



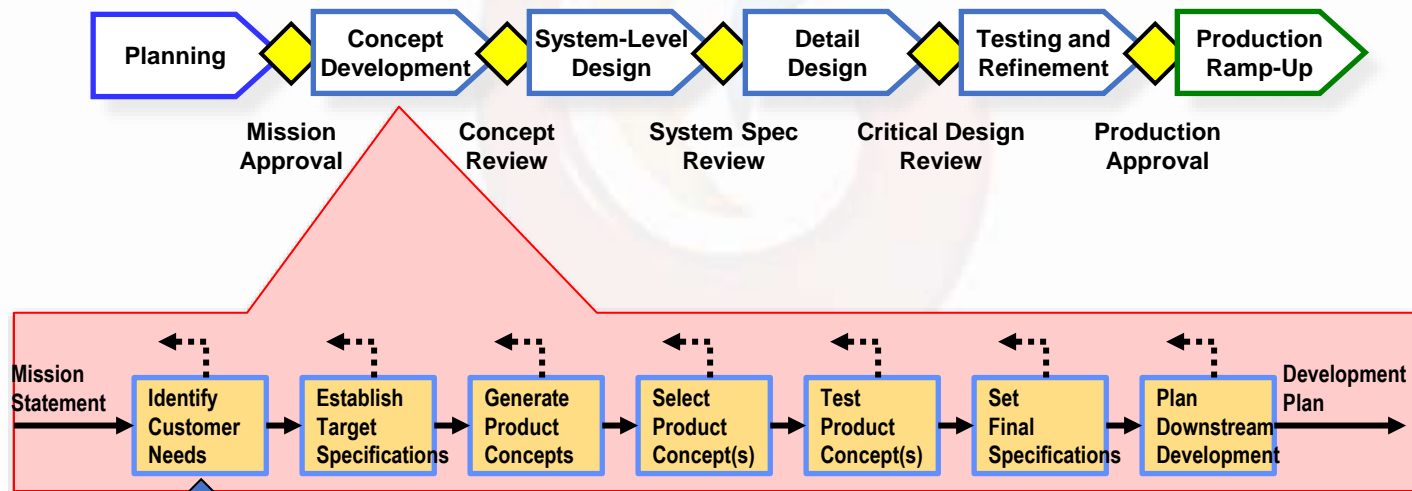
Customer Needs

GALGOTIAS
UNIVERSITY

Customer Needs

GALGOTIAS
UNIVERSITY

Product Development Process



Analysis of customer needs begins the development process.

User Innovation Example: Auvi-Q Epinephrine Injector



EpiPen




Auvi-Q

Includes
Voice
Instruction
s



Evan and Eric Edwards



What makes users successful
as innovators?

What is the weakness of
user innovation?

GALGOTIAS
UNIVERSITY

Black & Decker Snake Light



 **BLACK &
DECKER**

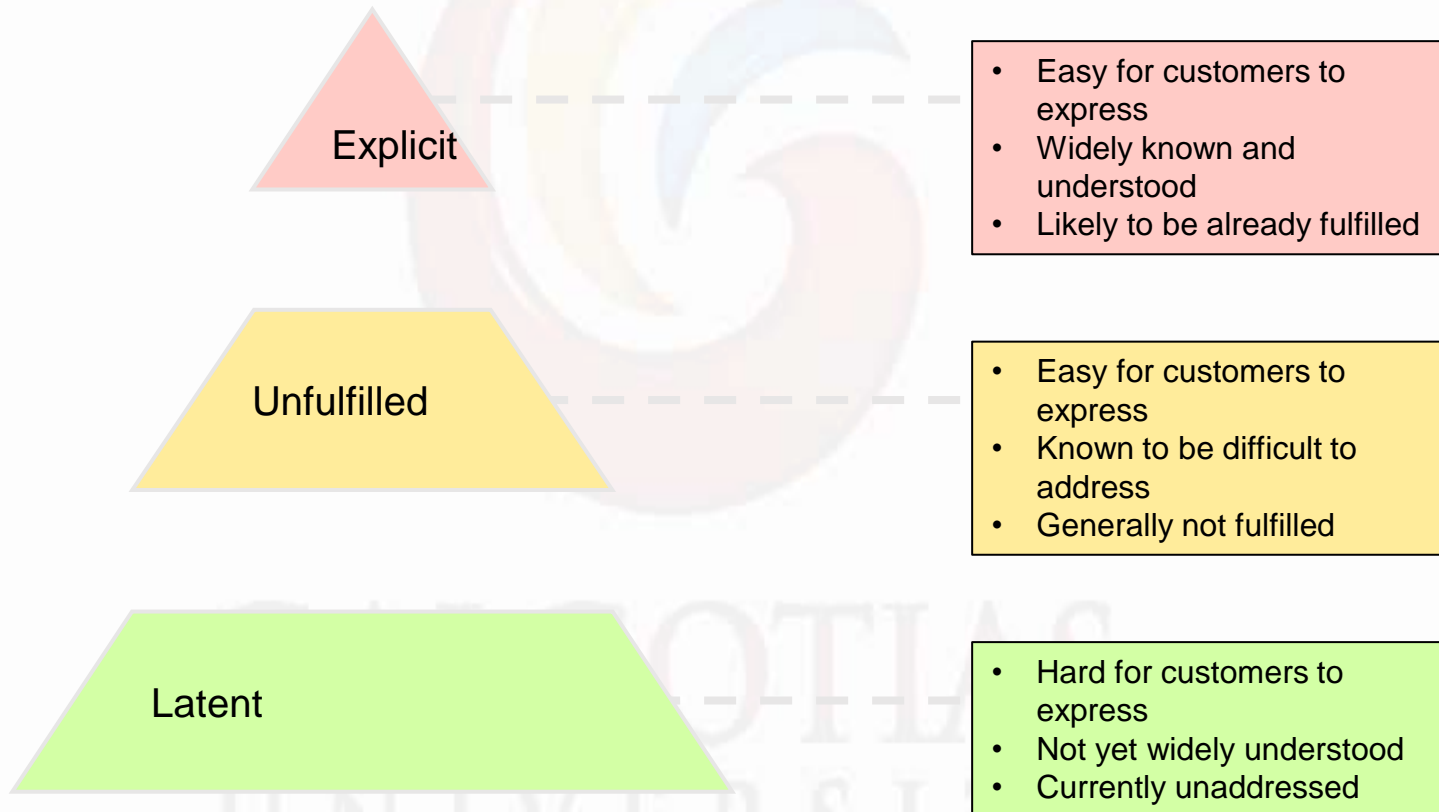
UNIVERSITY



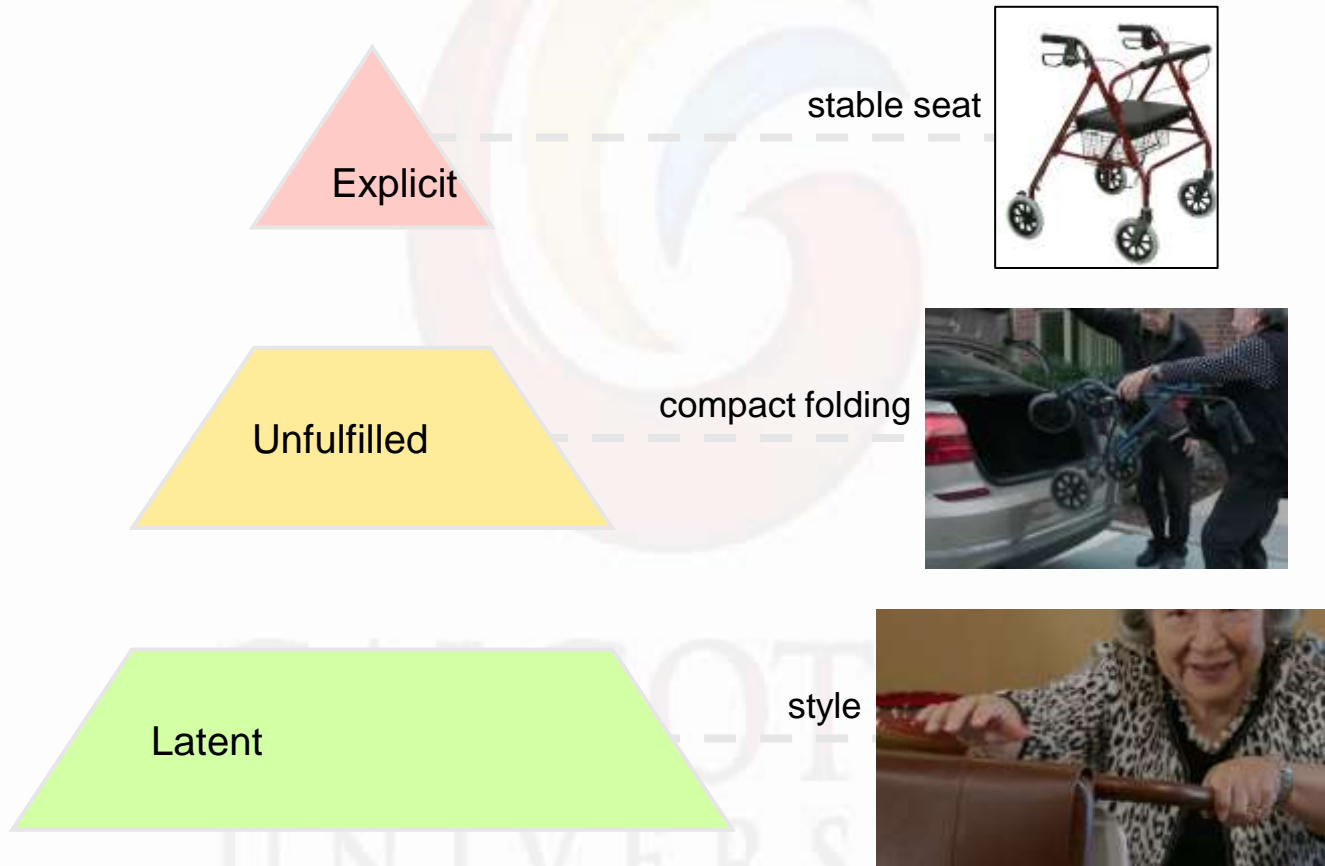
GoodGrips Angled Measuring Cup



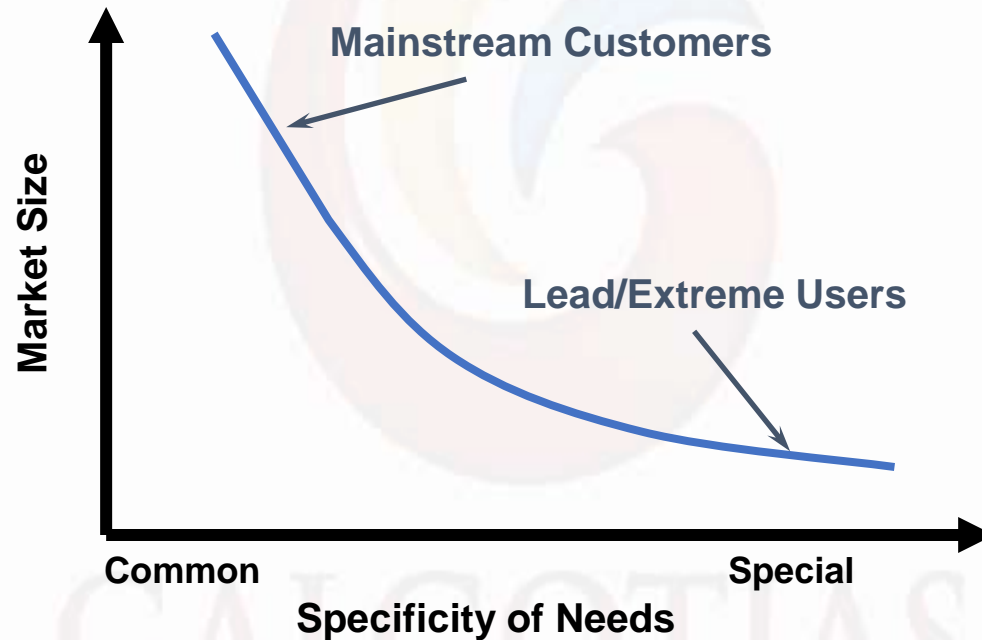
A Classification of Customer Needs



A Classification of Customer Needs



Customer Needs and Markets

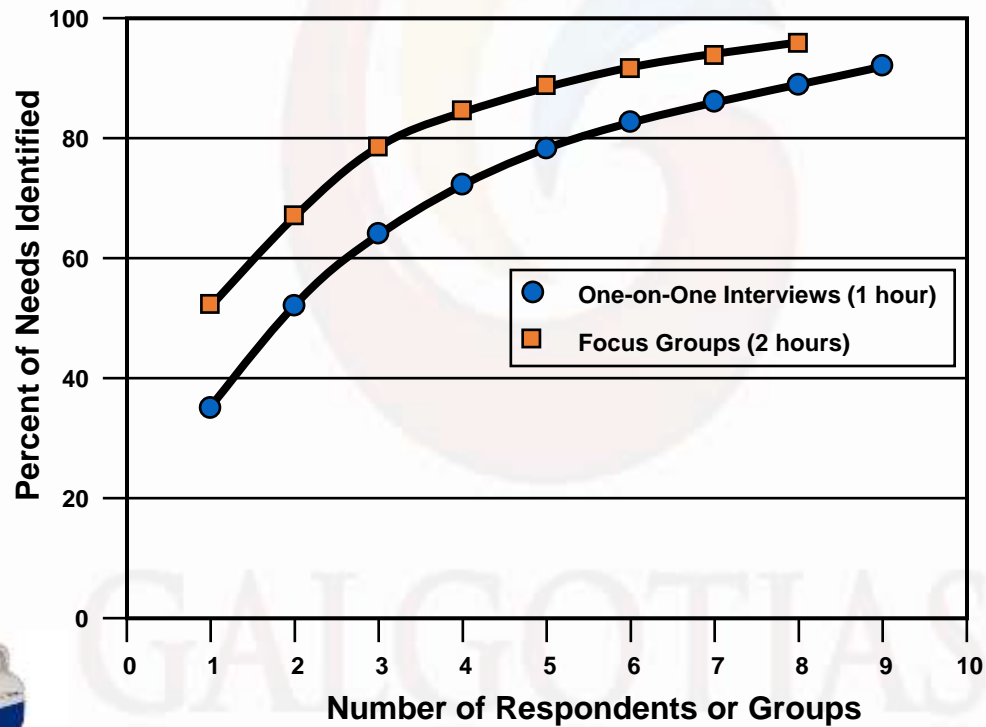


- Lead or extreme users may experience needs more strongly than others.
- Customers with specific needs may be in small market segments, but their needs may indicate important directions for larger markets.

Utility Light Study:
Latent needs addressed by lead user



How Many Customers?



From: Griffin, Abbie and John R. Hauser. "The Voice of the Customer", *Marketing Science*. vol. 12, no. 1, Winter 1993.

Steve Jobs was interviewed by Inc. editors George Gendron and Bo Burlingham.

INC.: Where do great products come from?

JOB: I think really great products come from melding two points of view—the technology point of view and the customer point of view. You need both. You can't just ask customers what they want and then try to give that to them. By the time you get it built, they'll want something new. It took us three years to build the NeXT computer. If we'd given customers what they said they wanted, we'd have built a computer they'd have been happy with a year after we spoke to them—not something they'd want now.

INC.: You mean the technology is changing too fast.

JOB: Yeah, and customers can't anticipate what the technology can do. They won't ask for things that they think are impossible. But the technology may be ahead of them. If you happen to mention something, they'll say, "Of course, I'll take that. Do you mean I can have that, too?" It sounds logical to ask customers what they want and then give it to them. But they rarely wind up getting what they really want that way.

INC.: It's got to be equally dangerous to focus too much on the technology.

JOB: Oh, sure. You can get into just as much trouble by going into the technology lab and asking your engineers, "OK, what can you do for me today?" That rarely leads to a product that customers want or to one that you're very proud of building when you get done. You have to merge these points of view, and you have to do it in an interactive way over a period of time—which doesn't mean a week. It takes a long time to pull out of customers what they really want, and it takes a long time to pull out of technology what it can really give.

“Customers don’t know what they want.”

Reference: Inc. Magazine 1989 interview: <http://www.inc.com/magazine/19890401/5602.html>

Needs Exist in Advance of the Product/Service

Customer Needs for Space Flight

- Experience zero gravity
- Enjoy the view
- Have fun
- Return safely

BLUE ORIGIN



Latent Needs

- Needs that customers may not be aware of and are not able to express
- When latent needs are addressed, products may delight and exceed customers' expectations



amazon echo



GALGOTIAS
UNIVERSITY

Door Locks Study:
Careful observation
identifies *latent needs*.



Observing Tacit Knowledge

- Customers have knowledge they cannot readily explain.
- Be aware of user solutions and unintended uses.
- You may not know what to ask... so observe carefully!



“It’s hard to clean the broom”



Swiffer by P&G and Design Continuum



A new category in home cleaning — from \$0 to \$750 Million in 2 years!

CONTINUUM 

P&G

Customer Needs Analysis: Process Steps

1. Define the Scope
 - Mission statement
 - Stakeholders
2. Gather Information
 - Interviews
 - Focus groups
 - Observation
 - Ethnography
3. Interpret Customer Data
 - Write need statements
 - Organize in a hierarchy
 - Identify latent needs
4. Quantify Relative Importance
 - Focus on the trade-offs
5. Reflect on the Process
 - Continuous improvement

Customer Needs Example: Nest Learning Thermostat



Mission Statement

Product Description

- A programmable thermostat for residential use

Benefit Proposition

- Simple to use, attractive, and saves energy

Key Business Goals

- Product introduced in Q4
- 50% gross margin
- 10% share of replacement thermostat market in 4 years

Primary Market

- Residential consumer

Secondary Markets

- Residential heating, ventilation, and air conditioning contractors

Assumptions

- Replacement for an existing thermostat
- Compatible with most existing systems and wiring

Stakeholders

- User, Retailer, Sales force, Service center, Production, Legal department

Primary Customer Needs

1. The thermostat is easy to install.
2. The thermostat lasts a long time.
3. The thermostat is easy to use.
4. The thermostat controls are precise.
5. The thermostat is smart.
6. The thermostat is personal.
7. The thermostat is a good investment.
8. The thermostat is reliable.

Complete List of Customer Needs

** The thermostat is easy to install.

*** The thermostat works with my existing heating and/or cooling system.

** The thermostat installation is an easy do-it-yourself project for a novice.

** The thermostat can control separate heating and cooling systems.

* The thermostat can be installed without special tools. **Latent Needs**

The thermostat is easily purchased. **Secondary Needs**

* The thermostat lasts a long time.

The thermostat is safe to bump into.

The thermostat resists dirt and dust.

! The thermostat exterior surfaces do not fade or discolor over time.

The thermostat is recyclable at end of life.

*** The thermostat is easy to use.

** The thermostat user interaction is easy to understand.

* The thermostat is easy to learn to use.

* The thermostat does not place significant demands on user memory.

! The thermostat can be programmed from a comfortable position.

The thermostat can be controlled remotely without requiring a special device.

! The thermostat works pretty well right out of the box with no set up.

The thermostat's behavior is easy to change.

The thermostat is easy to control manually.

The thermostat display is easy to read from a distance.

** The thermostat controls are precise.

** The thermostat maintains temperature accurately.

The thermostat minimizes unintended variability in temperature.

The thermostat allows temperatures to be specified precisely.

*** The thermostat is smart.

*** The thermostat can adjust temperature during the day according to user preferences.

** The thermostat can be programmed to a precise schedule.

! The thermostat automatically responds to occupancy.

! The thermostat prevents pipes from freezing in cold months.

The thermostat alerts the user when a problem arises.

The thermostat does not require users to set time or date.

The thermostat adjusts automatically to the seasons.

* The thermostat is personal.

* The thermostat accommodates different user preferences for comfort.

The thermostat accommodates different user preferences for energy efficiency.

The thermostat controls are secure from unauthorized access.

The thermostat provides useful information.

*** The thermostat is a good investment.

** The thermostat is affordable to purchase.

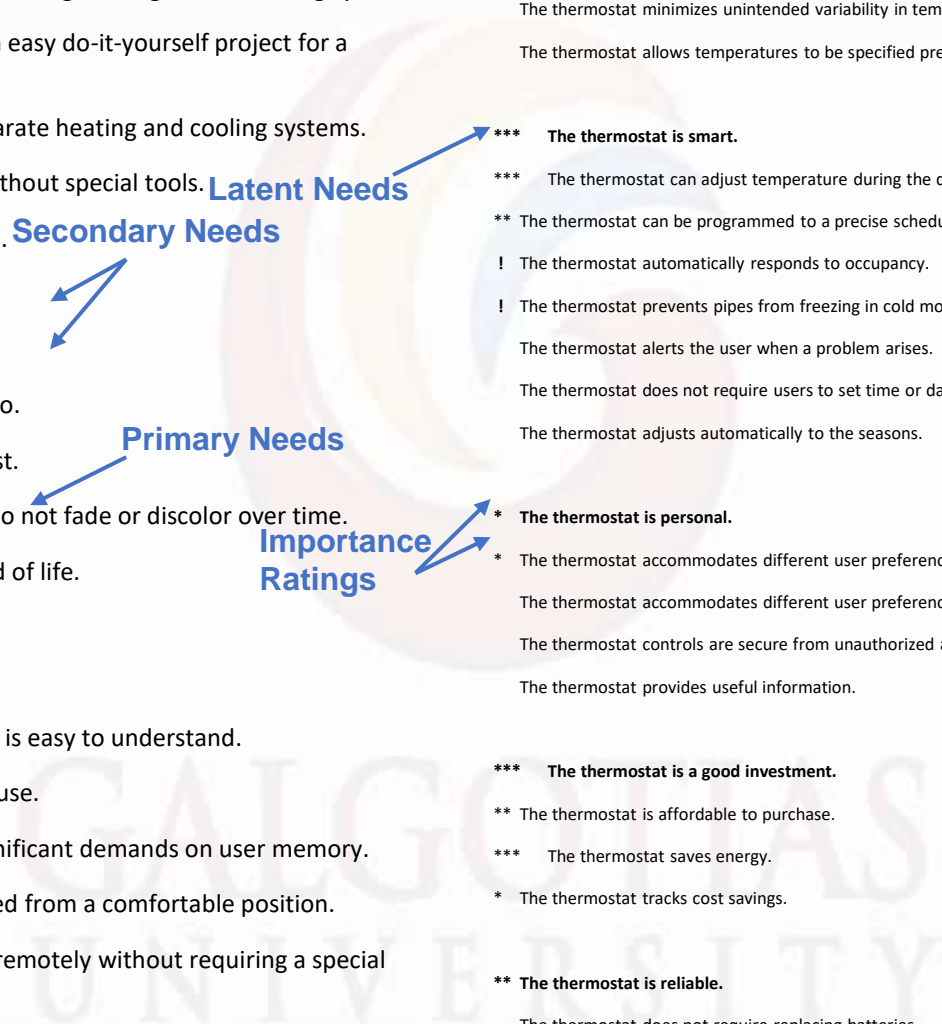
*** The thermostat saves energy.

* The thermostat tracks cost savings.

** The thermostat is reliable.

The thermostat does not require replacing batteries.

The thermostat works normally when electric power is suspended.



Primary Needs
Importance Ratings

Five Guidelines for Writing Needs Statements

Guideline	Customer Statement	Needs Statement - Right	Needs Statement - Wrong
“What” not “How”	I would like my iPhone to adjust my thermostat.	The thermostat can be controlled remotely without requiring a special device.	The thermostat is accompanied by a downloadable iPhone app.
Specificity	I have different heating and cooling systems.	The thermostat can control separate heating and cooling systems.	The thermostat is versatile.
Positive not Negative	I get tired of standing in front of my thermostat to program it.	The thermostat can be programmed from a comfortable position.	The thermostat does not require me to stand in front of it for programming.
An Attribute of the Product	I have to manually override the program if I’m home when I shouldn’t be.	The thermostat automatically responds to an occupant’s presence.	An occupant’s presence triggers the thermostat to automatically change modes.
Avoid “Must” and “Should”	I’m worried about how secure my thermostat would be if it were accessible online.	The thermostat controls are secure from unauthorized access.	The thermostat must be secure from unauthorized access.

Customer Needs Exercise: Bicycle Locks

1. Quotes
2. Photos
3. Video



Customer Quotes

- I wrap cushy tape around my lock to keep it from scratching my bike.
- How do you carry something this heavy?
- I hate having to walk around looking for something my lock will fit to.
- I keep my lock attached to my bike because otherwise I would forget it at home.
- How am I supposed to tell my lock apart from my roommate's?
- With winter gloves it's impossible to open.
- How can I feel 100% sure that my bike is safe?
- I sometimes forget my key at home.









Video: Locking Her Bike



UNIVERSITY

Caveats

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



References

1. Karl T. Ulrich and Steven D. Eppinger (2009), Product Design and Development, 4th Edition, Tata McGraw-Hill Publishing Company Limited, ISBN: 978-0-070-14679-2
2. Stephen C. Armstrong (2005), Engineering and Product development Management– The Holostic Approach, Cambridge University Press, ISBN: 978-0-521-01774-9.
3. IbrahimZeid (2006), Mastering CAD/CAM, 2nd Edition, Tata McGraw-Hill, ISBN: 978-0-070-63434-3.
4. [Anoop Desai](#), [Anil Mital](#) and [Anand Subramanian](#) (2007), Product Development: A Structured Approach to Consumer Product Development, Design, and Manufacture, 1st Edition, Butterworth-Heinemann, ISBN: 978-0-750-68309-8.

Thank you

**GALGOTIAS
UNIVERSITY**