Time Value of Money

Discount Factor: PV of a $1 future payment
Discounted Cash Flow (DCF): Method of calculating present value by discounting future cash flows.
Perpetuity: perpetual stream of level cash payments
Annuity: level stream of cash flows with ends
Nominal i/r = rate at which investments grow
Real i/r = rate at which purchasing power grows

$FV = PV \times (1+r)t$

$PV = FV/(1+r)t$

$DF = 1/(1+r)t$

$PV_{perpetuity} = \frac{C}{r} = \frac{cash\ pmt}{interest}$

$PV_{annuity} = C\left[\frac{1}{r} - \frac{1}{r(1+r)^t}\right]$

$FV_{annuity} = [C \times PVAF] \times (1+r)^t = C\left[\frac{(1+r)^t - 1}{r}\right]$

$PVAD = PV_{annuity} \times (1+r)$

$FVAD = FV_{annuity} \times (1+r)$

$1 + real\ i/r = \frac{1+nominal\ i/r}{1+inflation}$

$Real\ interest\ \approx\ nominal\ i/r - inflation$

Effective annual i/r (compound), EAR=$(1+MR)^{12}$-1
Annual % Rate (simple), APR = monthly rate * 12
Mortgage = loan/(n-months PVAF)

Marketing

Definition: Activity, set of institutions, processes for creating, communicating, delivering, exchanging offerings that have value for customers, clients, partners, society at large
Needs: States of felt deprivation
Demands: Wants that are backed by buying power
Marketing: Delivering Value to Customers, and in turn Capturing Value from Customers
Marketing Myopia: Focusing on the current Wants instead of the underlying Needs

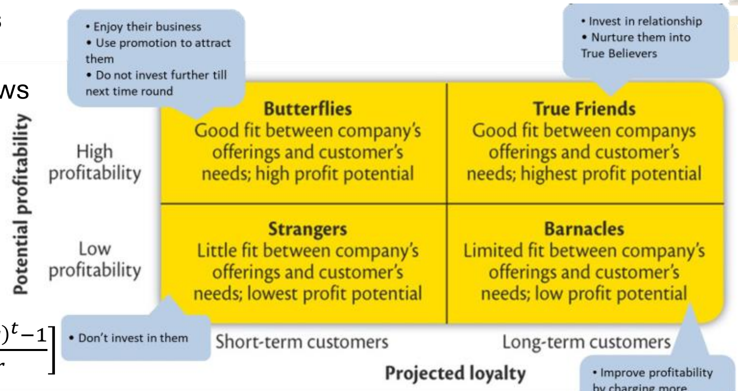
Production Concept
Focus: production, distribution efficiency
Consumers: prefer products available, affordable
Appropriate for : D > S, costs high, productivity lowers P
Remark: Impersonal, insensitive, assembly-line orientation

Product Concept
Focus: continued product innovation
Consumers: prefer high quality, best features & perf
Remark: causes marketing myopia.

Customer Driven:
1. Understand what customers want,
2. Create products to meet needs

Customer driving:
1. Understand customers better than themselves
2. Create products that meets needs now and in future

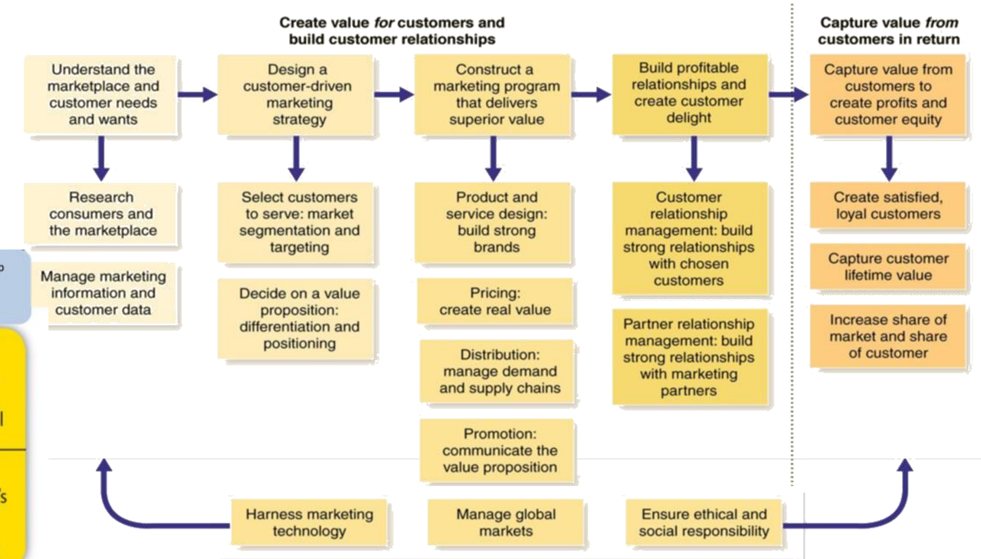
Customer Relationship Management (CRM)



Segmentation, Targeting and Positioning
1. Segmentation: divide mkt into smaller grps w distinct needs, characteristics, or behaviors who might require separate products or marketing mixes. Segment: consumers who respond in a similar way to a given set of marketing efforts.
2. Targeting: evaluating each market segment's attractiveness, selecting one or more segments to enter.
3. Positioning: Differentiation: differentiating mkt offering to create superior customer value. Positioning: Arranging for a product to occupy a clear, distinctive, and desirable place relative to competing products in the minds of target consumers. **Positioning is Perception Based**

Selling Concept
Focus: selling & promotion
Consumer: will not buy unless stimulated aggressively
Appropriate for: unsought goods
Remark: "hard sell", unscrupulous image

Marketing Concept
- determine needs & wants of tgt mkts, deliver more effectively and efficiently than competitors
- Create, build, & maintain beneficial exchanges with target buyers to achieve organizational objectives
- Focus on Buyer's Needs vs Seller's Needs
- Adapt & anticipate changes in consumer needs & characteristics
- Recognize needs not just product-based
- Stress regular consumer research & analysis
- Resources allocated to make goods & services desired by consumers



Marketing Management Process
1. Analyze & Identify Market Opportunities
a. Marketing Research & Information Systems
b. Marketing Environmental Scanning
c. Consumer & Business Markets
2. Research & Select Target Markets
a. Measuring & forecasting demand
b. Market segmentation, targeting, & positioning
3. Develop Marketing Mix: (4P's) transport, logistics)
4. Managing the Marketing Effort
a. Analysis (SWOT)
b. Planning (Setting Objectives and Strategy)
c. Implementation (Turn Strategy into Actions)
d. Control (Evaluating Results and Taking Corrective Action)

Customer Value
providing customers with reliable products or services at competitive prices and delivered with minimal difficulty or inconvenience

Product Leadership
offering customers leading-edge products and services that consistently enhance the customer's use or application of the product, thereby making rivals' goods obsolete

Customer Intimacy
segmenting and targeting markets precisely and then tailoring offerings to match exactly the demands of those niches

Product Centric Business
+ Great product at scale
+ KPIs include market share, number of new products etc.
+ Growth engines: new products and new markets
- Product life cycles have reduced
- Competition has increased because of the internet and globalization
- Move from selling products to solutions

Customer Centric
- Find most valuable customers, maximise long term value, not margin of current purchase
- Build r/s, look at future
- Acquisition: Find who are ideal customers to acquire, how much to spend
- Retention: don't retain every customer
- Dvlptmt: develop best customers

- Product (variety, quality, design, feature, brand, packaging, services)
- Price (discount, pmt period, credit)
- Promotion (adv, selling, promotion, PR)
- Place (channels, coverage, assortments, inv, transport, logistics)

Customer Lifetime Value

$ value of cust r/s: net PV of all future cash flows
Determine how much to spend on Cust Acq and Retention

$$CLV = (M - R)\left(\sum_{i=0}\left(\frac{r}{1+d}\right)^i\right)$$

$$CLV = (M - R)\left(\frac{1+d}{1+d-r}\right)$$

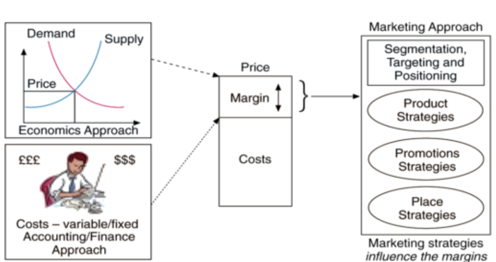
$M is the margin from every customer (where margin is the revenue minus the variable costs)
$R is the retention spending.
r = retention rate
d = discount rate
Survival Rate: Probability that customer has a relation in a given period $t = r^{t-1}$

CLV Extensions

1. Duration: Infinity or only few periods? Depends on discount rate and retention rate.
a. A low retention rate and high discount rate: much of CLV is achieved in first few periods
b. A high retention rate and low discount rate: very low CLV is achieved in first few periods
2. In case of businesses where revenue is obtained after service is delivered, then,
3. Retention rates increase over time. Thus, important to calculate CLV among customers of same cohort.
4. For businesses without formal subscriptions, other methods need to be used to evaluate the retention rate, and then calculate the CLV

CLV and Managerial Decisions

1. Targeting and decide spend from mkt segment
a. CLV (Segment)=CLV(Avg Customer) * Number of customers in segment
2. Customer acquisition: spend less than CLV
3. Customer retention: spend should be less than difference in CLV
4. Get rid of –ve CLV
6. Margin expansion: up-selling, cross-selling and cost cutting resulting in high enough CLV to cover costs of investments



Pricing

Pricing: Most tactical of 4P's
Only P producing revenue
Inflation/Recession
Dynamic

<u>Internal Factors</u>

Marketing Objectives

- Survival
- Current profit maximization
- Market share leadership
- Product quality leadership
- Competitive entry barriers
- Reseller support
- Cost recovery (non-profit & public firms)

Marketing mix strategy costs

- Product design
- Distribution
- Promotion
- Price vs Non-price competition
- Think about Parallel Importers
- Organisation for pricing

<u>External Factors</u>

Nature of mkt, demand

- Form of Competition
-- Pure
-- Monopolistic
-- Oligopolistic
-- Monopoly
- Price Elasticity of Demand
-- Elastic vs. Inelastic Demand
-- Cross-Elasticity (Substitute & Complementary Products)

Perception

- price as gauge for quality

Competition

- ref pt
- responsiveness
- product homogeneity (∝)
- **Other env factors (economy, resellers, govt)**

Costs

- Costs → Floor Price (for profit)
- Demand → Ceiling Price (no demand)

Types of Costs:

- Fixed, Variable, Total, Average, Marginal

Experience Curve

- Combined effects of learning, volume, investment, & specialization (downward sloping)

Price Skimming

- Set a high price for a new product to "skim" revenues layer by layer from the market
- Company makes fewer, but more profitable sales
- When to use:
- Segmentation on price elasticity
-- Image supportive
-- Safety/Hedge
-- Costs of smaller volume cannot be so high to cancel advantage of charging more
No immediate competition

Price Penetration

- Set a low initial price to "penetrate" the market quickly and deeply
- Can attract a large number of buyers quickly and win a large market share
- When to use:
-- Consumers price sensitive
-- Experience curve effects operative
-- Potential competition

Markup Pricing based on Cost

- Markup %
- Easy to use
- Equitable for buyer, seller
- Focuses on cost to neglect of demand

Target Return / Target Profit Pricing (Cost)

- Predetermined return on capital used to produce & market product
- Req: good demand est.
- Target return based on Standard Volume

$$Price = Direct\ var\ cost + \frac{Fixed\ cost}{std\ vol} + \frac{desired\ RoR \times Capital\ used}{std\ vol}$$

Perceived Value pricing

- Price based on buyer's perception of value
- Soundest, consistent with mkting concept

Psychological pricing

- price at $9.99

Loss-leader pricing

- Set prices on selected products at low levels to increase sales of others, store traffic, & overall profits

Optional-Product Pricing

- Sell accessory products with main product e.g. airplane
- To include as option or not?

Captive-Product Pricing

- Products that must be used with main product
- Captive products expensive; main product cheap.

Bundled Pricing

- Several products combined and sold as bundle at reduced price
- Promote sales of products that customers may not usually buy

Price Discrimination

Time
- Peak vs Off-peak
Place
- ERP: Downtown or outskirts
Customer
- Adults vs Child vs Senior citizens

A couple will retire in 50 years; they plan to spend about $24,000 a year (in current dollars) in retirement, which should last about 25 years. They believe that they can earn a real interest rate of 7% on retirement savings.
a. If they make annual payments into a savings plan, how much will they need to save each year? Assume the first payment comes in 1 year.
b. How would the answer to part (a) change if the couple also realize that in 20 years they will need to spend $54,000 on their child's college education?

They need $54,000 in FV in 20 years for college
PV now of college expenses = 54,000 / 1.0720 = 13,954.626 (3d.p.)
Total savings in PV now = 13,954.626 + 9494.713 = 23,449.339
Savings per year * FV = 23449.339
Savings per year = 1699.14 (2 d.p.)