISABILITY

- [Fostering Independence, Participation, and Healthy Aging Through Technology - Workshop Summary](#)
- [Institute of Medicine Disability Committee Reports published by National Academies Press](#)
- [Disability Statistics & Articles - Annual Disability Statistics Report](#)

#### SEARCH ENGINES

- [PubMed - National Center for Biotechnology Information](#)
- [IEEE Xplore Digital Library](#)
- [The Voices of Healthcare - Medline](#)
- [Ovid](#)
- [Google Scholar](#)

#### STANDARDS AND GUIDANCE DOCUMENTS

- [International Organization for Standards](#)
- [Federal Communications Commission](#)
- [Association for the Advancement of Medical Instrumentation](#)

#### The Center for the Translation of Rehabilitation Engineering Advances and Technology

TREAT is part of the National Institutes of Health (NIH) Medical Rehabilitation Research Resource Network (MR3). Funding is provided by the National Center for Medical Rehabilitation Research (NCMRR) in the Eunice Kennedy Shriver National Institute of Child Health & Human Development (NICHD) through awards R24HD065703 and P2CHD086841.

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# NEED AND OPPORTUNITY ANALYSIS

## SUPPLEMENTAL READING

[American National Standards Institute](#)

[American Society of Mechanical Engineers](#)

[American Heart Association](#)

[American Academy of Neurology](#)

[FDA Guidance Documents](#)

### GRANT AWARD RESOURCES

The federal government is another potential area of market research data, more specifically for research on federal agencies' grant funding priorities. The federal agencies' priorities in turn provide insight on societal needs. Make use of this knowledge to learn of competing technologies, gauge federal funding interest, make network connections, and identify potential partners.

Below are resources that lead to published grant awardee data. Insight that can be gathered from this data is:

- Who did this research?
- What federal agency paid for it?
- How much was funded on this topic?
- View all the abstracts to each grant awardee.

[National Institute of Health Report Catalog](#)

[Small Business Innovation Research Awards Information](#)

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