TARGET COSTING

Project Design & Cost Management

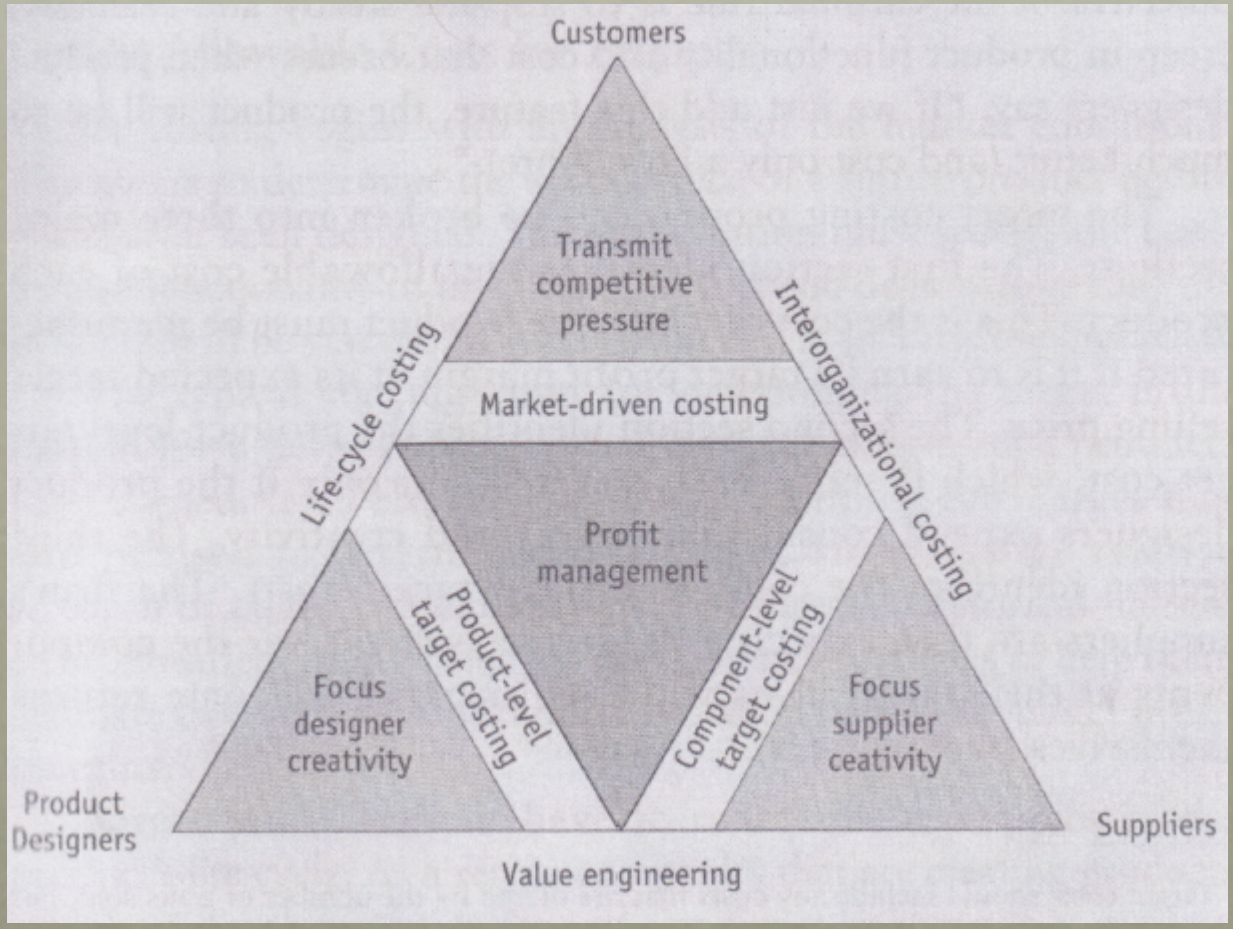
TARGET COSTING

- "Target costing is a structured approach to determine the life-cycle at which a proposed product with specified functionality and quality must be produced to generate the desired level of profitability over its life cycle when sold at its anticipated selling price[1]"
- Objective: "design costs out of products, not try to find ways to eliminate costs after products inter production[1]"

<u>Target Costing Process</u>

- Define the Product
- Set the Target
- Achieve the Target
- Maintain Competitive Cost[2]

TARGET COSTING



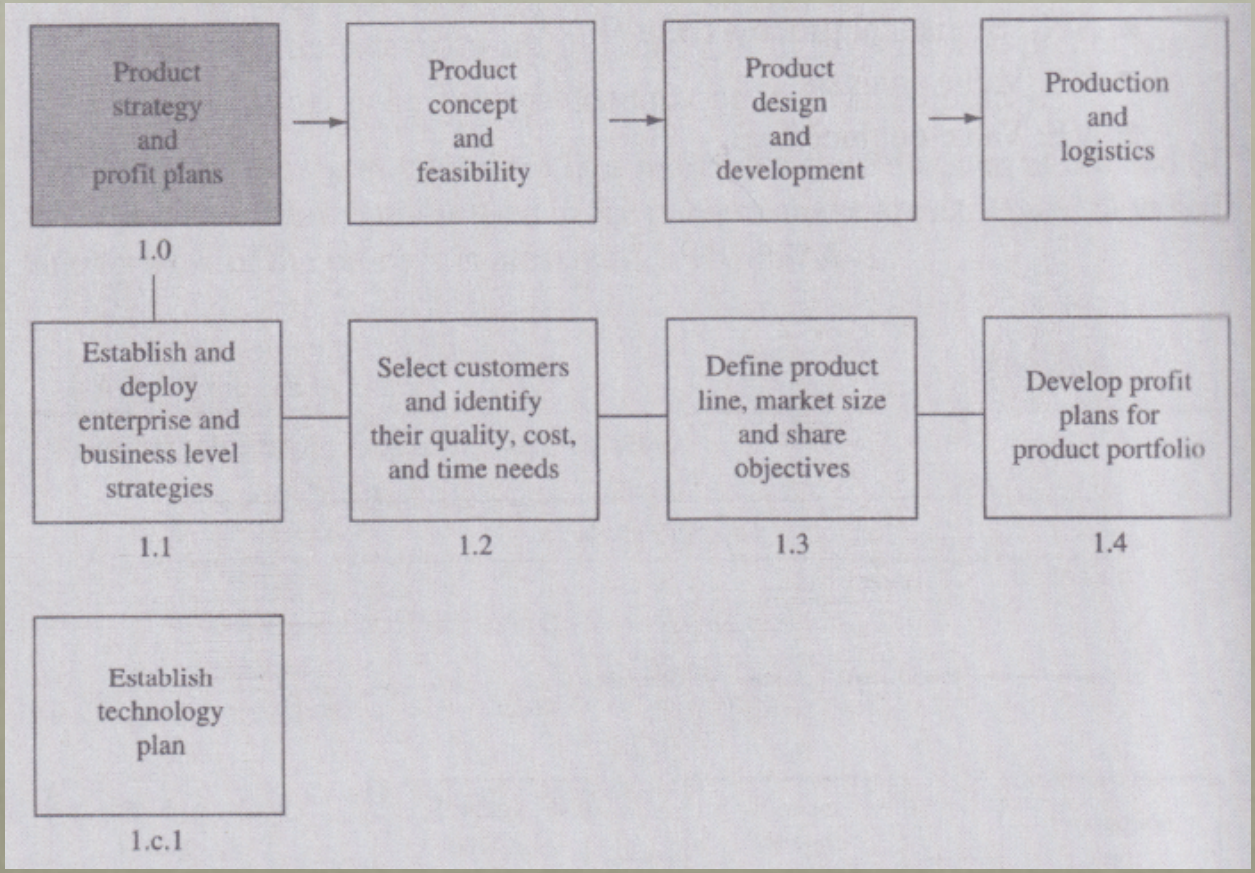
Target Costing Overview

DEFINE THE PRODUCT

DEFINE THE PRODUCT

- Competitive Analysis[2]
  - Competitive Price and Feature
  - Competitor Cost Structure
  - Reverse Engineering
- Customer Knowledge[2]
  - Quantifying Needs
  - Conjoint Analysis
  - Feature/Price Data[3]
  - Attribute/Price Data[3]
- Marketing Research[2]
  - Provides quantitative info about customer needs/wants
  - Reveal unrecognized niches[3]
    - Public Information
    - Analysts' Reports
- Product Planning[2]
  - Analyzing all three areas and determining what segment to concentrate on

DEFINE PRODUCT



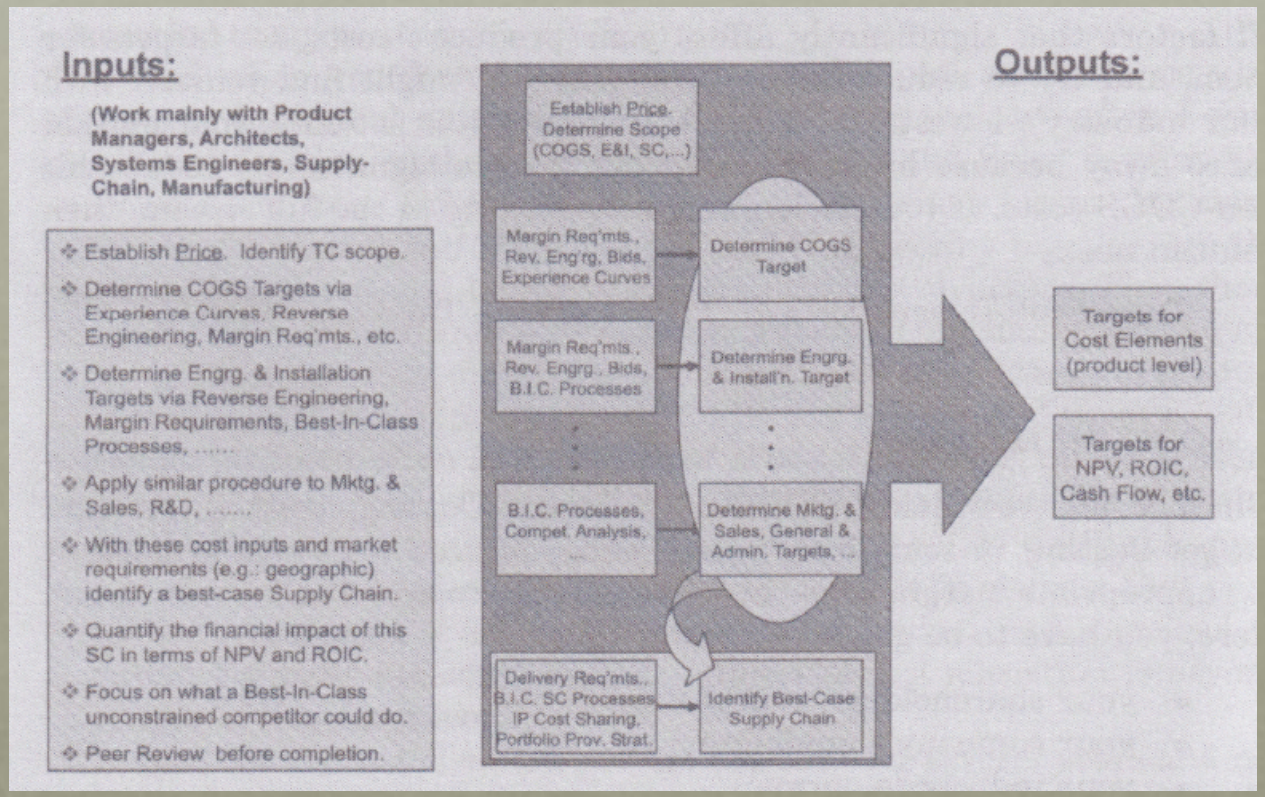
Influencing factors in Defining the Product

SET THE TARGET

SET THE TARGET

- Establish Price
- Know Costs
- Determine Profit Margin
- Develop Subsystems
- Functional and Cross Functional Groups

SET THE TARGET



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Setting the Target Overview

SET THE TARGET

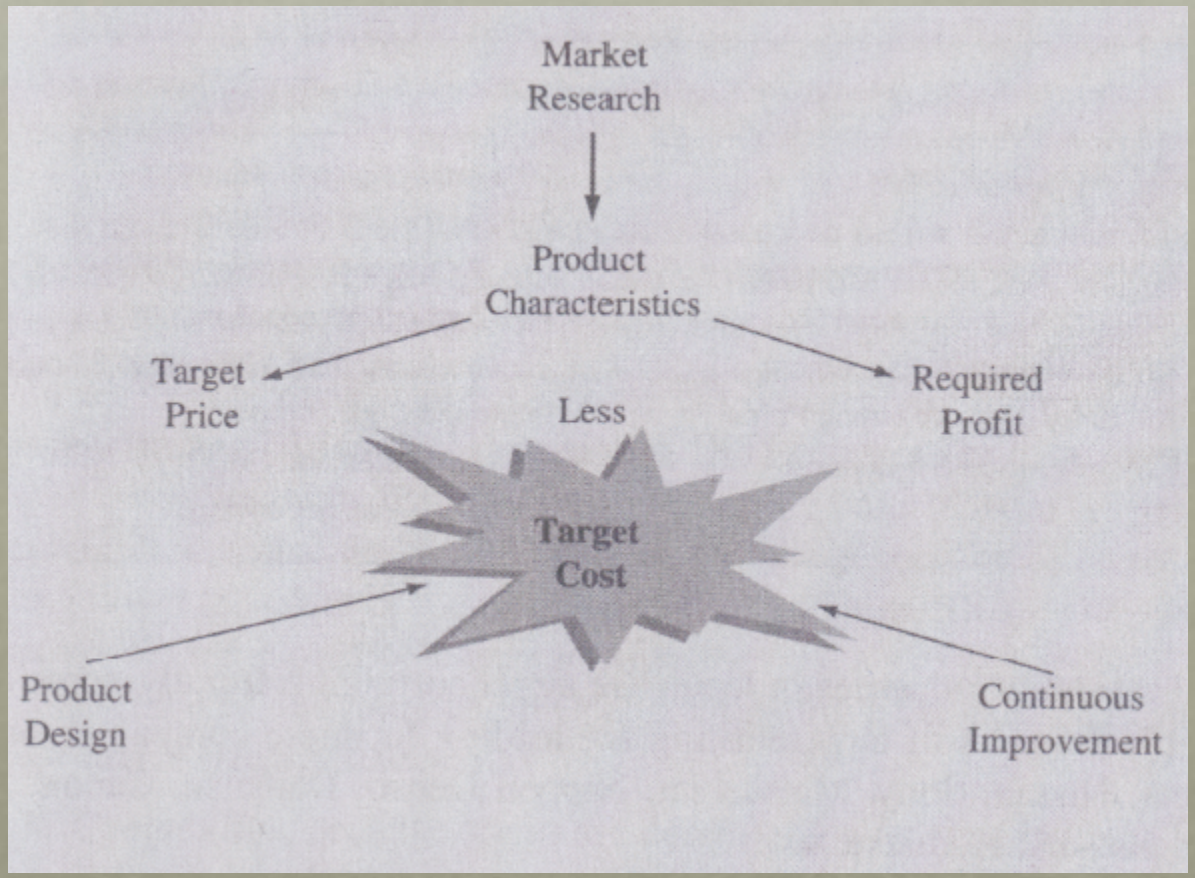
- Establish Price[2]
  - Based upon the information gathered when defining the product
  - Experience Curves
- Know Your Costs[2]
  - Look at all factors significantly affecting product cost
- Determine Profit Margin[2]
  - Corporate profit expectations
  - Competitive analysis
  - Historical results

Market Cost is a benchmark cost, cost for a comparable project[4]

Allowable Cost is the maximum allowable cost to be financially feasible[4]

Target Cost is equal to the Target Price minus the Target Margin[4]

SET THE TARGET



Influencing factors when Setting the Target

SET THE TARGET

Subsystems[2]

Subdivide the Target Cost of the product into subsystems

- If the Target Cost is far below the estimated cost
  - Is it fair to forced each subsystem to equally reduce?
  - No, some subsystems are already as low as possible
- Target Cost of each subsystem linked to the customers' "perceived value" of the features provided by each subsystem
- Basic rule is to only include features customers are willing to pay for[2]

Process:

- Develop a list of features provided by your product
- Have customers rank them by their importance to the product (percentage)
- Multiply the importance percentage by the Target Cost and reveal the value of that feature to the customer
- Reveals the TC for each feature

SUBSYSTEMS

	Component						
Customer Requirements	Brew Basket	Carafe	Coffee Warmer	Body/ Water Well	Heating Element	Display Panel	Relative Feature Ranking
Tastes/smells like espresso	.5 × 20% = 10%				.5 × 20% = 10%		20%
Easy to clean	.3 × 16% = 4.8%	.1 × 16% = 1.6%		.6 × 16% = 9.6%			16%
Looks nice				.6 × 8% = 4.8%		.4 × 8% = 3.2%	8%
Has 6+ cup capacity		.5 × 12% = 6.%		.5 × 12% = 6%			12%
Starts automatically on time						1 × 16% = 16%	16%
Has multiple grinder settings	.05 × 4% = 0.2%					.95 × 4% = 3.8%	4%
Keeps the coffee warm		.2 × 12% = 2.4%	.8 × 12% = 9.6%				12%
Automatic shutoff						1 × 12% = 12%	12%
Converted component	15.0%	10.0%	9.6%	20.4%	10.0%	35.0%	100%

Customer Feature Ranking Percentage

SET THE TARGET

Functional Teams (Core Groups)[3]

- Focus on reaching the cost target for each of the subsystems
- Each team must know the product TC and each subsystem's TC
- Team sizes vary on complexity
- All work as one unit
- Experience shows benefit in including individuals outside the product or project
  - Provide Fresh Ideas
  - Better development and product road maps

Cross Functional Teams[3]

- Develop initial product concept & test feasibility
- Steer the functional teams in the right direction
- Cuts time to market by reducing design reviews & engineering changes
- Maintains technical info and expertise that can be used to assist fictional teams
- Keep up with most recent developments and improvements
- Facilitates planning, design, and problem solving

ACHIEVE THE TARGET

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- Compute and Decompose Cost Gap
- Perform Cost Analysis & Assign TC to Functional Teams (Core Groups)
- Achieve Target Costs

ACHIEVE THE TARGET

Compute and Decompose Cost Gap$_3$

- Current cost estimate based on current cost factors
- Gap between current market cost and the allowable cost decomposed by:
  - Life cycle
  - Value chain
- Findings show firms which areas are in need cost reduction efforts the most
- Life cycle
  - Total product cost broken up into categories from "birth" to "death"
  - Requires estimates from R&D, manufacturing, marketing, distribution, repairs and support, and disposal.
- Value Chain
  - Separates cost on whether incurred by firm or value chain member
  - Requires estimates from firm, suppliers, dealers, and recycler

ACHIEVE THE TARGET

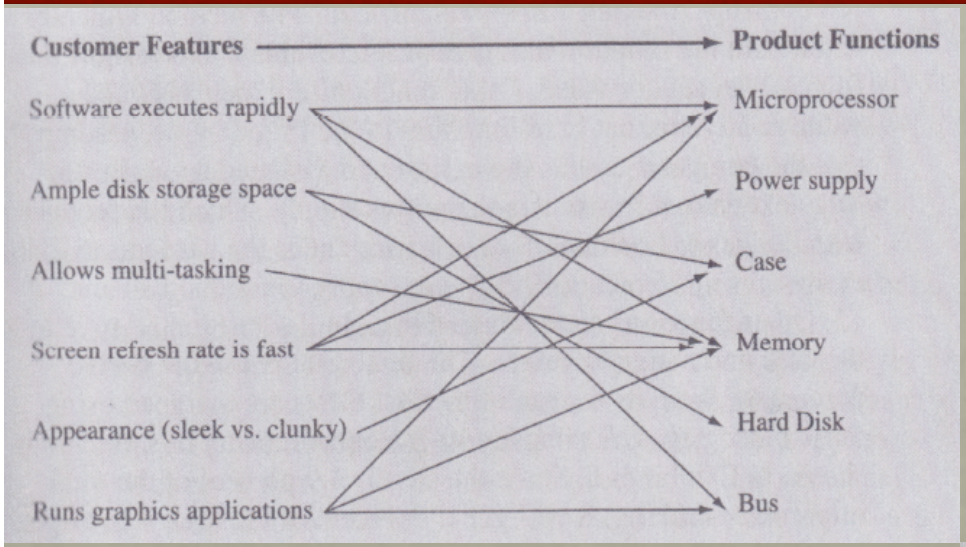
Perform Cost Analysis

"Customers think in terms of features but products are designed in terms of functions and components[3]"

1. Identify features most desired by customers
   - Feature ranking method
2. Identify what functions make those features possible
   - Percentage of Contribution
3. Identify what components make up those functions

- Multiply the TC per feature times the function contribution percentage to reveal the TC for each function (Functional Team)

COMPONENT TC



Feature to Function Breakdown

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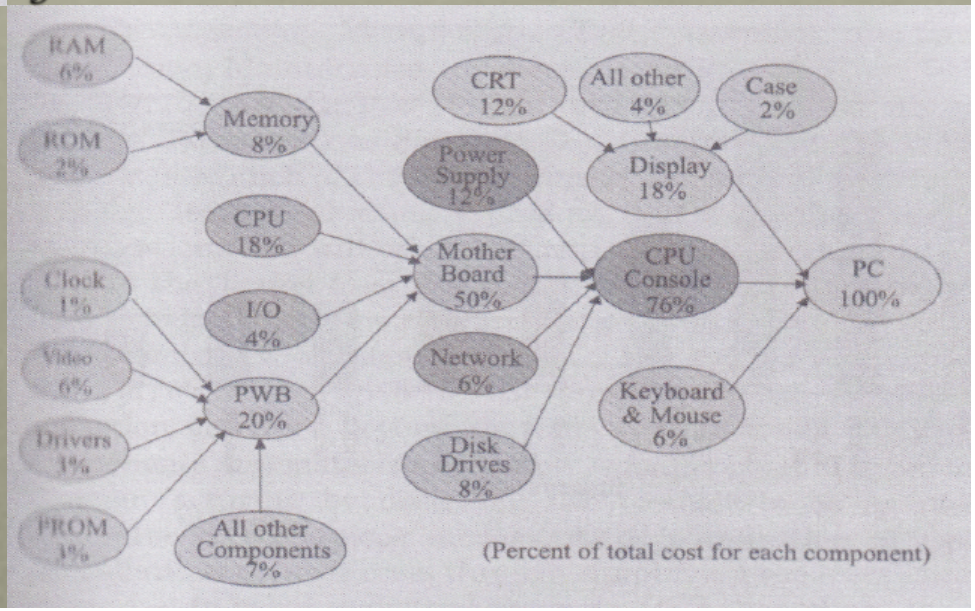
Function Contribution Percentage



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ACHIEVE THE TARGET

Achieve Target Costs

- Each Functional Team (Cluster Group) has a TC for their subsystem
- All groups should collaboratively progress to obtain product TC goal
- "Good communications are essential[1]"
- Cross-Functional Groups:
  - In charge of approving trade offs between functional groups

Methods of Achievement:

- Value Engineering
- Big Room
- Co – Location
- Function and Component Analysis
- Design for "X"
- Supplier TC

ACHIEVE THE TARGET

Achieve Target Costs

Value Engineering[3]

- Functional Analysis
  - Determine what function an item performs, what it cost, and what it is worth to the customer
    - Value Index : ratio of the degree of importance to percentage of cost
      - VI > 1 = enhancement needed, not spending enough on feature
      - VI < 1 = Value engineering needed, spending too much
- Creative Thinking
  - Brainstorming about cost reduction ideas for each function
    - Evaluated if it can be eliminated, simplified, or reduced while still delivering function
- Analysis
  - Ideas most likely to reduce costs indentified for further study
    - Must be technically feasible and acceptable to a customer
- Idea Development
  - Convert ideas into concrete proposals for product or process changes

VALUE INDEX

(1) Feature or Function	(2) Component Contribution	(3) Component Cost	(4) Customer Ranking	(5) Relative Importance (col. 2 × 4)	(6) Value Index (col. 5 ÷ 3)
Speed	Motor (75%)	$1.60 (40%)	4(40%)	30%	0.75
	Blades (25%)	0.80 (20%)	4 (40%)	10%	0.50
Cleaning	Drawer (100%)	0.60 (15%)	4 (40%)	40%	2.67
Appearance	Casing (100%)	1.00 (25%)	2 (20%)	20%	0.80
		$ 4.00 (100%)	10 (100%)	100%	

Calculating the Value Index

ACHIEVE THE TARGET

Achieve Target Costs

Methods of Achievement

- Big Room[4]
  1. Bring together all teams members into large group settings
     - Facilitates discussion
     - Provides means of addressing progress on product level
     - Idea development
  2. Co – Locating teams
- Co – Location[4]
  - Physically locate team members in the same area (office floor) during design
  - Enhances communication
  - Maximizes collaboration
  - Information travel saves time
    - No waste

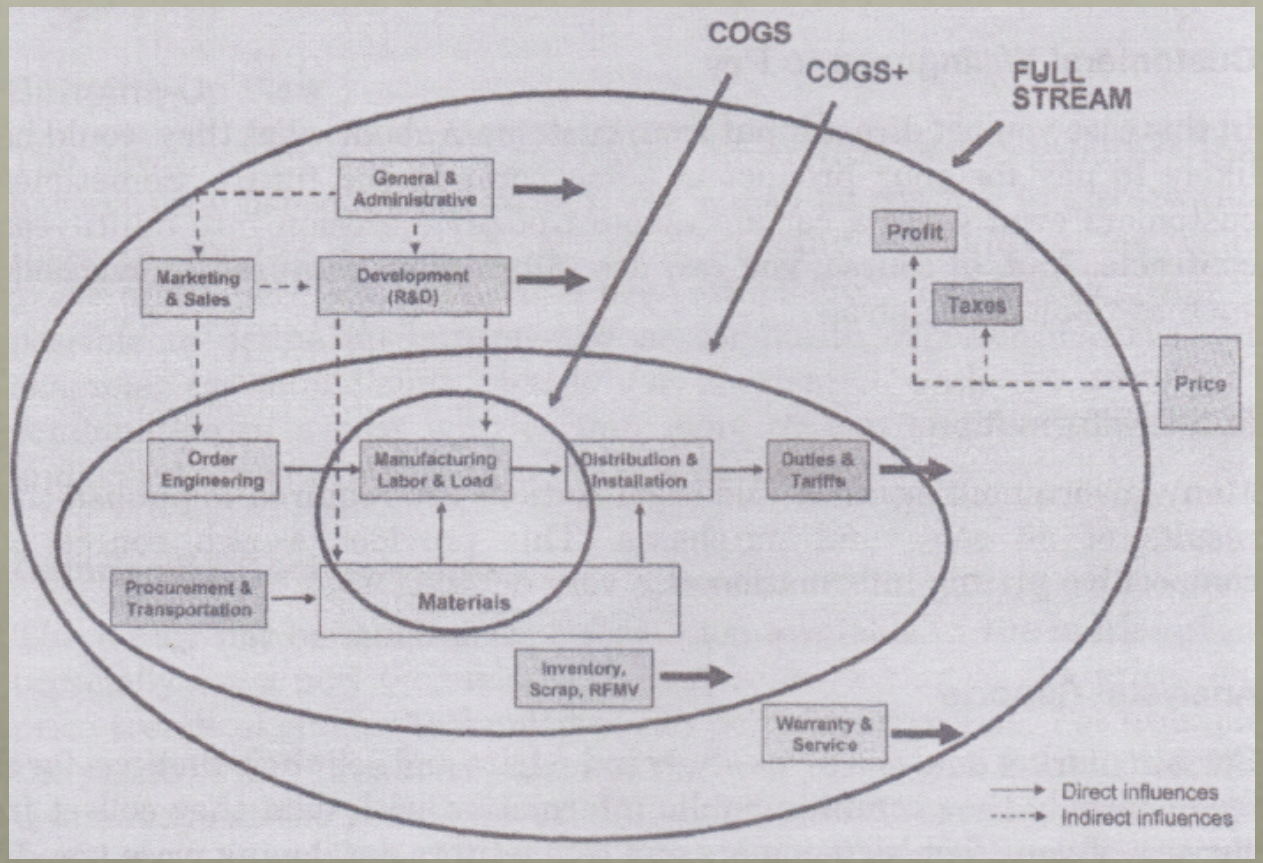
ACHIEVE THE TARGET

Achieve Target Costs

Function and Component Analysis

- Examine all parts and functions of each subsystem to reveal additional opportunities for cost improvement
- Subdivide down to the appropriate component level to obtain costs for each of the components
- Identify components that contribute to most cost
  - The function of each major component reveals opportunity for cost reductions
    - Excessive capabilities
    - Functional redundancy
    - Alternative sources
    - Commercial components over custom

ACHIEVE THE TARGET



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Examine all areas of Product Stream

ACHIEVE THE TARGET

Achieve Target Costs

Design for "X"$_2$

- Process that ensures the requirements of a specific product life-cycle stage/stages are addressed and satisfied
- A tool that can be used to help achieve the product's TC, especially the full-stream costs
- Examples:
  - DFM – Manufacturing
  - DFI – Installation
  - DFR – Recycling
  - DFS – Safety

Supplier TC$_2$

- Suppliers can help identify component or subsystem adding costs without significant benefit
- Alternative approaches with adequate capabilities at a lower cost
- Learn from suppliers and validate the targets and design choices you have made

MAINTAIN COMPETITIVE COST

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- Establish Cost Plan
- Monitor Progress
- Prepare to take Action
- Kaizen Mentality

MAINTAIN COMPETITIVE COST

Establish Cost Plan$_2$

- Plan developed from sum of sales in different regions
  - Account for each products price trend and the required profit margin
  - Profit margins vary base on:
    - Customer
    - Region
    - Stage of life cycle of product

Monitor Progress$_2$

- Track actual costs in comparison to the cost plan
  - Must account for areas such as:
    - Changes in Volume
    - Changes in Mix
  - Other areas to monitor for costing purposes:
    - Spare parts
    - Options
    - Other low volume areas

MAINTAIN COMPETITIVE COST

Prepare to take Action$_2$

- Keep eye on market, competitor development, and product enhancements
- If actual costs are not meeting the plan, action must be taken to fix it
  - Identify root causes
  - Propose remedies
  - Implement improvements

Kaizen Mentality

- Develop and support culture that encourages continuous improvement
- Reward ideas that develop into practice
- Encourage employees to approach management with improvement ideas to save time & money, promote employee well being or improve the product

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