Steps in the Opportunity Identification Phase

1. Defining the New Product Strategy
   Product Innovation Charter

2. Market Definition
   Understanding Market structure from a customer need perspective
   • Identification of Markets
   • Selection of Markets

3. Idea Generation
   Understanding of Customer problems and needs in the selected markets

Opportunity Identification: Idea Generation

Where do new product ideas come from?

Let's not underestimate the oops... factor

- Microwave oven
- Aspartame (NutraSweet)
- ScotchGaurd Fabric Protector
- Teflon

But did it have to be so?

Could 3M have deliberately come up with Post-Its?

Customer Needs Process

- Define the Scope (PIC)
- Gather Raw Data
  - What?
    - From Whom?
    - How?
    - How Many?
- Interpret & Organize Raw Data
  - Hierarchy of Needs
- Establish Importance
  - Surveys
  - Quantified Needs
- Reflect on the Process
  - Continuous Improvement

Gather Data

What?
- Problems vs. Needs
  - Articulated (Explicit) Needs
    - Customers know product features, have well-formed preferences on features, can verbalize their preferences
  - Unarticulated (Implicit or Latent) Needs
    - Customers do not understand product features and benefits, do not have well-formed preferences on features, lack vocabulary/desire to express preferences and emotions

From Whom?
- Experts
- Published Sources
- Contacts with Your Business Customers or Consumers

How?
- Group Creativity Methods/Brainstorming
  - Triangulate what
    - customers say (Focus groups, Surveys, Depth interviews),
    - do (Observation, Ethnography, Human Factors Research, Customer case research),
    - and make (Ideas, Concepts, Lead Users)
Opportunity Identification: Idea Generation

### Problems to Needs

**Cordless Screwdriver**

<table>
<thead>
<tr>
<th>Guideline</th>
<th>Customer Statement</th>
<th>Need Statement</th>
<th>Need Statement Right</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specificity</td>
<td>“I keep my screwdriver all the time.”</td>
<td>The screwdriver is rugged.</td>
<td>The screwdriver operates fine after repeated dropping.</td>
</tr>
<tr>
<td>Positive/ Negative</td>
<td>“I don’t think it’s raining, I still need to work outside on Saturdays.”</td>
<td>The screwdriver is not disabled by the rain.</td>
<td>The screwdriver operates normally in the rain.</td>
</tr>
<tr>
<td>Attribute of the Product</td>
<td>“It’s a nuisance to keep going back in the house to charge my battery.”</td>
<td>The screwdriver battery can be charged from an automobile cigarette lighter.</td>
<td>The screwdriver battery can be charged from a source outside the house.</td>
</tr>
<tr>
<td>Avoid “Must” and “Should”</td>
<td>“What if you put protective shields around the battery contacts?”</td>
<td>The screwdriver should provide an indication of the energy level of the battery.</td>
<td>The screwdriver provides an indication of the energy level of the battery.</td>
</tr>
<tr>
<td>What Not To Do</td>
<td>“Why don’t you put protective shields around the battery contacts?”</td>
<td>The screwdriver battery contacts are covered by a plastic sliding door.</td>
<td>The screwdriver battery is protected from accidental shorting.</td>
</tr>
</tbody>
</table>

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### Techniques to understand user needs

**Traditional Market Research**

- Focus Groups
- Depth Interviews
- Surveys

**Market Intuition and Discovery**

- Lead User Analysis
- Ethnography
- Metaphor Elicitation
- Human Factors Research

**User-Oriented Techniques**

- Articulated Needs, Known Users
- Unarticulated Needs, Known Users
- Unarticulated Needs, Unknown Users

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**Lead user analysis:**

**End-users as innovators**

R&D/Engineering

Marketing

Users

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**Ethnography**

*Observe* customers in their *native surroundings* to understand unarticulated needs.

**What it Entails:**

- Observation of *actual* behavior
- Interactions between *developers and customers*
- Exploitation of *existing technological capabilities*

**When it Works Best:**

- When developers are proposing solutions for an *identified potential user population*, whose needs are poorly understood.

**What to watch out for:**

- Time consuming, costly, serendipitous.
- Immersing vs. drowning!
Tapping nonverbal channels: 
Zaltman Metaphor Elicitation Technique

ZMET (Zaltman Metaphor Elicitation Technique):
– Probe attitudes and feelings of individuals relative to specific subjects deeply and systematically through the use of metaphors and visual images.

Hypothesis:
– Better understanding of the voice of customers requires research tools that engage their nonverbal (especially visual) channels of thought and communication.

Method:
– Clip magazine pictures, take photographs, generate collages.
– Use metaphors from a library on a multimedia system.

Drawbacks:
– Interpretation and analysis requires great skill, very subjective.

What Human factors designers do

• Think about types of people who will use the product
• Think about the different steps in using the product
• Observe people actually doing things.
• Create stories that define a usage context and steps.
• Test and debug.
• Ask experts who know about human abilities.

Customer case research

CCR is a form of exploratory research that uses interviews and observation to trace the full stories of how real customers buy, use, and consume products. CCR can uncover hidden purchase drivers and inhibitors, including:
– Unexpected openings
– Embedded segments
– Unanticipated decision criteria
– Hidden decision makers
– Unintended product uses
– Unseen obstacles to purchase

Summary: When to use what?

Lead User Analysis
– Sophisticated and innovative customer segment exists
– Innovations have often come from users in the past.

Ethnography
– Customer population is well-defined
– Usage experience is complex and difficult to articulate
– Usage is embedded in situational and environmental context

Metaphors and Analogies
– New product domain is unfamiliar, but users have deep tacit knowledge
– Breakthroughs and unconventional products are desired

Human Factors Research
– Man-machine interface is unfamiliar, complicated or inconvenient
– User segments are diverse and user profiles poorly understood

Customer Case Research
– Ownership and usage experience involves many steps and involves many different products and service providers.
– Strange or unusual customer behavior is detected.
Opportunity Identification: Idea Generation

Gather Data

How Many?

The Kano model

The nonlinear relationship between need fulfillment and customer satisfaction results in a three-way classification of product features as customer need satisfiers:

**Delighters**: Can only have positive satisfaction, absence does not hurt. “Surprise and Delight” features. Basis for “attractive quality” and customer loyalty.
- (Cup holders, folding mirrors, 2/3 split-fold seat).

**Linear Satisfiers**: Performance factors, basis for competition.
- (Engine horsepower, fuel economy, interior room).

**Must Haves**: Presumed present, can never make customers happy, but absence below expected level hurts. “Price of entry”.
- (Air bags, automatic transmission, rust-resistance).

Interpret and Organize the Data

**Needs to Attributes: An Idea Stimulator Checklist**

- Can the dimensions be changed? *(larger, smaller, longer, shorter, thicker...)*
- Can the quantity be changed? *(more, less, combine, fractionate...)*
- Can the order be changed?
- Can the time element be changed?
- Can the cause or effect be changed?
- Can there be a change in character?
- Can the form be changed? *(animated, speeded, slowed, attracted...)*
- Can the state or condition be changed?
- Can the use be adapted to a new market?
Opportunity Identification: Idea Generation

Caveats

• Capture “What, Not How”.
• Meet customers in the use environment.
• Collect visual, verbal, and textual data.
• Props will stimulate customer responses.
• 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.