Identifying Customer Needs

Thomas A. Roemer
Generic Product Development Process

- **Planning**
  - Mission Approval

- **Concept Development**
  - Concept Review

- **System-Level Design**
  - System Spec Review

- **Detail Design**
  - Critical Design Review

- **Testing and Refinement**
  - Production Approval

- **Production Ramp-Up**
# Class Projects: Gantt Chart

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**Assignment Work**

- **Due**
- **Refinement**
Concept Development Process

- Identify Customer Needs
- Establish Target Specifications
- Generate Product Concepts
- Select Product Concept(s)
- Test Product Concept(s)
- Set Final Specifications
- Plan Downstream Development
- Perform Economic Analysis
- Benchmark Competitive Products
- Build and Test Models and Prototypes
Customer Needs Process

- Define the Scope
  - Mission Statement
- Gather Raw Data
  - Observation
  - Interviews
  - Focus Groups
- Interpret Raw Data
  - Need Statements
- Organize the Needs
  - Hierarchy
- Establish Importance
  - Surveys
- Reflect on the Process
  - Continuous Improvement
Mission Statement

- **Product Description**
  - An easy to use, portable device for removing bacteria and protozoan parasites from water

- **Key Business Goals**
  - Product introduced in Summer 1993
  - 50% gross margin
  - 30% share of portable water filter retail sales within 2 years of introduction
  - Becoming the recognized leader in usability

- **Primary Market**
  - Avid outdoor enthusiasts

- **Secondary Markets**
  - Casual recreationalists
  - Home emergency
  - Aid organizations, military

- **Assumptions**
  - Hand-operated
  - Borosilicate glass fibers & charcoal filtering technology

- **Stakeholders**
  - User
  - Retailer
  - Sandy Platter force
  - Juan Rodriguez and VCs
Customer Needs Process

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Gather Raw Data

- Focus Groups
- Interviews
- Observation
Interviews vs. Focus Groups

How Many Consumers?

How Many Analysts?

Customer Needs Process

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# Five Guidelines for Writing Needs Statements

<table>
<thead>
<tr>
<th>Guideline</th>
<th>Customer Statement</th>
<th>Need Statement</th>
<th>Need Statement</th>
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</thead>
<tbody>
<tr>
<td><strong>What Not How</strong></td>
<td>“Why don't they put a hook at the end of the outlet hose?”</td>
<td>The outlet hose has a hook to connect to water containers.</td>
<td>The WF easily transfers water into a variety of different containers.</td>
</tr>
<tr>
<td><strong>Specificity</strong></td>
<td>“I often times drop the water filter on rocks.”</td>
<td>The WF is rugged.</td>
<td>The WF operates normally after repeated dropping.</td>
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<tr>
<td><strong>Positive Not Negative</strong></td>
<td>“the WF is difficult to hold.”</td>
<td>The WF is not difficult to hold.</td>
<td>The WF is easy to hold</td>
</tr>
<tr>
<td><strong>Product Attribute</strong></td>
<td>“I need to attach a virus filter to the WF.”</td>
<td>A virus filter can be attached to the WF.</td>
<td>WF accommodates a virus filter</td>
</tr>
<tr>
<td><strong>Avoid “Must” &amp; “Should”</strong></td>
<td>“The water should taste good.”</td>
<td>The WF should deliver good tasting water.</td>
<td>The WF delivers good tasting water.</td>
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**Example:**

- **Why don't they put a hook at the end of the outlet hose?**
  - **Wrong:** The outlet hose has a hook to connect to water containers.
  - **Right:** The WF easily transfers water into a variety of different containers.

- **I often times drop the water filter on rocks.**
  - **Wrong:** The WF is rugged.
  - **Right:** The WF operates normally after repeated dropping.

- **The WF is difficult to hold.**
  - **Wrong:** The WF is not difficult to hold.
  - **Right:** The WF is easy to hold.

- **I need to attach a virus filter to the WF.**
  - **Wrong:** A virus filter can be attached to the WF.
  - **Right:** WF accommodates a virus filter.

- **The water should taste good.**
  - **Wrong:** The WF should deliver good tasting water.
  - **Right:** The WF delivers good tasting water.
Needs Translation Exercise

- The water should not smell badly
- You need one hand to hold the filter, one hand to pump and one hand to make sure that that the attachment cap doesn't fall off the bottle
- During a winter trip the pump once froze solid
- I never want to have Giardia again
- I get tired when pumping water for the entire family
- I cleaned the filter after every use, no matter how little water I pumped
Customer Needs Process

- Define the Scope
  - Mission Statement
- Gather Raw Data
  - Observation
  - Interviews
  - Focus Groups
- Interpret Raw Data
  - Need Statements
- Organize the Needs
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  - Surveys
- Reflect on the Process
  - Continuous Improvement
Structuring Needs

- Primary Needs (*Strategic Needs*)
- Secondary Needs (*Tactical Needs*)
- Tertiary Needs (*Operational Needs*)

- Must Haves
- Delighters (Latent Needs!)
- Linear Satisfiers
- Neutrals
Kano-Diagrams

Degree of Function Implementation

Satisfaction

Dissatisfaction

Linear Satisfiers

Delighters

Must Haves
Structuring Needs

A tendency that

- Customers sort needs more evenly
- Customer ordering reflects actual use
- Group ordering reflects engineering view

- Professional teams only slightly outperform students
Customer Needs Process

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Importance Surveys

- 5,7,9 – point direct rating
  - How important is feature?
  - Desirable, neutral, undesirable
- Constant Sum Scale
  - Allocating fixed number of points to need levels
- Anchored Scale
  - Attach 10 points to most important need
  - Up to 10 points to all others
- All seem to perform equally well
- Frequency of mentioning a need is usually NOT a good measure for the importance of need
Perceptual Map

Water Quality

First Need

Ease of Use

Katadyne

Sweetwater’s Sweet Spot ?
Normalized Perceptual Map

Water Quality per $ vs. Ease of Use per $

First Need
- Katadyne

Sweetwater’s Even Sweeter Spot?
Company Update

- Introduced in August 1993
- 1994, SW shipped ~54,000 units
- 1994 Revenue of $2 million
- MSR (REI-owned!) enters market before SW and takes 40% of market share
- US Army shows interest
- 1997, SW almost disappears?
- 1998, Cascade Design [CD] acquires SW
  - CD had previously (1996) bought Platypus
- 2001, CD buys MSR
  - Sweetwater name on MSR products
  - Sweetwater is still household name
Take Aways

- Capture “What, Not How”
- Meet customers in the use environment
- Collect visual, verbal, and textual data
- Props will stimulate customer responses.
- Interviews are more efficient than focus groups
- Interview all stakeholders and lead users
- Develop an organized list of need statements
- Look for latent needs
- Survey to quantify tradeoffs
- Make a video to communicate results
Visual Data Example