Designing for Our Consumer

Michigan State University
Mechanical Engineering Senior Design
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Introductions

Whirlpool Engineering Rotational Leadership Development Program [WERLD]
• Engineering Leadership Development
• 2-year rotational program (4, 6 month rotations)
• Establish and organize rotation project proposals and their locations
• International rotation opportunities (Brazil, China, Germany, Italy, India, Mexico, Poland)
• Ability to obtain fully funded technical masters (Purdue University)
• All post college graduates hire into WERLD
• Fortune "Top Companies for Leaders" Award List – 2003

Kyle Sztykiel
BS MS 2006-2008 (BSME)
Aug 08-March 2009
WERLD Program-Bay City 2008
POSITIONS HELD
• Product Design- Technology Marketing
• Research Engineer
• Fabric Care
• Consumer Science

Katie Crow
BS MS 2004-2008 (BSME)
May 08-2006
WERLD Program-Beaver Island 2006
POSITIONS HELD
• R&D and Marketing
• Research and Development
• Mechanical Engineering
• Mechanical Engineer
• Consumer Science

PresentaLon Overview

• Whirlpool [WHR] company overview
• Design Process – Customer-to-Customer [C2C]
  – Business Opportunity
  – Technology Selection
  – Ready to Transfer
• Questions

Whirlpool Overview – About Us

• World’s leading marketer & manufacturer of home appliances
• Fortune 500 Corporation
• Founded in 1911
• Headquartered in southwest Michigan
• More than 67,000 employees worldwide
• Nearly $30B in sales from a variety of product categories
  – Fabric Care - washers, dryers, fabric refreshers...
  – Food Stream Solutions – refrigerators, freezers, ice makers...
  – Cleaning - dishwashers...
  – Cooking – ranges, cooktops, microwaves, hoods & vents...
  – Portables – stand mixers, blenders, coffee makers, toasters...
  – Other products - water treatment, air treatment, & many more...
• 67 Manufacturing and Technology Centers worldwide
• 17 major brands - products marketed in 170 countries

Whirlpool History

1911-1948
• Manufacturing Technology
  • Single Product, Single Customer

1948-1980
• Multi-Product and Whirlpool Brand

1980’s
• Multi-Brand, International Expansion

1990’s
• Brand Focused Value Creation

2000+

Brand Portfolio

KitchenAid
Roper
Gladeo
Consul
MAYTAG
Jenn-Air

2/7/11
Opportunity

Business

Today our discussion will focus on the innovation/technology development portion of the process where the majority of our customer research is completed.

Customer to Customer

Our internal design process is called Customer to Customer (C2C).

Front-end of process encompasses majority of customer input and requirements

"Tollgates" are milestones that guide project development

1. In the diagram below the Tollgates are symbolized using a navy circle.

2. Technological advances are translated to Need Statements

3. Top unmet consumer needs identified through a gap analysis

4. How satisfied are you that . . . [need statement]?

5. How important is it to you that . . . [need statement]?

6. Difference = Importance of Need

Today our discussion will focus on the innovation/technology development portion of the process where the majority of customer research is completed.

Pre-BOT Consumer Research Example:

- Voice of Consumer (VOC) process used to identify Accepted Consumer Beliefs (ACBs)
- ACBs are translated to Need Statements
- Top unmet consumer needs identified through a gap analysis
- How satisfied are you that . . . [need statement]?
- How important is it to you that . . . [need statement]?
- Difference = Importance of Need
- Consumer needs begin to define the consumer requirements to guide product development

Whirlpool Engineering and Consumer Research Functions:

Categories:

- White Goods (Washers, Dryers, & Adjacent Technologies)
- Surface Care (Dishwashers & Adjacent Technologies)
- Cooking (Ranges, Hoods, Cooktops, Microwave, & Adjacent Technologies)
- Appliances (Vacuum Cleaners, Blenders, Coffee Makers, Food Processors, etc.)
- Global Finance (Storage, Tool Booms, etc.)

Engineering Value Chain Each Category:

- Research Functionaries—work on implementation of technologies/innovations into complete products and support until launch

- Workers in each category have multiple platforms (e.g., laundry, small kitchen, and food testing laboratories)

- Technology engineers—work on up front technologies/innovations that translate across multiple platforms

- Quality engineers—work on enhancing future platform quality and improving existing product quality

- Manufacturing engineers—work on improving day-to-day engineering and line practice in manufacturing plants

- Finance Engineers—work on process improvements and six sigma (OPC) practices

Consumer Research Input/Output Each Category:

- Consumer (Cone) works as a thin layer between marketing and engineering to help translate technical feasibility into marketable features

- Marketing/Brand—work with technology and platform development to ensure we develop products that work in the market place and fit our brand profile and consumer segmentation

- Insights and Intelligence—work on high level market and industry trends to help drive future products and technologies

The link between Consumer Input/Research and Engineering is key to creating successful products in a consumer goods industry!

Pre-Business Opportunity Tollgate

Consumer Trends

- Purchase Drivers

- Channel Trends

- Market Trends

- Product Trends

Market Trends

- Market Share & Sales Data

- Adjacent Market Trends (laundry additives, textiles)

- New Product Introductions

- Pricing & Competitive

- Marketing Influences (eco-efficiency, simplicity, wellness)

Technology Trends

- New Technology Applications

- Cost Effective Solutions

Competitive Insights

- New Product Launches

- Technology Analysis

- Feature Delivery

- RV (R&D) Epic

Business Opportunity Tollgate

What we know:

- There is a significant gap or need in a given technology area

- What are competitive solutions in this area

- Customer needs

Deliverables:

- Customer benefits: both primary and secondary

- Concept Potential: feasibility, believability, uniqueness, and purchase intent

- Consumer Segments/Brand

- Desired/Potential marketing claims and consumer reports scan targets

Based on the deliverables, a cross-functional team (product development, brand, engineering, consumer design, and marketing) determines if there is a business case for a given technology area

- If the team agrees there is a solid business case, the technology teams will work towards a technology selection meeting (TSM)

- We need to learn more about:

- What existing technologies have potential to deliver the desired benefit

- So, what innovations should be developed to deliver the desired benefit
QFD rules of thumb:
- Every TR must have at least one associated FR
- Every FR must have targets that are quantifiable or measurable
- Technical solutions that address the FRs are managed in a Pugh matrix
- QFD is an iterative living document meaning it evolves with product progression and our C2C process

Technical solutions comparison ratings & justification

Ready to Transfer

What we know:
- A specific technology exists that has both technical feasibility and trade-offs that are acceptable to our consumer base

Deliverables:
- Finalized data to show the technology will deliver a specific benefit that was defined at BOT and refined to be more specific at TSM
- Finalized data to show the technology will deliver a specific marketing claim that was defined at BOT and refined to be more specific at TSM
- The technology has an application that is acceptable to the consumer and fits with in product architecture

Answer to the question:
- What does it look like?
- What does it feel like?
- What does it sound like?
- How does the consumer feel with it?

Based on the deliverables, a cross-functional team (product development, brand, engineering, consumer design, and category) determines whether this technology is ready to be implemented into a specific product/platform
QUESTIONS??

You’re Invited!

Join us to hear how Spartan Engineers at Whirlpool Corporation have made your day to day life easier for the past 100 years!

What: Whirlpool Engineering Info Session
Where: 3400 EB
When: September 30th, 2010 from 6:00pm – 7:30pm

Info about our WERLD (Whirlpool Engineering Rotational Leadership Development) Program

Free Pizza & Pop will be provided!