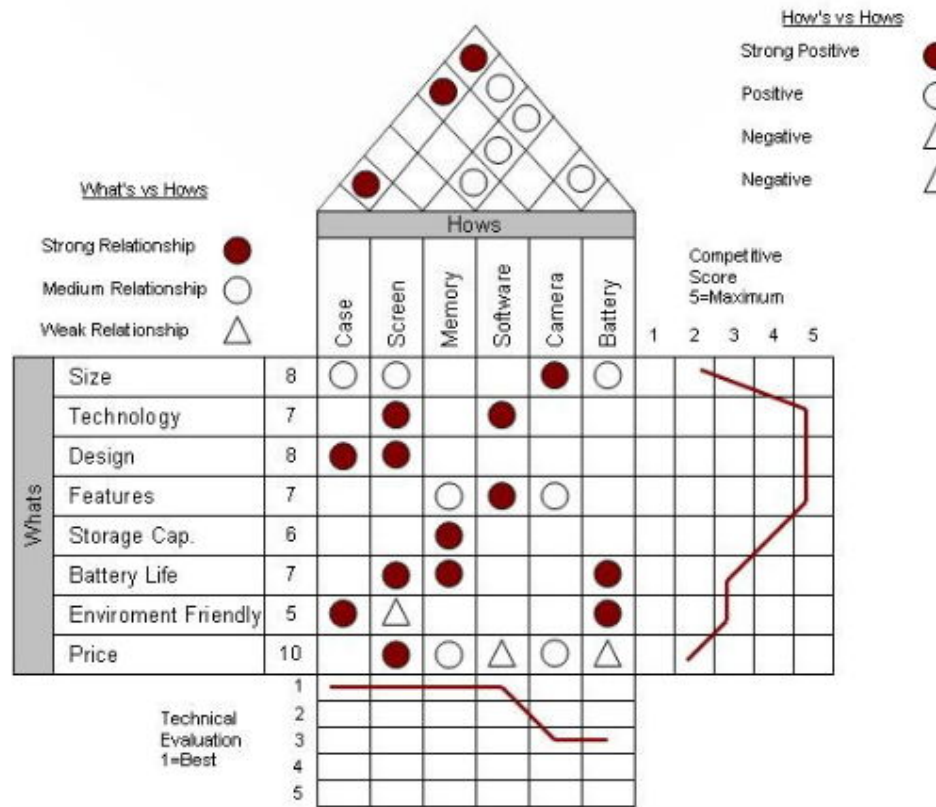


Needs Assessment

ME490A

Goals of Needs Identification

- Provide basis for device (product) development decisions
- Bring out needs that may not be so obvious
- Provide basis for engineering metrics (e.g., size, weight, force, etc.)
- Ensure critical needs are elicited
- Develop a common understanding of the needs
- Archiving of needs



Steps in Identifying Customer Needs

- Gather the raw data
- Interpret the raw data
- Organize the needs
- Establish relative importance of needs
- Common sense check!

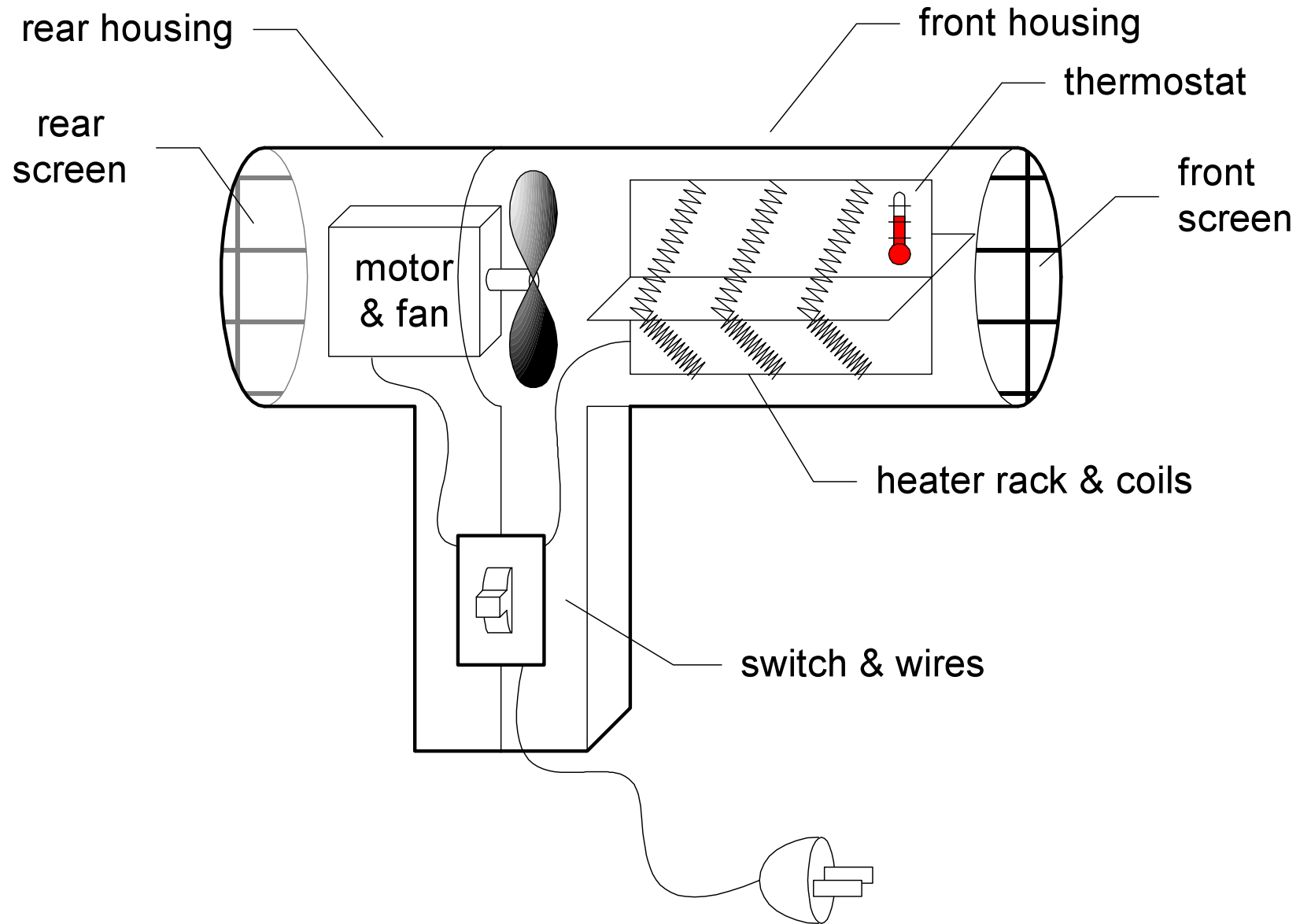
Methods for Gathering Raw Data

- Brainstorming
 - Method best suited for your projects
- Interviews
 - 1-on-1
 - Dialog Directly w/Company personnel
- Focus Groups
 - 8-12 People (Typically Paid)
 - Moderator
 - Company personnel observe group

Similarity Diagram: KJ Method

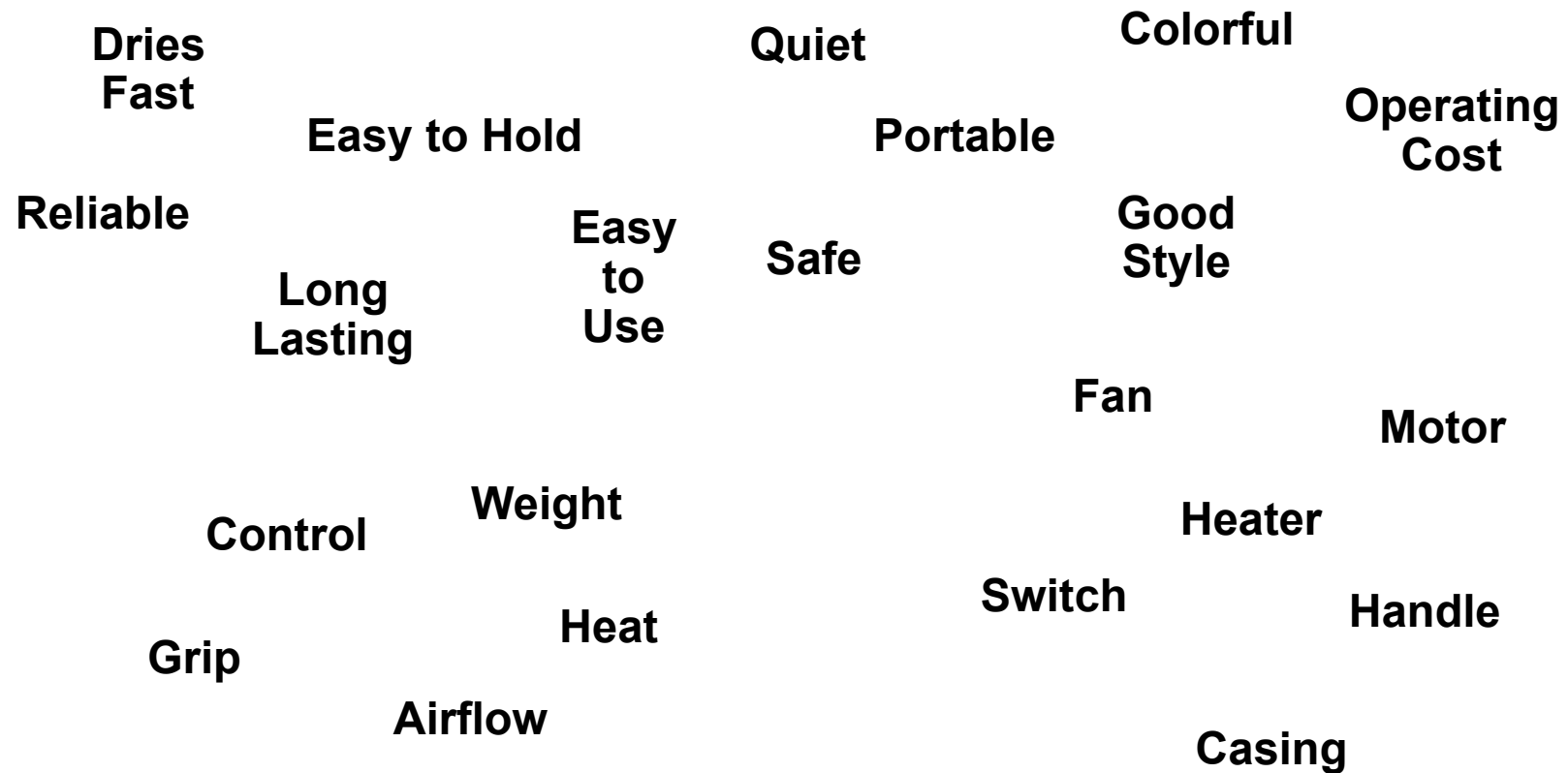
- Structured brainstorming and analysis
 - Developed by Prof. Jiro Kawakita (U. Of Kyoto)
- Basic steps
 - Collect narrative data and compile into cards
 - Sort and label cards (clustering)
 - Develop the KJ diagram and present to team

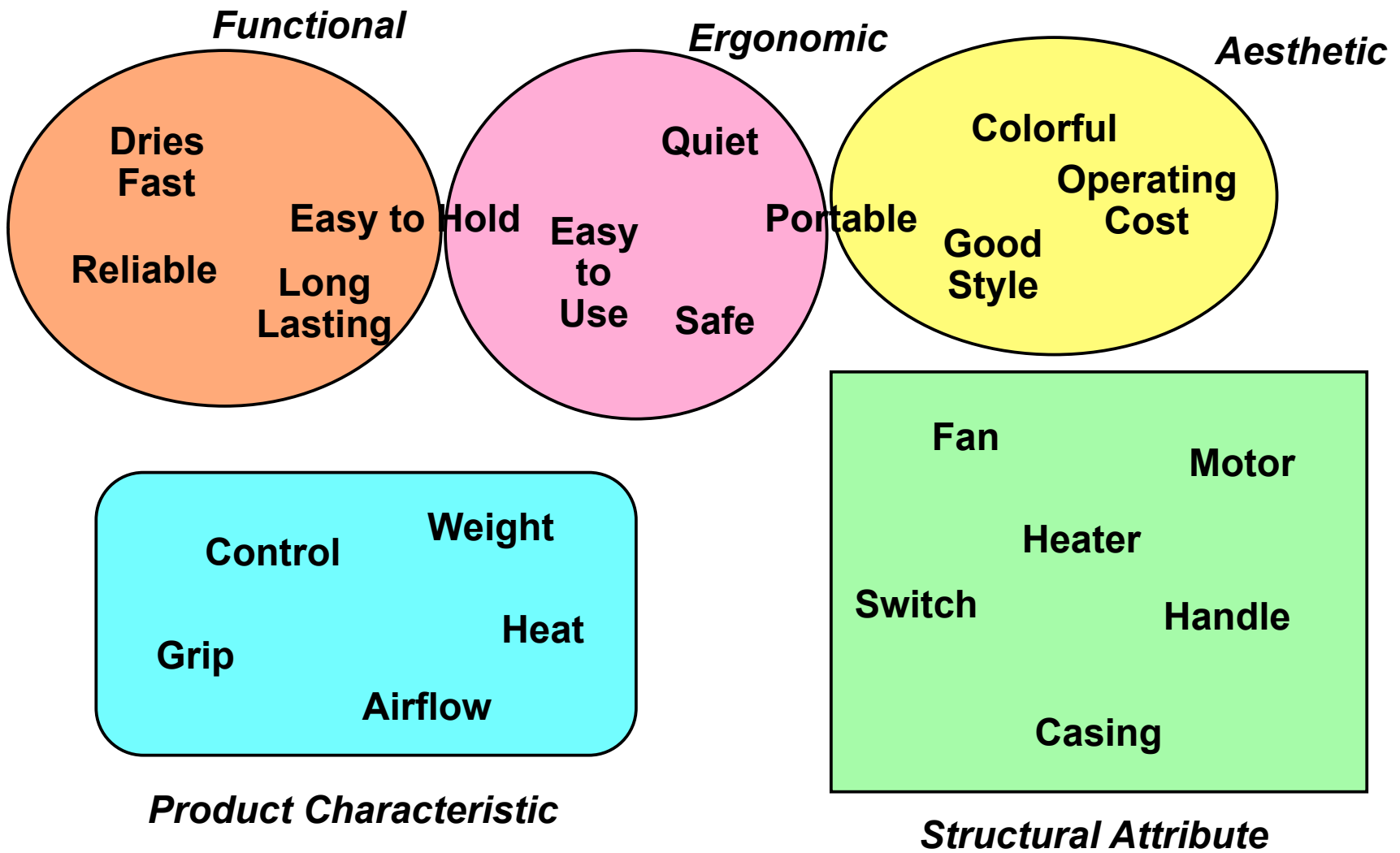
Hair Dryer Example



KJ Method

- First come up with anything...





Ishii, K., "Introduction to Design for Manufacturability (DFM)", ME317A dfM: Product Definition, Stanford University, Lecture 1/7/2004

Sources of Existing Data

- External Sources
 - Customer Complaints
 - Technical Specifications
 - Market Research Reports
 - Customer Surveys
 - Customer Profiles
 - Industry Benchmarking Studies
 - Competitor Assessments
 - Journals
 - Patents

Customer Needs Example: Cordless Screwdrivers



Five Guidelines for Writing Needs Statements

Guideline	Customer Statement	Need Statement-<u>Wrong</u>	Need Statement-<u>Right</u>
<u>What Not How</u>	“Why don’t you put protective shields around the battery contacts?”	The screwdriver battery contacts are covered by a plastic sliding door.	The screwdriver battery is protected from accidental shorting.
Specificity	“I drop my screwdriver all the time.”	The screwdriver is rugged.	The screwdriver operates normally after repeated dropping.
Positive Not Negative	“It doesn’t matter if it’s raining, I still need to work outside on Saturdays.”	The screwdriver is not disabled by the rain.	The screwdriver operates normally in the rain.
Attribute of the Product	“I’d like to charge my battery from my cigarette lighter.”	An automobile cigarette lighter adapter can charge the screwdriver battery.	The screwdriver battery can be charged from an automobile cigarette lighter.
Avoid “Must” and “Should	“I hate it when I don’t know how much juice is left in the batteries of my cordless tools.”	The screwdriver should provide an indication of the energy level of the battery.	The screwdriver provides an indication of the energy level of the battery.

Establish Relative Importance of Needs

- Development Team Consensus
- Customer Surveys
- Characterize the need

Development Team Consensus

Rating	Weight
Very Important	9
Important	3
Somewhat Important	1