

Researching Your Medical Device Design

What Information to Gather

- **Determine the Marketplace**
 - Demographics
- **Determine the Market Needs**
- **Medical Device Competitive Analysis**
 - Determine what products exist
 - Determine any gaps in the Market
 - Position your device to be superior to others in the Market
 - Evaluate external factors such as cultural and economics

Search Strategy

- **Identify the potential sources of information**
 - **Company Advertising**
 - **Literature Search**
 - **Colleagues**
 - **Professionals**
- **Define the way to search for information**
 - **Divide and conquer**

Literature Search

- **Internet Medical Databases**
 - PubMed
 - Scopus
 - FDA
 - US Patent Office (Patents Online)
 - Etc.
- **Library, Journals, etc.**
- **Trade Publications**
- **Meetings/Conferences**

Evaluate Information Data Reduction

- **What information do I need?**
 - Depth and breadth of how other devices penetrate Market
 - Market Size
 - Sales
 - Revenue
- **Does this information address the team's needs?**

Assess the Search Strategy

- **Is the information sufficient?**
- **Do we have to look in other places?**
- **If no information exists, what do I?**

Presentation of Data

- **Employ principles consistent with the ethical and legal uses of information**
 - Annotation
 - Plagiarism
- **Organize, synthesize, and communicate information**
 - Presentation in a form to educate others

DEIB

Diversity, Equity, Inclusion & Belonging

- *Diversity* - **Is the product designed for all ages, gender and ethnicity?**
Is it for all aspects of representation — from age, gender and ethnicity.
- *Equity* - **Does the product design allow everyone to afford and be able to use it?**
Giving everyone the ability to use the product effectively.
- *Inclusion* - **Does the product design restrict certain groups from using it?**
- *Belonging* - **Does the product design yield the same results for all users?**
A feeling or sense of community with others and the work environment that makes people feel connected.

Market Research

- Determine the Demographics for your device and discuss how your product meets DEIB goals.
- Determine the existing competitors and compare the features of the competition with your device using a table.
- Illustrate the Market Gap in the Competition Table and show how your design meets DEIB goals.
- Determine how your device affects cultural (DEIB goals), social environment (DEIB goals), and improves global economics.

Technical Research

- To assure that your design best meets the Customer Needs, research technical alternatives.
- Determine how others do it and evaluate what is best.
- Determine how your device affect the health, safety and welfare of the public
- Examples:
 - Materials
 - Computer Language
 - Hardware vs Software
 - Components (mechanical and electrical)
 - Processes
 - Etc.