Product Decisions
New Product Development (NPD)

Marketing Management
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Product Related Decisions

- Branding
- Positioning
- Packaging

Brand communicates hidden benefits or quality

- Some benefits are hard to communicate
  - And so are hidden
    - Such as fragrance of perfume
- Often products fail despite the best efforts of seller
  - But buyer does not know effort of seller
    - “Quality” is hidden
- Brand name can help in these cases
Brands Have Economic Value

- Consumers associate brands with certain benefits
  - Functional
    - Reliability, performance, economical
    - Maytag, Bose, Honda
  - Psychological
    - Prestige, Safe, Wholesome
    - Tiffany’s, Volvo, Disney
- And so would pay a premium for the benefits that they expect from the brand

Brand is an implicit contract

- Brand helps to identify products
  - Consumers can “punish” poorly performing products
    - By refusing to buy it in the future
- Building and maintaining brand reputation is costly
  - Brands would avoid consumer displeasure
    - So they deliver what is promised

Methods of Branding

- Corporate Brands
  - Colgate, GE, Clorox, Maytag
- Product specific brands
  - Tide, Maxwell House, Kleenex
- Umbrella Brands
  - One brand name used in several product categories
    - Like corporate brands
      - Lipton—Tea and soup
    - With sub-brands
      - Sony Trinitron, Sears Kenmore and Craftsman
- Co-brands
  - Cilbank Visa, Exxon-Mobil, Intel inside
Brand Equity

- Is an asset
  - For Coke to introduce a diet drink would be costly, but the cost could be kept lower by calling the drink Diet Coke
  - If Coke were to be marketed without the brand name but holding all other things equal the product would command a lower price; the brand Coke carries a premium in the consumers’ mind
  - These sorts of economic advantages that a brand has constitute its brand equity.

Brand Equity

- Brand equity can be built up
  - By advertising (awareness)
  - Over time, reputation (perceived quality)
  - Over time, through satisfied customers (brand loyalty)
  - Co-branding and similar associations

Brand Extensions

- Leverage brand equity to enter new product/markets
  - Evaluate fit with new offering
    - Reduce cost of introduction
    - Get rapid trial and adoption
    - Save on “positioning” effort and costs
  - Evaluate potential negatives for brand equity
    - Dilution, negative feedback
Positioning

- How brands are perceived relative to each other
  - Objective characteristics
  - Subjective characteristics
  - Benefits
- Unique selling proposition
- Ideal Points
  - Holes in the market

PRODUCT DIFFERENTIATION

- SOME WAYS TO DEFINE DIFFERENTIATION:
  - A ROSE IS NOT A ROSE...
  - EACH PRODUCT CAN (MUST?) HAVE A UNIQUE SELLING PROPOSITION (USP)
  - EXAMPLES: COLAS: THE REAL THING / PEPSI GENERATION
    SHAMPOOS: GENTLE / PROTEIN / FRIENDLY
    CARS: MAKE IT SIMPLE / QUALITY IS JOB 1 / RELENTLESS PURSUIT OF PERFECTION
- DIFFERENTIATE ATTRIBUTES OR FEATURES
  - EXAMPLES: LARGE SCALE TV: 45" / 53"
    SUPERMARKET: QUALITY / EDLP
    KETCHUP: RUNNY / THICK
    TISSUES: SOFT / ABSORBENT

Perceptual Map

- One way to see how products are differentiated is to:
  - Ask how consumers see the products
    - What are the “benefit dimensions”?
    - How are the brands “placed” relative to each other
    - How is the “ideal” brand placed
  - There may be consumer segments
- The map can tell a manager
  - Whether there are “holes” in the market
  - Which brands are close substitutes—cross elasticity
Packaging

- Packaging is an attribute and so has
  - Consequences
    - Both functional and psychological
  - Leading to values
    - Both terminal and instrumental
- Can help differentiate both on
  - Objective (functional) benefits and
  - Subjective (psychological) benefits

Packaging affects Production Process

- Most important, packaging may not affect utility of consumption as much as the production process itself
  - Can examine product before purchase
  - Can access and store product easily
  - Can prolong pantry life
  - Can affect ease of consumption (straws in juice packages!)
  - Can affect cost of disposal
New Products

- Lifeline of successful companies
  - Gillette known for its absolute dominance in razor and blades market
  - Duracell, Gillette Toiletries (Right Guard, Soft&Dri), Stationery products (Parker, Paper Mate), Oral-B toothbrushes, Braun electrical appliances
  - Profitable, fast growing, each number one world-wide and anchored by a steady flow of innovative ideas
  - Gillette is a "new product machine" – Wall Street Journal
  - Encourages innovations that will cannibalize its established products
  - "If we don’t bring out a new zinger, someone else will"

Problems with Some NP

- Endogeneity between support and demand
  - HDTV
  - Film processing – APS
- Failure rates are very high ~ 80% of new products are classified as failures
  - New Coke, Zap Mail (FedEx), Polarvision instant movies (Polaroid), Arch Deluxe sandwiches (McDonald’s)
  - Of 25,000 new consumer food, beverage, health care products that hit the market each year only 40% will be around 5 years later
  - Failure rates of Industrial products ~ 30%

Why Products Fail?

- Insignificant "point of difference"
- Incomplete market/product definition
  - Market research – needs analysis?
- Target market too small (inaccurate forecasts)
- Poor execution of marketing mix
  - Minute Maid Squeeze Fresh OJ – very messy
- Bad timing – too late?
- No economical access to buyers – can be costly to get shelf space
Other

- Market size forecasts
- Positioning, pricing, distribution support (APS)

Approaches to NPD

- Classical linear approach
- Rugby approach
- Target costing approach

Classical Linear Approach (CLA)

- Opportunity Identification
  - Identify consumer segment needs that are worth satisfying
- Once market entry decision has been — generate NP ideas
  - Customer suggestions — e.g. Infinity SUV
  - Employee — General Mills Granola Bars
  - R&D breakthroughs — Sony (VCRs, Walkman, DVDs)
  - Competition — Honda Odyssey
Design (CLA)

- Filter/Design
  - Needs of target consumers
  - Feasibility
  - Demand forecasts
  - Other information to filter/weed
  - Use above information to proceed with design efforts

Testing (CLA)

- Given prototype
  - Test with customers from the target group
  - Test results help refine product, demand forecasts and may help thwart some concepts
  - Test marketing – behavior in a real shopping environment with real marketing mix (price, advertising and other promotional activity)

Rollout (CLA)

- Measures of interest
  - Trial
  - Repeat purchase rate
Rugby Approach (RA)

- In contrast to sequential approach to PD as in CLA, RA is a more parallel in nature
- Product development teams are cross-functional
  - Autonomous (once goals have been defined)
  - Constant interaction between members with different backgrounds minimizes bottlenecks
  - More sensitive to requirements of different departments
  - Lessons learnt can be transferred to the entire organization

Target Costing Approach (TCA)

- Ascertain product features that are desirable
- Estimate the price end consumer is willing to pay
- What kind of product will satisfy the needs – quality, other attributes?
- Unit Profit?
- Unit Cost ≤ Price – Unit Profit

NPD Process

- Idea/Concept generation
  - Employees, R&D, customers, competitors
  - Think tanks internal or external to the company can also assist in generating ideas
- Concept screening
  - Consumer surveys – conjoint analysis
  - Focus groups
  - Demos
NPD Process

- Product Definition
  - Incorporate consumer feedback early in the process
  - Conflicting requirements will need to be prioritized (output from Conjoint may be useful)
  - Establish link between customer needs and physical characteristics of the product (House of Quality)

Testing

- Product use tests
  - Initial tests conducted with small consumer or employee samples
  - Consumers are asked to use the product over a time period
    - reactions are solicited to make inferences about the likely success
      - More sophisticated tests could simulate purchase environments
  - More elaborate tests could be conducted over extended periods (initial wear-out)
    - Helps uncover problems that manifest only over an extended period of use

Market Tests

- Test markets
  - Trial rate
  - Repeat rate
  - Consumption or Usage rate

- How to choose test markets?

- Other decisions
  - How long to test? How much to spend? What information to gather?
Sales Forecasting

- Extremely hard but crucial
- Sales projections influenced by
  - Awareness
  - Penetration (how many)
  - Repeat rate (how often)
  - Usage rate (how much)

Post Rollout Support

- Very Critical
- Quality product is not enough
- Initial support must exist for product success

Conjoint Analysis

- Premise – a product is a bundle of attributes
- Each attribute can have many levels – example, Pizza crust (thin, thick, pan)
- Conjoint analysis uses data on consumers’ overall preferences for a selected number of product bundles
  - Decomposes these overall preferences into components that are derived from the different attribute levels
Conjoint Analysis: An Example

- Packaged goods firm interested in introducing a new frozen pizza
- Based on focus groups, the following attributes and levels are being considered:
  - Crust (3 levels: think, thin, pan)
  - Toppings (4): veggie, pepperoni, sausage, pineapple
  - Type of cheese (3): mozzarella, Romano, mixed
  - Quantity of cheese (3): 2 oz, 4 oz, 6 oz

Collecting Data

- Present alternatives for consumers to evaluate – how many alternatives to present?
  - 324 possible combinations (3x4x3x3x3)
  - Only interested in figuring out the part-worths of 16 levels
  - Can do with evaluating as few as 16 alternatives
  - Important to NOT have alternatives that are dominated

Conjoint Analysis Output

<table>
<thead>
<tr>
<th>Crust</th>
<th>Qty. Cheese</th>
<th>Topping</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pan</td>
<td>2 oz</td>
<td>Pineapple</td>
<td>9.99</td>
</tr>
<tr>
<td>Thin</td>
<td>4 oz</td>
<td>Veggie</td>
<td>8.99</td>
</tr>
<tr>
<td>Thick</td>
<td>6 oz</td>
<td>Sausage</td>
<td>7.99</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pepperoni</td>
<td>9.99</td>
</tr>
</tbody>
</table>
**Conjoint Analysis: Output**

<table>
<thead>
<tr>
<th>Type of Cheese</th>
<th>(10 points)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Romano</td>
<td>0</td>
</tr>
<tr>
<td>Mixed Cheese</td>
<td>3</td>
</tr>
<tr>
<td>Mozzarella</td>
<td>10</td>
</tr>
</tbody>
</table>

**Ranking Alternatives**

<table>
<thead>
<tr>
<th>Veggie Delite</th>
<th>Points</th>
<th>M-Lover’s Treat</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thin</td>
<td>10</td>
<td>Thick</td>
<td>15</td>
</tr>
<tr>
<td>Veggie</td>
<td>10</td>
<td>Pepperoni</td>
<td>30</td>
</tr>
<tr>
<td>Romano</td>
<td>0</td>
<td>Mixed</td>
<td>3</td>
</tr>
<tr>
<td>2oz</td>
<td>0</td>
<td>6oz</td>
<td>10</td>
</tr>
<tr>
<td>$7.99</td>
<td>35</td>
<td>$9.99</td>
<td>0</td>
</tr>
<tr>
<td>Total Utility</td>
<td>55</td>
<td>Total Utility</td>
<td>58</td>
</tr>
</tbody>
</table>

**Implications for NPD**

- Respondents prefers pepperoni (30) to veggie (10) by 20 points.
- Respondents prefer paying 8.99 to 9.99 by the same 20 points.
- Pepperoni premium relative to veggie is $1.
- Firm can produce a pizza that has a utility score of 100.
  - Is that profitable?
Implications for NPD

- Consumer tastes are not identical
- Group consumers that place similar weights on the attributes (levels) together
  - Consumers that prefer thin/thick/pan together
  - Do preferences correlate with demographic or psychographic characteristics
- How large are these segments?
- How many alternatives to offer? Back

New Product Development

Supplement

Product Positioning: Monopolist

- Suppose after engaging in market research the firm estimates the following
  \[ \text{Consumer Value} = \theta q - p, \text{ where } q \text{ is a quality index constructed using product attributes and } p \text{ is the price} \]
- \( \theta \) is found to be uniformly distributed in the range [100, 500]
- What price and quality levels would be the most profitable for a monopolist?
**Firm’s Problem**

- Set price and quality to maximize profits
- Profit = \( p(500 - p/q)/400 - 500*(q^2) \)
- Optimality conditions:
  - \( p/q = 250 \)
  - \( (p/q)^2 = 1000*400*q \)
- Optimal quality: \( q^* = 5/32 \), \( p^* = 625/16 \)