Class Session 9

DEVELOPING NEW PRODUCTS AND SERVICES

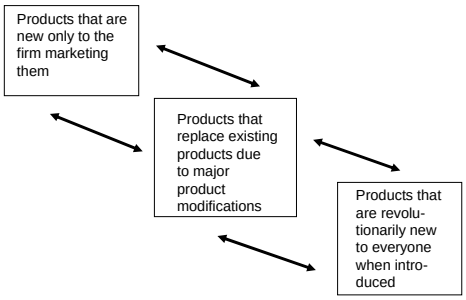
WHAT IS AN INNOVATION?

1. **ANY IDEA OR PRODUCT OR SERVICE PERCEIVED BY THE POTENTIAL INNOVATOR TO BE NEW.**
2. **ANY FORM OF PRODUCT OR SERVICE THAT HAS RECENTLY BECOME AVAILABLE IN THE MARKET.**

TYPES OF INNOVATIONS

1. **A CONTINUOUS INNOVATION HAS THE LEAST DISRUPTING INFLUENCE ON ESTABLISHED PATTERNS OF BUYER BEHAVIOR. ALTERATION OF A PRODUCT IS INVOLVED RATHER THAN THE ESTABLISHMENT OF A NEW PRODUCT.**
2. **A DYNAMICALLY CONTINUOUS INNOVATION HAS MORE DISRUPTING EFFECTS THAN A CONTINUOUS INNOVATION, ALTHOUGH IT STILL DOES NOT GENERALLY ALTER ESTABLISHED PATTERNS.**
3. **A DISCONTINUOUS INNOVATION INVOLVES THE ESTABLISHMENT OF A NEW PRODUCT AND THE ESTABLISHMENT OF NEW BEHAVIOR PATTERNS.**

A CONTINUUM OF PRODUCT/SERVICE NEWNESS



Exercise

What new products or services has your company introduced in the past five years?

What classification of innovation would you place each of them?

THE NEW PRODUCT ADOPTION PROCESS

Awareness - does the potential adopter know that the product even exists?

Interest - does the potential adopter have sufficient knowledge about the product and is there an interest that the product may satisfy the user's needs

THE NEW PRODUCT ADOPTION PROCESS

Evaluation - the user weighs the information known about the product to see if the advantages of using the product seem to be worth the expense of purchasing it

Trial - the user conducts an "in use" evaluation of the product to determine if the conclusion reached in the evaluation trial is warranted

THE NEW PRODUCT ADOPTION PROCESS

Adoption - the user concludes that the preliminary evaluations justify continued purchase of the product and incorporation of the product into normal purchase-consumption routines

What has your company done to enhance the prospects for potential adopters for new products at each stage of the process described above?

FACTORS INFLUENCING THE RATE OF ADOPTION FOR NEW INNOVATIONS

1. Perceived Attributes of the Innovation
   - Relative advantage of the innovation
   - Compatibility with existing behaviors
   - Complexity of the user's interface with the innovation
   - Trialability (minimum risk)
   - Observability
2. Type of Innovation Decision
   - Optional
   - Collective
   - Forced (authority)

FACTORS INFLUENCING THE RATE OF ADOPTION FOR NEW INNOVATIONS

3. Communication Channels
   - Mass Media
   - Interpersonal
4. Nature of the Social System
   - Consumers
   - Organizations
5. Extent of Change Agents' Promotional Efforts

EXERCISE

What has your company done to enhance rate of adoption for innovations which have been introduced in the past few years?

How have the factors which are not within the company's control influenced the rate at which the innovation was adopted?

CATEGORIES OF ADOPTORS

Innovators : The first 3-5% of people who eventually adopt the product. These people are not bound by the norms of their reference group; they have excess risk capital (either financial or social)

Early Adopters : The next 10-15% of the people who eventually adopt the product. These people keep a close eye on potential innovators to see how their risk taking behavior turns out. Early adopters are usually the opinion leaders who influence the rest of the potential adopter population.

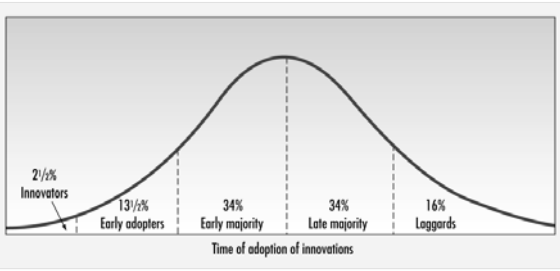
CATEGORIES OF ADOPTORS

Early Majority : The next 34% of the market. When these people come into the market, the product growth rate really picks up.

Late Majority : The next 34% of the market. These people usually adopt the product toward the end of the growth stage of the product life cycle.

Laggards or non-adopters : The remaining 5 - 16% of the market. These people have their eyes glued to the rearview mirror.

The New Product Adoption Curve



EXERCISE

Does your company identify innovators and early adopters and develop specific promotional activities for these individuals or companies?

How do they do this?

How successful is this?

STAGES OF NEW PRODUCT DEVELOPMENT

1. **EUPHORIA**
2. **DISILLUSION**
3. **SEARCH FOR THE GUILTY**
4. **PUNISHMENT OF THE INNOCENT**
5. **REWARD FOR THE UNINVOLVED**

DON'T WORRY ABOUT FAILURE. WORRY ABOUT THE CHANCES YOU MISS WHEN YOU DON'T EVEN TRY!!

THE NEW PRODUCT DEVELOPMENT PROCESS

GENERATION OF NEW PRODUCT IDEAS AND CONCEPTS What things could we do? What is interesting? What requests have our customers given to us? etc.

SCREENING AND EVALUATION Does it fit with our business? Is it feasible? Do we have the resources? Is it really that interesting?

BUSINESS ANALYSIS What is the potential profit from this new product? The payback period? Cash flow? What is the required investment ($ and people)?

THE NEW PRODUCT DEVELOPMENT PROCESS

PRODUCT DEVELOPMENT Product design. Let's build the prototype!

MARKET TESTING Will it fly in the market place? What is the market's response? What is the best way to market the product?

PRODUCT COMMERCIALIZATION Passed all of the tests, now let's go!!

THE NEW PRODUCT DEVELOPMENT PROCESS

Under this system it takes an average of 58 ideas to generate one product which can be introduced into the marketplace.

The reported success rate of this system has averaged two market successes (achievement of anticipated profit/market results) for every three products introduced. The actual success rate may be half of that; that is, only one of every three new products actually reach their volume, payback, profit or ROI goals.

EXERCISE

Is your company's new product development process similar to the one described above? What has been the success rate for new products in the past five years? What percent of current profits and sales comes from products introduced in the past five years?

THE NEW NEW PRODUCT DEVELOPMENT PROCESS

BUSINESS STRATEGY What direction should we go? What is our business? What are our target markets and customers?

NEW PRODUCT STRATEGY What kinds of new products will help us fulfill our overall business strategy? What are our new product goals?

GENERATION OF NEW PRODUCT IDEAS AND CONCEPTS What things could we do? What is interesting? What requests have our customers given to us? etc.

THE NEW NEW PRODUCT DEVELOPMENT PROCESS

SCREENING AND EVALUATION Does it fit with our business?Is it feasible? Do we have the resources?

BUSINESS ANALYSIS What is the potential profit from this new product? The payback period? Cash flow? What is the required investment ($ and people)?

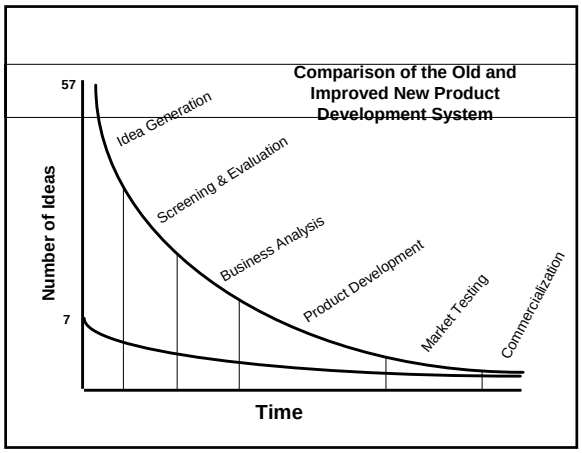
PRODUCT DEVELOPMENT Product design. Let's build it!

THE NEW NEW PRODUCT DEVELOPMENT PROCESS

MARKET TESTING What is the market's response? What is the best way to market the product?

PRODUCT COMMERCIALIZATION Let's go!!

A new product strategy formulation step has been added to the process (derived from the overall strategy of the business) providing better program direction and planning.The major benefit of this added preliminary stage has been to reduce the number of new ideas needed for a commercialized new product from 58 to 7. However, the overall success rate of the products once introduced to the market has not changed.



Cost of Finding One Successful New Product (Starting with 64 New Ideas)

Stage	Number of Ideas	Pass Ratio	Cost per Product Idea	Total Cost
1. Idea screening	64	1:4	$ 1,000	$ 64,000
2. Concept testing	16	1:2	20,000	320,000
3. Product development	8	1:2	200,000	1,600,000
4. Test marketing	4	1:2	500,000	2,000,000
5. National launch	2	1:2	5,000,000	10,000,000
			$5,721,000	$13,984,000

EXERCISE

Has your organization improved its product development by first developing a business strategy and linking the product development strategy to it?

STRATEGIC ROLES FOR THE MOST SUCCESSFUL NEW PRODUCTS

MARKET DRIVEN ROLES:

DEFEND A MARKET SHARE POSITION (44%)

ESTABLISH A FOOTHOLD IN A FUTURE NEW MARKET (37%)

PRE-EMPT A MARKET SEGMENT (33%)

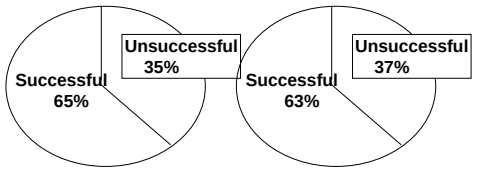
INTERNALLY DRIVEN ROLES:

MAINTAIN A POSITION AS A PRODUCT INNOVATOR (46%)

EXPLOIT A NEW TECHNOLOGY IN A NEW WAY (27%)

CAPITALIZE ON DISTRIBUTION STRENGTHS (24%)

NEW PRODUCT SUCCESS RATES



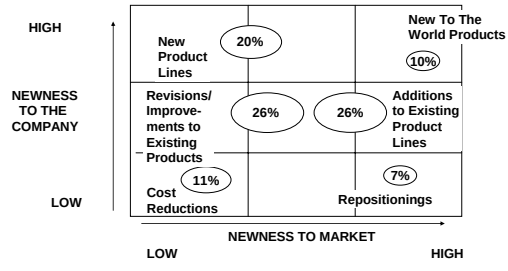
1976-1981

Based on 13,311 New Product Introductions

1963-1968

Based on 366 New Product Introductions

DEGREES OF RISK FOR TYPES OF NEW PRODUCTS AND PAYOFF IF SUCCESSFUL



60% OF COMPANIES' MOST SUCCESSFUL NEW PRODUCTS ARE NEW TO THE WORLD PRODUCTS OR PRODUCT LINES NEW TO THE COMPANY

HIGH YIELDS WITHOUT HIGH RISK IS A VERY RARE THING

DRIVERS FOR MORE NEW PRODUCTS

- **Technology advances**
- **Changing consumer values, needs and lifestyles**
- **Shortened product life cycles**
- **Increased access to foreign markets**
- **Increased foreign competition**

INHIBITORS TO MORE NEW PRODUCTS

- **INCREASING COST OF LABOR**
- **DIFFICULTY GETTING PROPER SKILL SET**
- **GOVERNMENT REGULATIONS**
- **INCREASING COST OF CAPITAL**

EXERCISE

What are the most important drivers for new product development in your company?

What are some of the inhibitors to new product development in your company?

OBSTACLES TO NEW PRODUCT SUCCESS

MANAGEMENT ORIENTATION

1. **LACK OF ATTENTION ON NEW PRODUCTS DUE TO CURRENT BUSINESS PRESSURES**
2. **EMPHASIS ON SHORT-TERM PROFITABILITY**

MANAGEMENT PRACTICES

1. **INADEQUATE MARKETING RESEARCH**
2. **LACK OF A NEW PRODUCT STRATEGY**
3. **LACK OF MEASUREMENT CRITERIA**
4. **LACK OF PROVEN ANALYTICAL TECHNIQUES**

OBSTACLES TO NEW PRODUCT SUCCESS

Organization

1. **Delays in decision-making**
2. **Ineffective communications between functions and departments**
3. **Current organizational structure**
4. **Unclear assignment of ultimate new product responsibility**
5. **Excessive top management involvement in process details**
6. **Lack of general business skills among new product managers**

EXERCISE

What are some specific obstacles to the development of new products in your company?

What can you recommend to remove each of these obstacles?

SUCCESSFUL PRODUCTS.....

- Recognize market needs with R&D targeted at satisfying those needs
- Adapted existing technology to meet specific needs
- Had research managers who communicated technological developments early and frequently to other departments
- Had communication between engineers and scientists and other involved operating departments

FACTORS CONTRIBUTING TO NEW PRODUCT SUCCESS

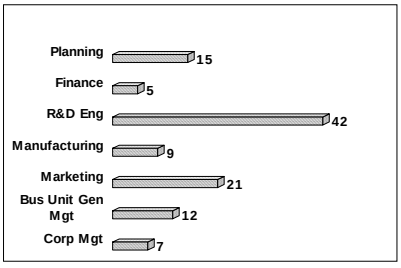
1. Fit Of Product With Market Needs (88%)
2. Product Fit With Internal Functional Strengths (63%)
3. Technological Superiority Of The Product (53%)
4. Top Management Support Received (46%)
5. New Product Development Process (34%)
6. The Competitive Environment Encountered (32%)
7. The New Product Organization Structure (15%)

EXERCISE

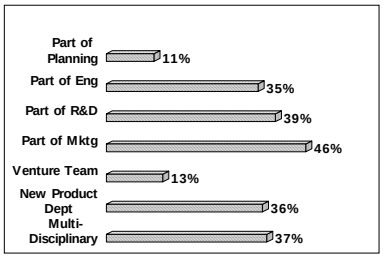
What specific factors have contributed to past successes with new products?

What has your firm done to replicate these factors?

ALLOCATION OF MANAGEMENT TIME TO NEW PRODUCTS

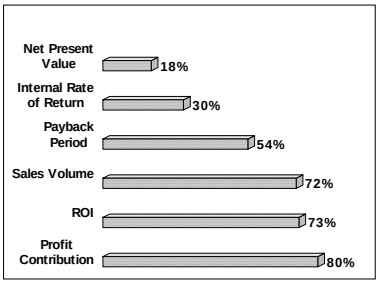


NEW PRODUCT ORGANIZATION



PERFORMANCE CRITERIA

35% of all companies do not formally measure new product performance



PROJECT SAPPHO*
Reasons for Success

- Understanding of customer needs
- Effective communication (external and internal)
- Efficient product development
- A strong market orientation
- Key individuals were empowered
- Frequent customer contact
- Superior marketing capabilities
- Matched sales strategies to market requirements

***U.K. study of 43 successes and 43 failures**

U.S. FACILITATORS FOR NEW PRODUCT SUCCESS*

- The existence of a product champion
- Recognition of customer needs
- Strong internal communications
- Superior techniques for data gathering, analysis, and decision making
- Planned approaches to venture planning

*Rubinstein's study of U.S. new products

Project NEWPROD

- 200 products from 100 industrial companies were studied
- 80 characteristics of each were measured
- Factors were related to commercial success or failure
- Three factors emerged
  - Product Superiority
  - A Strong Market Orientation
  - Technological Fit and Proficiency

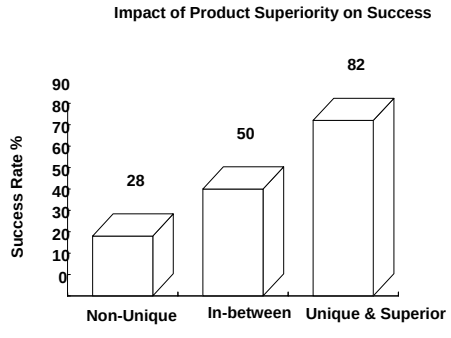
PRODUCT SUPERIORITY

The single most important success factor was having a product that delivered unique and significant benefits to the user.

The odds of success with a unique, superior product were over eighty percent.

"Ho hum" or "me too" products had a success rate of only 28 percent

PRODUCT SUPERIORITY



INGREDIENTS OF A SUPERIOR PRODUCT

- Superior to competing products in meeting customer needs
- Product has unique features for the customer
- Product is of higher quality than competing products
- Product does unique task for the customer
- Highly innovative product, new to market
- Product reduces customers' costs

A STRONG MARKET ORIENTATION

Strongly market-oriented products were successful 79 percent of the time.

Those rated weakest in terms of market orientation were successful only 28 percent of the time.

Projects had extensive market information gathering; preliminary market assessment; detailed marketing research; concept tests in the marketplace; prototype trials; and test marketing

INGREDIENTS OF A STRONG MARKET ORIENTATION

- Proficiently undertaking detailed marketing study; market research
- A well-integrated sales force and distribution launch effort
- Proficiently undertaking preliminary market assessment
- Proficiently executing market launch
- Proficiently undertaking test market or trial sell
- A strong sales force and distribution effort at launch

INGREDIENTS OF A STRONG MARKET ORIENTATION, CONT

- Understanding buyer behavior
- Knowing the size of the market
- Understanding the competitive situation
- Knowing customers' price sensitivity
- Understanding customers' needs, wants, and preferences

TECHNOLOGICAL FIT AND PROFICIENCY

A high degree of fit or synergy between the technological needs of the project and the technological and production resource base of the company

"Stick to the knitting" for your new products, at least in terms of technology and production.

QUICK EVALUATION

- What makes for successful new products in your company?
- What separates winners from losers?
- Pick a recent product and list those features which are desirable and those which are necessary.

POSITIVE PRACTICES

- A formal new product process
- Step One is a New Product strategy
- Better screening; fewer projects that will ultimately be abandoned get started
- Management attention and resources are devoted to the initial steps of exploration, screening, and business analysis
- Specific measurements of new product performance
- Multiple types of new product organizations depending on the type of project.

CONDUCTING A NEW-PRODUCT PRACTICES AUDIT

- Does your company have a formal new-product process in place? Is it followed?
- Is there sufficient emphasis on the up-front activities: exploration, project selection, and business analysis?
- Do you measure the performance of the new-product process? What are those results?
- How are new-product activities organized? Is it single function (R&D, mktg, eng) or cross functional?

THE NEW-PRODUCT GAME PLAN

1. New-product development and commercialization is a high-risk but vital endeavor of the modern corporation.
2. There are no easy answers to what makes a new product a success.
3. Companies that follow a new-product game plan do better.
4. New-product success is amenable to management action.
5. A strong market orientation is needed in new-product development.

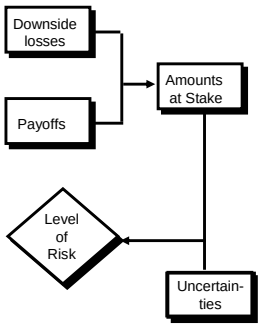
THE NEW-PRODUCT GAME PLAN

6. The nature of the product is central to its success.
7. More homework must be done before product design and development are undertaken.
8. Better, more consistent, and more systematic product evaluation is required.
9. A well-conceived, properly executed launch is vital to success.
10. Organizational structures that provide for multifunctional inputs and internal communications and coordination foster successful new products.

GAME-PLAN REVIEW

- Review the ten lessons.
- List the specific steps or actions that the company has taken in its approach to new products.
- Do the steps that the company is taking support the observations from these lessons?

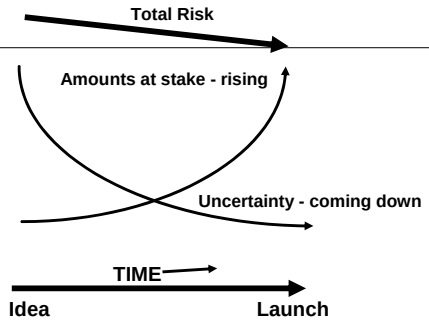
COMPONENTS OF RISK



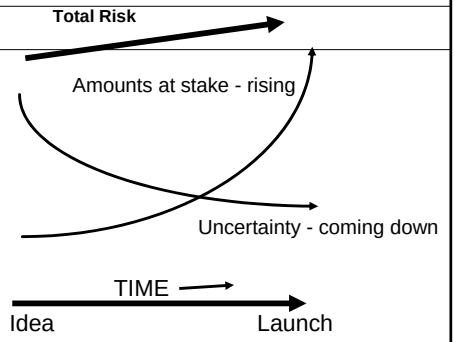
SOME NEW PRODUCT DEVELOPMENT RULES

1. If the uncertainties are high, keep the stakes low.
2. As the uncertainties decrease, the amounts at stake can be increased.
3. Incrementalize the decision process: break an all-or-nothing decision into a series of decisions
4. Buy information to reduce uncertainty.
5. Provide for bail-out points; give yourself an opportunity to get out of the game.

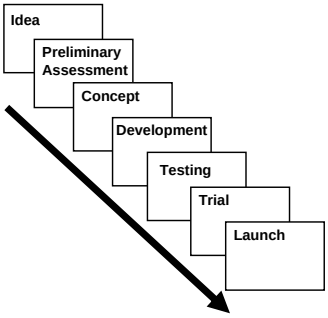
Risk under control



Risk out of control



THE SEVEN-STAGE GAME PLAN



THE SEVEN-STAGE GAME PLAN

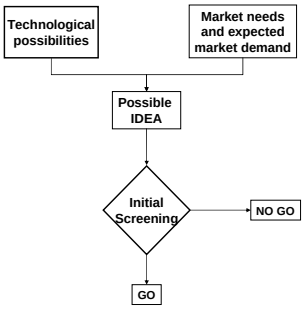
- The game plan is incremental: the entire new-product process is divided into a series of smaller steps
- The plan is designed to manage risk: each step is progressively more expensive than the one that precedes it, but the activities are designed to drive uncertainty down as you progress
- Each step is separated from the the next step by an evaluation or bail-out point; a GO/KILL node that asks the question "Are we still in the game?"

THE SEVEN-STAGE GAME PLAN

- The plan is decidedly market-oriented, ensuring that vital and often overlooked market activities are built into the process
- There is heavy emphasis on front-end activities that precede the actual design and development of the product

STAGE 1 - THE IDEA

An idea occurs when technological possibilities are matched with market needs and an expected market demand



STAGE 1 - THE IDEA

Take a close look at how a product idea moves through your company

Does the idea gradually slip into project status?

Who made the decision to commit resources?

How are new-product ideas screened in your company?

Is there a formal and consistent process for evaluating new-product ideas?

Does the system weed out obvious losers and misfits? Or is it too rigorous, accepting only "sure bets"?

FINDING GOOD IDEAS FOR NEW PRODUCTS

1. **ESTABLISH A FOCAL POINT make sure some one has the responsibility for stimulating and collecting new-product ideas**
2. **ESTABLISH A GOAL such as the company should consider a minimum of 100 new-product ideas this year**
3. **GIVE DIRECTION make sure all employees know what constitutes a viable idea**
4. **PROVIDE REWARDS for all new ideas to encourage employees to come forward despite the fact that most ideas will be rejected**

INTERNAL SOURCES OF NEW-PRODUCT IDEAS

- **RESEARCH AND ENGINEERING**
- **SALES AND MARKETING**
- **PLANNING**
- **PRODUCTION AND SYSTEMS**
- **BRAINSTORMING SESSIONS**
- **OTHER EXECUTIVES**
- **THE BOARD OF DIRECTORS**

EXTERNAL SOURCES OF NEW-PRODUCT IDEAS

- **CUSTOMERS AND PROSPECTS**
- **RESEARCH ORGANIZATIONS AND CONSULTANTS**
- **TECHNICAL PUBLICATIONS**
- **COMPETITORS**
- **UNIVERSITIES**
- **INVENTORS**
- **UNSOLICITED SOURCES**
- **ADVERTISING AGENCIES**
- **SUPPLIERS**
- **GOVERNMENT AGENCIES**

GETTING IDEAS FROM CUSTOMERS

- Use focus groups of customers
- Set up customer panels
- Survey your customers
- Observe your customers
- Install a customer hot line
- Establish rewards for customers who submit viable ideas
- Use service personnel to question customers

3M & NEWBOP

NEW Business OPportunities is a program in the industrial adhesives division of 3M. It pays all sales personnel for customer ideas and suggestions which they transmit to the division's new-product idea coordinator.

Each salesperson gets $50 per idea submitted each quarter (limit 2 ideas per quarter). Additionally the salesperson who submits the most customer ideas each quarter gets a $100. All 120 sales people are involved with the program. In the first year over 120 ideas that were submitted passed the initial screening.

IDEAS FROM COMPETITORS

- The purpose of ideas from competitors is not to copy them and bring out "me too" products and services. These tend to fail in the marketplace.
- Review of competitive products and services can generate ideas for improvements to increase customer satisfaction.
- It's a good idea to have customers evaluate competitive products.

IDEAS FROM TRADE SHOWS

- Many customers are present (usually at their own expense)
- Competitive products are also available for evaluation
- Go to trade shows even when you are not participating, just to get ideas
- Look for exhibitors with regional distribution (You may be able to use their idea for the entire market.)

PATENTS & BROKERS

- Establish a regular review of patents in your industry
- Look at foreign patents
- Patent brokers seek outlets for patents on behalf of the patent holder
- License brokers seek firms to manufacture or market the patented item for a fee or royalty. Clients may be smaller firms, foreign firms, or larger firms that don't want to market the product.
- Licensing shows are organized by trade associations to present new-product opportunities available for license.

GETTING IDEAS FROM INSIDE THE COMPANY

PROBLEM AREAS

- Our employees aren't very creative
- Our employees don't know what we are looking for and submit nonsense ideas
- Even if an employee did have a good idea, he or she wouldn't know what to do with it -- where to send it for action
- People who do submit ideas get discouraged; they used to send in ideas but never got a response or they were rejected

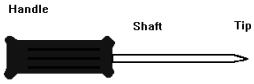
GETTING IDEAS FROM INSIDE THE COMPANY

SUGGESTION PROGRAMS

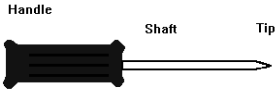
- A low cost way to get ideas
- Requires some reward system
- Needs support from management
- Needs constant prodding
- *Corning Glass Works held a new-product contest featuring "New Product Telegrams" sent to each employees home. There were also outdoor signs, posters, slogans, etc. In five months, 26,687 new-product ideas were received!*
- Provide feedback promptly
- Welcome all ideas
- Provide guidance and assistance

MORPHOLOGICAL ANALYSIS

MORPHOLOGICAL ANALYSIS is most useful for filling gaps in the product line or for developing a new product line from a single product. It involves a series of similar products, rather than radically new products. It can be based on your products or services or those of a competitor.

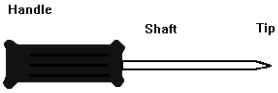


Handle	Shaft	Tip



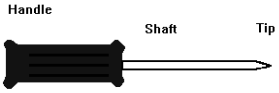
Handle

Material:	Plastic (4 kinds)	4
	Rubber coated (Yes or No)	2
	Color (Black, Blue, Green, Red, Yellow)	5
Size:	Small, Medium, Large	3
Shape:	Rounded, Ergonomic	2
Hollow:	Yes or No	2
	TOTAL NUMBER OF HANDLES	480



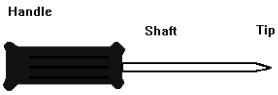
Shaft

Material:	Alloy (4 kinds)	4
Diameter:	Small, Medium, Large	3
Shape:	Round, Square	2
Length:	Short, Medium, Long, Extra Long	4
	TOTAL NUMBER OF SHAFTS	96



Tip

Flat:	Regular #1 - #6		6
	Cabinet #1 – 4		4
Phillips:	Regular #0 - #4		5
	Frearson #0 - #4		5
Hex:	8 English sizes		8
	12 Metric sizes		12
Allen:	8 Sizes		8
Torx:	12 sizes		12
Robertson:	(Square) #0 - #4		5
		Subtotal	65
Magnetic:	(Yes or No)		2
	TOTAL NUMBER OF TIPS		130



Number of screw driver possibilities:

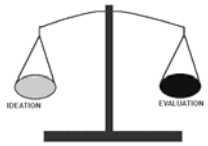
Number of Handles	480
Number of Shafts	96
Number of Tips	130
TOTAL	5,990,400

PROMOTING CREATIVITY

- BRAINSTORMING
- SYNECTICS (list all advantages first, then negatives in a positive manner)
- REVERSE BRAINSTORMING
- MORPHOLOGICAL ANALYSIS
- FOCUS GROUPS

COMMUNICATION MODES

- IDEATION the creating and offering of ideas
- EVALUATION the judgement placed on an idea



TOO MUCH EVALUATION CAN KILL IDEATION

KILLING CREATIVITY

- It's a good idea, but...
- It's against company policy
- It's all right in theory
- Be practical
- It costs too much
- Don't start anything yet
- It needs more study
- It's not budgeted
- It's not good enough
- It's not part of your job
- Let's do a survey
- Let's sit on it for a while
- That's not our problem
- Let's discuss it

KILLING CREATIVITY

- The boss won't go for it
- The old timers won't use it
- It's too hard to administer
- We've been doing it this way for a long time
- If it's such a good idea, why hasn't someone suggested it before
- You're ahead of the times
- Let's form a committee
- We've never done it that way
- Who else has tried it?

ROADBLOCKS TO THINKING

- Looking for "The Right Answer"
- Looking for "The Logic" of the Issue
- Following the Rules
- Being Practical
- Avoiding Ambiguity
- Avoiding Error
- Thinking that Play is Frivolous
- The "It's not my area" problem
- Avoiding Foolishness
- Assuming You Can't be Creative

25 STEPS FOR NEW-PRODUCT IDEAS

1. Establish a focal point in the company -- an idea person
2. Identify the possible sources of new-product ideas
3. Use focus groups of customers or potential users for ideas
4. Set up a user panel that meets regularly to discuss problems
5. Survey your customers
6. Observe customers using the product or service

25 STEPS FOR NEW-PRODUCT IDEAS

7. Install a customer hot line
8. Maximize your sales and service staff access to innovative users
9. Hire sales and technical people who can recognize potential new products
10. Promote your quest for new products to users
11. Routinely survey your competitors
12. Organize a trade show visitation program

25 STEPS FOR NEW-PRODUCT IDEAS

13. Set up a clipping service of domestic and foreign trade publications
14. Examine patent files and the *Official Gazette* regularly
15. Use idea brokers and patent brokers
16. Attend product-licensing shows
17. Visit supplier labs and talk to their technical people
18. Set up a program to handle ideas submitted by individual inventors in a legally sound manner

25 STEPS FOR NEW-PRODUCT IDEAS

19. Visit key universities and researchers. Consider putting key researchers on retainer
20. Set up a new-product suggestion program
21. Run a new-product idea contest
22. Conduct regular brainstorming sessions with inside people and outside people
23. Run a new-product contest specifically for sales and technical people
24. Make it easy for sales people to channel ideas into the company
25. Bring sales and technical people together

DEFINING THE PROJECT

- THE "NO-TARGET" PROBLEM
  - NO CLEAR DEFINITION OF THE PRODUCT
  - NOT CERTAIN OF THE TARGET MARKET
  - DON'T KNOW CUSTOMER NEEDS
- THE "MOVING TARGET" PROBLEM
  - THE TARGET KEEPS CHANGING
  - CUSTOMER NEEDS ARE CONSTANTLY REASSESSED

DEFINING THE PROJECT

- WHO IS THE CUSTOMER?
- HOW WILL THE PRODUCT BE POSITIONED?
- WHAT BENEFITS WILL THE PRODUCT DELIVER TO THE CUSTOMER?
- WHAT ARE THE PRODUCT REQUIREMENTS?
- WHAT DOES THE CUSTOMER NEED, WANT, OR PREFER IN TERMS OF PRODUCT FEATURES, ATTRIBUTES, AND SPECIFICATIONS?

ALL PARTIES INVOLVED WITH PRODUCT DEVELOPMENT MUST AGREE ON THE ANSWERS TO THESE QUESTIONS BEFORE YOU GO FORWARD

INITIAL SCREENING

- Most new-product projects are losers
- Many more new projects are conceived than the company has resources to accomplish
- The great majority of projects are probably not suitable for commercialization
- The initial GO/KILL decision must be made before company resources are expended on the project

PROJECT EVALUATION

- The sophistication of successive evaluations, and even the methods of evaluation, should change from one stage to the next
- There is different uncertainty at each stage
- There are different amounts at risk at different stages
- There are different amounts and types of information available at different stages
- Very sophisticated evaluation at early stages can do more harm than good

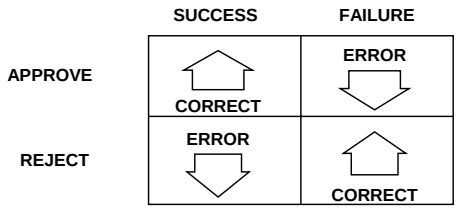
DECISION OUTCOMES

- GO
  - to the next stage only
  - what types of information is needed to make the next decision
  - what are the key variables to study
  - where is the critical uncertainty
- KILL
  - stop the project
  - expend no further company resources
- HOLD
  - stop the project for now
  - put it on the back burner
  - state under what conditions it gets moved to the front burner

SCREENING ERRORS

- A too-weak screening procedure fails to weed out obvious losers or misfits and results in misallocation of scare resources; it leads to "creeping commitment" to the wrong projects
- A too-rigid screening process results in many worthwhile projects being rejected and is perhaps even more costly in terms of opportunity losses and the stifling of future creativity with the weakening of employee morale

TYPES OF ERROR



REQUIREMENTS OF A GOOD SCREENING METHOD

- The screening procedure is a tentative commitment in a sequential process *It is a flickering green light, a decision not to reject.*
- The screening procedure must maintain a reasonable balance between errors of acceptance and errors of rejection
- Screening is characterized by uncertainty of information and a lack of financial data
- Screening involves multiple objectives and therefore multiple evaluation criteria
- The screening method must be realistic and easy to use

GENERIC SCREENING METHODS

- **BENEFIT MEASUREMENT MODELS**
- **ECONOMIC MODELS**
- **PORTFOLIO-SELECTION MODELS**
- **MARKET RESEARCH MODELS**

BENEFIT MEASUREMENT MODELS

- Avoid conventional economic/ financial data such as projected sales, profit margins, and costs
- Rely on subjective assessments of fit with corporate objectives
- Acknowledge the lack of accurate and realistic data at the idea stage

BENEFIT MEASUREMENT MODELS

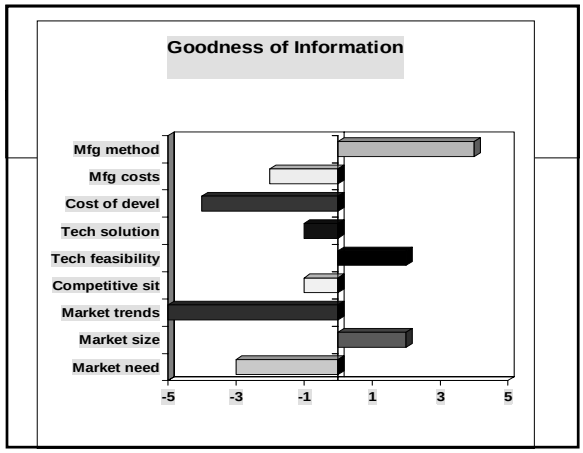
- **Comparative Approaches**
- **Profile Charts**
- **Benefit-Contribution Techniques**
- **Simple Checklists**
- **Scoring Models**

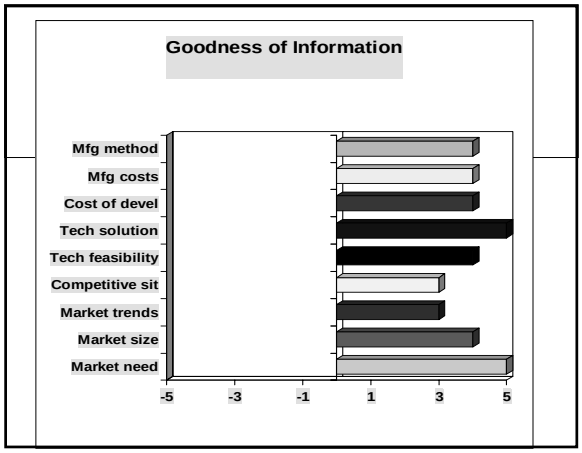
COMPARATIVE APPROACHES

- Q-Sort
  - Group sorting of several projects on a 1 - 5 scale based on an agreed criterion
  - Ratings are displayed anonymously
  - Groups discuss ratings
  - Group reevaluates the projects
  - Repeat above until consensus
- Project ranking
  - Committee or new product manager ranks projects
- Paired Comparisons
  - All possible pairs of projects are used to select one over another
- Successive Comparisons
  - "King-of-the-Hill"

PROFILE CHARTS

- Compares the quality of information regarding a project at various stages compared to the company's desired "profile"





BENEFIT-CONTRIBUTION MODELS

The evaluator gauges the attractive-ness of the project in terms of contribution to corporate objectives.

$$\text{Attractiveness Index} = \frac{\text{Expected Benefit}}{\text{Cost}}$$

If the index is below "X" the project is killed; if it is above "Y" it gets a GO; if it is in between "X" and "Y" more study is needed

CHECKLIST METHOD

- A list of mandatory and desired features for new products is developed
- Projects are compared to the list
- If any mandatory items are missing, the project is killed
- If fewer than an agreed upon number of desired factors are missing the project is killed
- Checklist can contain any number of items; most are between fifteen and twenty-five

SCORING MODELS

- Basically an improvement over the simple check list
- Each item on the check list is weighted in importance (Total weights = 1.00)
- Each project is evaluated using the check list on a scale (0.0 – 1.0 Probability)
- Ratings are multiplied by the weightings with the results added up to the project's "score"
- Projects are then ranked according to their score
- Minimum scores can be used as a definite KILL point

Product-Idea Scoring

	Relative Weight	Product Score	Product Rating
Product Success Requirements	**(a)**	**(b)**	**(c = a x b)**
Unique or superior product	**.40**	**.8**	**.32**
High performance to cost ratio	**.30**	**.6**	**.18**
High marketing dollar support	**.20**	**.7**	**.14**
Lack of strong competition	**.10**	**.5**	**.05**
Total	**1.00**		**.69σ**

σ Rating scale: .00-.30 poor; .31-.60 fair; .61-.80 good. Minimum acceptance rate: .61

USING SCORING MODELS

FIRST PASS
- Compare to MUST criteria

SECOND PASS
- Focuses on the non-financial aspects of project attractive-ness, the SHOULD criteria

THIRD PASS
- Also focuses on project attractiveness but with more of a financial orientation as this kind of information can be obtained with more reliability

SAMPLE "MUST" CRITERIA

MANDATE FIT
- Does the proposed new product fit within a product or category that is within the new product mandate of the company?
- Is the new product's market within the boundaries defined by our company for new products?
- Is the technology required for development within the technology areas defined by our company for new products?
- Is the nature of the manufacturing process within the boundaries defined by our firm for new products?

SAMPLE "MUST" CRITERIA

- FEASIBILITY
  - Is it technically feasible to design and develop the product?
  - Does our firm have the necessary resources or can they be easily acquired?
  - Is it technically feasible to manufacture the product?
  - Do we have the necessary resources to manufacture the product?
  - Is there a market for the product and can it be reached?
  - Do we have the necessary sales, distribution, and service resources to market and service the product?

SAMPLE "MUST" CRITERIA

OTHER "MUST" CRITERIA

- Is the product's potential market at least $X million?
- Will the expected sales of the product or service be at least $Y million?
- Is there an identified product champion - a person who has volunteered to push and support the project and who has the requisite skills to do it?

SAMPLE "SHOULD" CRITERIA

PRODUCT ADVANTAGE

- offers unique benefits to end-users?
- incorporates unique features and attributes not found in competitive products?
- is lower priced than competitive products?
- is higher quality than competitive products?

COMPANY SPECIFIC FACTORS

- helps even out production schedules?
- opens a window on new market opportunities?
- makes use of an underutilized technical skill or group?

SAMPLE "SHOULD" CRITERIA

MARKET ATTRACTIVENESS

- be a large market?
- is a fast growing market?
- has no dominant competitors?
- has little if any price competition?
- has significant long-term potential?

SYNERGY OR FIT

- can be sold by our sales force?
- can be made in our facilities?
- can be delivered by our engineering, R&D, and systems people?
- fits with our present customer base?

ECONOMIC METHODS

- PAYBACK PERIOD
- BREAK-EVEN ANALYSIS
- RETURN ON INVESTMENT
- DISCOUNTED CASH FLOW
- MONTE CARLO SIMULATIONS
- DECISION TREE ANALYSIS

These methods will almost always KILL projects in the early stage of screening because there is so little valid economic or financial data available

MARKETING RESEARCH APPROACHES

- Usually used in conjunction with simple consumer products
- GO decision is based on acceptance by potential customers
- Assumes that technical and production problems are easily solvable

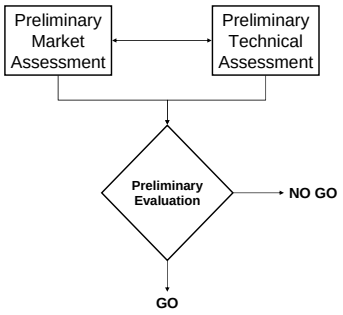
A SCREENING PROCESS

1. Develop MUST criteria
2. Develop SHOULD criteria
3. Present project concepts to evaluation committee
4. Debrief winners and losers to clarify assumptions and emphasize aspects of the project that need close attention
5. Report on pros and cons of all projects

STAGE 2
PRELIMINARY ASSESSMENT

Preliminary Assessment is the first stage at which significant resources are spent to gather information regarding the feasibility of a project. Expenditures at this preliminary stage, which includes market and technological assessment, should be limited to a specified ceiling (e.g.. no more than $10,000 and 15 man-days). This means a quick and dirty market study to find out market size, growth, segments, and competition. On the technical side it asks the questions: Is it technically viable? Can it be developed? How long will it take? At what cost? What kinds of problems might be expected?

STAGE 2
PRELIMINARY ASSESSMENT



PRELIMINARY MARKET ASSESSMENT

- To obtain a rough estimate of market size and potential
- To gain an indication of whether the product or service, as envisaged, has any hope of selling, and how well it might sell
- To obtain insight into possible target markets, product benefits, product requirements, and pricing, distribution, promotion, and sales strategies

There is a 50-50 chance that the project will be killed here, so don't spend a lot of time and money on it

OBTAINING INFORMATION FOR THE PRELIMINARY ASSESSMENT

- Secondary Data
  - Computer search of data bases
  - Government agencies
  - Trade magazines and editors
  - Trade associations
- Industry Experts
- Internal Sources
  - The sales force
  - Your distributors and dealers
  - Your technical people (R&D)
- Potential Customers
  - Focus groups
  - Small sample questionnaire

PRELIMINARY TECHNICAL ASSESSMENT

- Preparing rough specifications for the product or service
- Determining whether it is technically possible to develop and product the product
- Estimating the cost and resource requirements for development and production

PRELIMINARY EVALUATION

- Looks at the preliminary market assessment
- Looks at the preliminary technical assessment
- Requires a favorable conclusion for BOTH of these assessments
- Produces a GO/KILL decision

The GO decision is not for full scale product development, but rather to authorize additional expenses for detailed marketing and technical studies

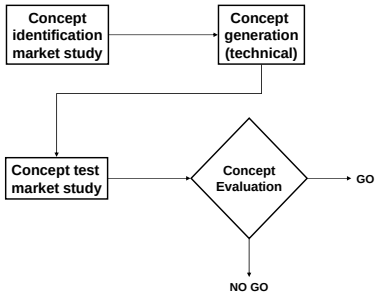
PRELIMINARY EVALUATION: KEY QUESTIONS

- IS THE MARKET ATTRACTIVE?
  - USE ADDITIONAL MARKET DATA
  - CONFIRM PREVIOUS GO DECISION
- DOES THE PRODUCT HAVE A TECHNICAL ADVANTAGE?
  - UNIQUE CUSTOMER BENEFITS
  - PREFORMANCE ADVANTAGES OVER COMPETITORS
- DOES THE PRODUCT FIT THE COMPANY?
  - TECHNOLOGY - FOR IMPROVEMENTS
  - MANUFACTURING - FOR EFFICIENCY
  - MARKETING - FOR EFFECTIVENESS

PRELIMINARY EVALUATION: SUGGESTIONS

- ASSIGN A TIME LIMIT TO THIS PRELIMINARY EVALUATION
  - FIVE TO TEN DAYS
- ASSIGN A JUNIOR PERSON TO COMPLETE THE TASK
- SET A LIMITED BUDGET
  - $3,000 TO $6,000 FOR MARKET STUDY
- USE INSIDE TECHNICAL PEOPLE FOR PRELIMINARY TECHNICAL ASSESSMENT

STAGE 3 CONCEPT DEFINITION



STAGE 3 CONCEPT DEFINITION

The purpose of this stage is to exactly define the product's concept and the product strategy

- the target markets
- the product's benefits
- the product's positioning
- the product's attributes and, as far as possible, specifications

STAGE 3 CONCEPT DEFINITION CHECK LIST

Before initiating actual development check for the following:

- Has marketing research revealed customer needs, wants, and preferences?
- Do all participants understand what customer benefits the product must deliver?
- Have potential customers evaluated product features and attributes?
- Is the product *clearly* defined for the development people?

CONCEPT-IDENTIFICATION MARKET STUDY

- What product is the customer presently using?
- What is the customer's level of satisfaction?
- What other products, services, or brands would the customer consider? In what order?
- How do customers rate various brands using their own criteria?
- What are the good and bad points of competing brands?

CONDUCTING A CONCEPT STUDY

1. INFORMATION OBJECTIVES
2. PRELIMINARY INFORMATION
   - FOCUS GROUPS
   - SALES FORCE
   - DISTRIBUTORS
3. RESEARCH DESIGN
   - TARGET PEOPLE
   - SAMPLE (RANDOM, PROJECTABLE)
   - QUESTIONNAIRE
4. CONDUCT THE RESEARCH
5. ANALYSIS
   - DISTRIBUTIONS
   - RATINGS AND RANKINGS
   - CROSSTABULATIONS
   - MEASURES OF IMPORTANCE
   - COMPETITIVE POSITIONS
   - PRIORITIZATION OF CHOICE CRITERIA
   - THE IDEAL PRODUCT

OUTPUTS OF A CONCEPT TEST

- Determines what the customer is using, why he bought it, buyer's source preferences, and reasons for those preferences
- Identifies likes and dislikes with currently available products and gets suggestions for product improvements
- Obtain ratings for competitive products on a list of choice criteria
- Obtain a relative importance rating of choice criteria
- Obtain descriptive data on buyers for market segmentation purposes

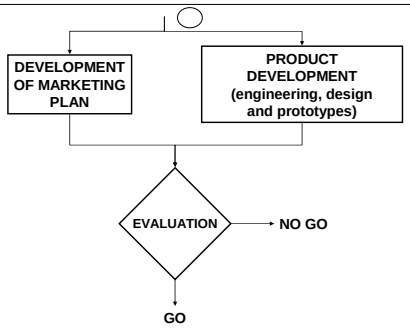
CONCEPT DEVELOPMENT

- Results of concept test - the customer's "wish list" must be translated into something that can economically be offered
- Marketing and Technical people must get together to brainstorm this translation
- Have customers review the translation (design)
- Have customers place a value on the design (i.e.. would they buy it at $XXX)

CONCEPT EVALUATION

- This is the final go/kill decision prior to full-scale product/service development
- Process must include a complete financial analysis (capital requirements, cash flow, human and technical requirements, payback period, etc.
- Final protocol must be agreed to between all parties and departments involved with development

STAGE 4 DEVELOPMENT



STAGE 4 DEVELOPMENT

PRODUCT DEVELOPMENT

- Actual product/service development begins in earnest
- Technical resources are utilized including engineering, R&D, design, manufacturing and systems people, etc.
- At major developmental milestones, obtain customer evaluations
- The usual outcome of this stage is a prototype of the product or service

STAGE 4
DEVELOPMENT

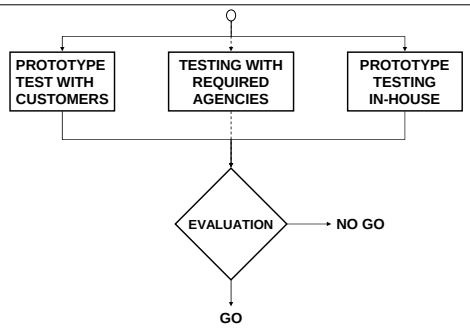
MARKET DEVELOPMENT

- Results of target market selection, product strategy, and positioning are shaped into a marketing plan
- Supporting elements -- pricing, distribution, advertising, sales strategy, promotion, and service -- are decided
- Additional market studies are usually required to properly establish the marketing mix elements

EXERCISE

- What kinds of market development and product (service)development plans does your organization do as part of its new product process?
- How can they be improved?

STAGE 5
TESTING



STAGE 5
TESTING

This is a validation of the product under both simulated and real-world conditions.

- In-house testing involves subjecting the product or service to a variety of conditions to ensure that there are no technical flaws
- Field testing with customers (a.k.a. beta testing) helps determine if the product or service performs as the customer expects
- Field testing also helps gauge customer acceptance, liking, and preference
- A GO decision moves the product to TRIAL

PRODUCT DEVELOPMENT

- BASED ON FINAL PROTOCOL
- MAINTAIN CUSTOMER INPUT AT VARIOUS STAGES OR MILESTONES
- MONITOR COMPETITIVE ACTIVITIES
- MONITOR TECHNOLOGY

PRODUCT TESTING

During Development

- In-house testing using non-involved employees
- Customer tests
  - **in plant**
  - **at customer sites**
  - **"beta" testing**
- Minimizes risk

After Development

- Preference tests
- Extended trials

PREFERENCE TESTS

- Measures customer interest, liking, preference, and intent to purchase
- Provides additional input to minor modifications which can enhance sales
- Determines how and why customers respond the way they do
- Be careful not to oversell the product or service
- Inform the customer how the product works
- Take care with pricing questions
- Reduce intent-to-buy estimates

EXTENDED TRIALS

- Required when the product or service will be used under a variety of conditions
- Required when the customer must become "used" to the product or service
- Recommended when the product or service affects the customer's operation

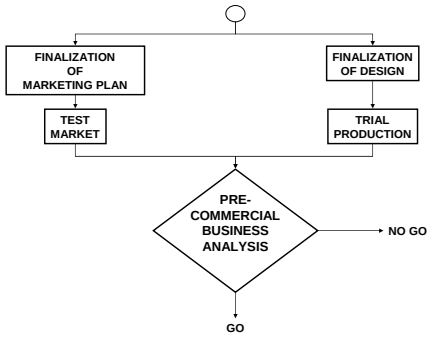
EXTENDED TRIALS

- To determine whether the product works as expected in the customer's environment
- To see if the product is acceptable to the customer
- To again measure the customer's interest, liking, preference and intent to buy the product
- To gauge price sensitivity
- To determine which product or service benefits are the customer's "hot buttons"

TEST MARKET

- Tests the product and its marketing strategy under full market conditions
- You can use a pretest market at 1/10th the cost with excellent results
- Not all products or services can be test marketed
- Called "trial sells" for industrial products and is based on pilot production facilities

STAGE 6 TRIAL



STAGE 6 TRIAL

This is essentially a dry run of all commercial facets of the project

- Production
- Product Design
- Marketing Strategy
- Marketing Programs

Based on this trial, production costs are finalized as are marketing budgets. Detailed profit projections are made. The product is ready for LAUNCH

DEVELOPING THE MARKET PLAN

A Plan of Action for Introducing the New Product to the Market

- Marketing Objectives
- Marketing Strategies
- Marketing Programs
- Start as early as possible
- Get technical development, marketing and sales, and manufacturing people all involved
- Undergo several iterations

SETTING MARKETING OBJECTIVES

- To serve as decision criteria
- To create a sense of purpose. a common goal
- To provide a standard for measuring success

GOOD OBJECTIVES

- Set decision criteria
- Are quantifiable and measurable
- Are realistic
- Are challenging
- Have a time limit

OBJECTIVES

- Typical objective for a new product:
  "To gain a leadership position in the market"
  - Too general
  - No definition of "market"
  - No time frame
- A better objective:
  "To obtain a 20 percent unit market share in the XYZ segment of the ABC market within two years of market introduction."
  - Specific quantitative objective
  - Specific market and segment definition
  - Specific time frame

OBJECTIVES

Should include

- unit and/or dollar sales by year
- market share (either segment share or entire market) by unit of measurement (units or dollars) by a certain time
- product profitability

Must be based on a realistic assessment of the market and the competition

MARKET ANALYSIS

- **Market Overview**
  - **Market size**
  - **Growth Rates**
  - **Trends: qualitative & quantitative**
- **Market Segments**
  - **Unique characteristics**
  - **Sizes and growth trends**
- **Buyer Behavior**
  - **The purchase process**
  - **Influencers, decision makers, etc.**
  - **Choice criteria, preferences, wants, needs**
- **Competition**
  - **Who in each segment**
  - **Strengths and weaknesses**
  - **Customer ratings of products**
  - **Their strategies (pricing, advertising, selling, distribution)**
  - **Their results (market share and profits)**

INTERNAL ASSESSMENT

STRENGTHS AND WEAKNESSES

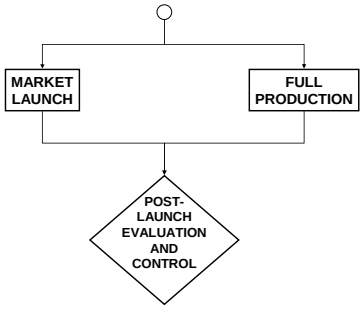
- **Sales force - can they handle the new products?**
- **Advertising - how effective is it?**
- **Reputation - what do customers think?**
- **Distribution - how effectively are customers being reached?**
- **Service - how good is this function?**
- **Pricing - how competitive? margins?**

ASSESSMENT QUICK-TEST

Use several recent new products/services as test cases

- **Was prior assessment of the market favorable? Was it accurate?**
- **Did the market assessment cover all of the relevant points?**
- **How was the macro environment factored into the assessment?**
- **Were strengths and weaknesses adequately taken into account?**
- **Did the assessment lead to a clear-cut decision, or was the decision made under great uncertainty?**

STAGE 7 LAUNCH



PRODUCT DEVELOPMENT

- Based on final protocol
- Maintain customer input at various stages or milestones
- Monitor competitive activities
- Monitor technology

THE PRODUCT INNOVATION CHARTER

A master plan for new product/service development

Sets broad new product/service objectives

States the firm's commitment to new product/service development

Links new product/service development to the company's overall strategic plan

Specifies the types of markets, market applications, technologies, and products/services that the new-product program will focus on

THE PRODUCT INNOVATION CHARTER

Companies with a PIC, are more likely to develop and market successful new products and services

Booz Allen & Hamilton

R&D spending and product quality are positively related to profitability

PIMS

Companies with synergistic new product strategies and externally oriented R&S are more successful

Nystrom and Edvardsson

Product innovation strategy and performance are strongly linked

Cooper

TYPES OF NEW PRODUCT STRATEGIES

A. Technology Driven (26.2%)
   - High impact, poor success, poor profits

B. Balanced strategy (15.6%)
   - Most successful, best profits

C. Technologically deficient (15.6%)
   - Poor results, generally losses

D. Low Budget- Conservative (23.8%)
   - Low R&D leading to "me too" products
   - Generally successful with low profits
   - Takes the safe road
   - Little impact on the firm

E. High-Budget diverse (18.9)
   - Lacks direction
   - Heavy R&D, little synergy
   - Generated significant losses

A BALANCED NEW PRODUCT STRATEGY

- Has a strong product fit and focus
- Avoids competitive markets
- Seeks high potential growth markets
- Avoids serving needs new to the firm
- Strongly market oriented
- Technically sophisticated, oriented, and innovative
- Strong program focus
- Premium-priced products/services
- Avoids custom products/services
- Product differentiation advantage: quality and superiority
- Product differential advantage: impact and features
- Avoids markets new to the firm

STRATEGIC CONCLUSIONS

1. Success is tied to strategy used
2. On average, new product development programs perform well; however there is wide variation in success rates.
3. All firms do not follow the same strategy
4. The balanced strategy yields the best results
5. Using some, but not all, of a strategy does not work.
6. The low-budget, conservative strategy yields fairly consistent results

TYPES OF OBJECTIVES

OVERALL OBJECTIVES

- **Percentage of sales from new products within five years.**
- **Percentage of profits from new products within five years.**
- **Sales and profits growth from new products.**
- **Number of new products or services introduced annually or over a time period.**

PROGRAM OBJECTIVES

- **Success, failure, and kill rates**
- **number of projects considered annually**
- **number of projects developed annually**

PRINCIPLES OF NEW PRODUCT DEVELOPMENT

1. DEFINE THE RIGHT PRODUCT/MARKET FOCUS

How well does your organization define product/markets and have separate product development programs for each one?

2. FACE UP TO COST AND PERFORMANCE DEFICIENCIES

Do you truthfully (painfully?) acknowledge the shortcomings of your product or service?

PRINCIPLES OF NEW PRODUCT DEVELOPMENT

3. PRUNE THE EXISTING PRODUCT LINE

Are all products periodically evaluated and those with limited profit potential dropped from your product offerings?

4. LINK PRODUCT DEVELOPMENT WITH THE BUSINESS PLAN

Are all new product projects developed in conjunction with an overall business plan?

PRINCIPLES OF NEW PRODUCT DEVELOPMENT

5. FOLLOW A DISCIPLINED PROCESS

While allowing ample freedom and limited bureaucratic procedures, are projects monitored to avoid people and/or departments becoming "married" to projects long after they should be dropped?

6. BALANCE FUTURE PRODUCTS WITH CURRENT PROFITABILITY

A well balanced company should company should have several products in each stage of the product life cycle (maturity and decline only if there is adequate profit potential).

PRINCIPLES OF NEW PRODUCT DEVELOPMENT

7. PROPERLY ORGANIZE FOR NEW PRODUCT DEVELOPMENT

Search other organizations to see what new product systems are working for them and adapt these to the particular needs of your company and the specific project.

8. GO OUTSIDE FOR TECHNOLOGY

Avoid the N.I. H. syndrome.

9. TOLERATE FAILURES

If people do not have the freedom to fail, they will only look at sure bets...and sure bets seldom have large returns.