TIME VALUE OF MONEY

Future value and compound interest
- Future value: amount to which an investment will grow after earning interest
- Compound interest: interest earned on interest
- Simple interest: interest earned only on the original invest$(1 + r)t$ment
- FV = \$100 × $(1 + r)^t$

Present values
- Present value
  - Value today of a future cash flow
- Discount factor
  - Present value of a \$1 future payment
  - Present value of \$1, and can be used to compute the present value of any cash flow
- DF = $\frac{1}{(1+r)^t}$
- Discount rate
  - Interest rate used to compute present values of future cash flows
- Discounted cash flow
  - Method of calculating present value by discounting future cash flows
- PV = $\frac{future\ value\ after\ t\ periods}{(1+r)^t}$

Perpetuities and annuities
- Perpetuity
  - A stream of level cash payments that never ends
- Annuity
  - Level stream of cash flows at regular intervals with a finite maturity
- PV of perpetuity formula = $\frac{C}{r}$
- PV of annuity formula = $C\,[\frac{1}{r} - \frac{1}{r(1+r)^t}]$
- PVAF = $[\frac{1}{r} - \frac{1}{r(1+r)^t}]$
  - The present value of \$1 a year for each of t years
- FV of annuity payment = $[C \times PVAF] \times (1+r)^t$

Annuities due
- Annuity due
  - Level stream of cash flows starting immediately
- $PV_{\text{annuity due}} = PV_{\text{annuity}} \times (1+r)$
- $FV_{\text{annuity due}} = FV_{\text{annuity}} \times (1+r)$

Effective interest rates
- Effective annual interest rate
  - Interest rate that is annualized using compound interest
  - EAR = $(1 + MR)^{12} - 1$
- Annual percentage rate
  - Interest rate that is annualized using simple interest
  - APR = MR × 12

Inflation
- Inflation
  - Rate at which prices as a whole are increasing
  - Current dollar cash flows must be discounted by the nominal interest rate
  - Real cash flows must be discounted by the real interest rate
  - Accurate formula:
  - 1 + real interest rate = $\frac{1+nominal\ interest\ rate}{1+inflation\ rate}$
  - Approximation formula:
  - Real int. rate ≈ nominal int. rate – inflation rate
- Nominal interest rate
  - Rate at which money invested grows
- Real interest rate
  - Rate at which the purchasing power of an investment increases

PLATFORM BUSINESS MODEL

Traditional system
- Traditional system employed by most businesses is a pipeline (linear value chain)
  - Design → manufacture → sell → deliver

Platform structure
- Producers → platform ← consumers

Advantages of platforms
- No gatekeepers to manage flow
  - Anyone can publish on Kindle
  - Gatekeepers are replaced by market signals
  - Consumers have more freedom
- New sources of value and supply
  - Airbnb expands much more rapidly as compared to Marriott
  - Doesn't own assets, and expansion is much less risky
  - Sharing economy (optimizing usage of idle assets)
- Community feedback loop
  - Wikipedia vs Encyclopedia Britannica
  - YouTube comments can signal quality

Network effects
- Impact that the number of users of a platform has on the value created for each user
  - Positive: ability of a large well-managed platform to produce significant value for each user
  - Negative: growth in numbers of a poorly-managed platform can reduce the value for each user
- Industrial revolution promoted supply economies of scale: unit cost of producing a product or service reduced as quantities produced increase
- Internet era lends itself to demand economies of scale: bigger networks are more valuable for user-driven by efficiencies in social networks, demand aggregation, app development

Two sided network effects
- Uber: riders attract drivers and drivers attract riders
- Firms can spend money to attract participants to one side of the market
- Quite different from price effects and brand effects
  - Price effect: people come when price are cheaper
  - Brand effect: people come and stay because of branding
- Virality can attract people, but network effects keep them there
  - Grab: people were attracted to the platform for cheap prices, stay because of the network of drivers and riders
- Most important for firms to be able to scale seamlessly
  - Yahoo started out as a human-edited database, whereas Google's page rank algorithm considers the extent web pages link to one another

Network effects: when they are negative
- Matching difficulties when numbers are high
  - Can drive away participants: people are matched with others poorly
  - Frictionless entry with effective curation balance

Network effects: four kinds
- Positive same-side
  - Positive benefits received by users when the number of users of the same kind increases
  - People use PDF because other people can use it
- Negative same-side
  - Effect of competition: more drivers compete with more drivers
- Positive cross-side effect
  - Users benefitting from an increasing number of participants on the other side of the market
  - More merchants use via, more users will use
- Negative cross-side effects
  - Matching problems and clutter
  - People are unhappy with matches given by platform

Making money from network effects
- Inherent value of platform business lies in the network effects it creates
- Charge for users may discourage them from participating
- Charging for usage would also hinder usage
- Charging for consumption can reduce consumption and affect producers
- Charging for production can reduce value creation and affects consumers
- Sources of value:
  - For consumers: access to value created on platform
  - For producers: access to a community or market
  - For both: access to tools and services that facilitate interaction & access to curation mechanisms that enhance the quality of interactions
- Charging a price can help reduce negative network effects
  - Charging for the right to use reduce the numbers using the platform, but more successful outcome left on the platform

Monetisation strategies
- Charging a transaction fee
  - Buyers and sellers are not discouraged from joining
  - Experiment with various levels of fee to get the fair percentage of value without driving users away
  - Provide other value added benefits (consumers can monitor projects and make payments based on delivery)
- Charging for access
  - Charge producers to access to a community of users
  - Doesn't discourage users
- Charging for enhanced access
  - Charge producers for enhanced access to consumers (content elevated by paid access)
  - Charge users for lowering barriers (dating websites provides additional information to those who pay a fee)
- Charging for enhanced curation
  - Improve quality of interactions for those who pay a premium
  - Enhanced vetting and screening of service providers for a fee

Monetisation target
- Charging all users
  - Can reduce network effects
- Charging one side while subsidizing another
- Charging most users full price while subsidizing stars
- Price discrimination based on price sensitivity

Monetisation principles
- Avoid charging for value that users previously received for free
- Avoid reducing access to value that users have become accustomed to receiving
- Strive to create additional value that justifies the charge imposed
- Monetisation strategies should be considered when making the initial platform design choices

MARKETING

Definitions

- The activity, set of institutions and processes for creating, communicating, delivering and exchanging offerings that have value for customers, clients, partners and society at large

Production concept

- Focus on production & distribution efficiency
- Assumes consumers prefers products that are available & highly affordable
- Appropriate when: demand > supply, costs are high and improved productivity will lower them
- Impersonal, insensitive, "assembly-line" orientation

Product concept

- Focus on making continued product innovations
- Assumes consumers prefer products with the highest quality, best features & performance
- Leads to marketing myopia (overly-narrow definition of business)

Selling concept

- Concentrate on selling & promotion
- Assumes consumers will not buy enough unless stimulated aggressively
- Normally used for unsought goods
- "Hard sell" unscrupulous image

Marking concept

- Determine needs & wants of target markets & delivering them more effectively & efficiently than competitors
- Create, build & maintain beneficial exchanges with target buyers to achieve organizational objectives
- Focus on buyers' needs vs sellers' needs
  - Adapt & anticipate changes in consumer needs & characteristics
- Recognise needs not just product-based
- Stress regular consumer research & analysis
- Resources allocated to make goods & services desired by consumers

Butterflies High profit potential, low projected loyalty	**True Friends** High profit potential, high projected loyalty
Strangers Low profit potential, low projected loyalty	**Barnacles** Low profit potential, high projected loyalty

5 step marketing process

- Understand the marketplace and customer needs and wants
- Design a customer-driven marketing strategy
- Construct a marketing program that delivers superior value
- Build profitable relationships and create customer delight
- Capture value from customers to create profits and customer equity

Customer relationship management (CRM)

- The process of building & maintaining profitable customer relationships by delivering superior customer value and satisfaction
- Not everyone is a desirable customer
- Attract, keep and grow profitable customers
- Customer driven → understand customers deeply about what they want → create products that meet current needs
- Customer driving → understand customers needs better than customers themselves do → create products that meet needs now and in the future

Marketing management process

- Analyse & identify market opportunities
  - Marketing research & information systems
  - Marketing environmental scanning
  - Consumer & business markets
- Research & select target markets
  - Measuring & forecasting demand
  - Market segmentation, targeting & positioning
- Develop marketing mix (4P's): set of controllable tactical marketing tools that the firm blends to produce response it wants in target market
  - Product: variety, quality design, features, brand
  - Price: list price, discounts, allowances, payment
  - Promotion: advertising, personal selling
  - Place: channels, coverage, inventory, location
- Managing the marketing effort
  - Analysis (SWOT)
  - Planning (setting objectives and strategy)
  - Implementation (process of turning marketing strategies into marketing actions)
  - Control (evaluating results and taking corrective action)

Segmentation, targeting and positioning (STP)

- Segmentation: dividing a market into smaller groups with distinct needs, characteristics, or behaviours who might require separate products or marketing mixes. A market segment consists of consumers who respond in a similar way to a given set of marketing efforts.
- Targeting: the process of evaluating each market segment's attractiveness and selecting one or more segments to enter
- Positioning:
  - Differentiation: Actually differentiation the market offering to create superior customer value
  - Positioning: Arranging for a product to occupy a clear, distinctive, and desirable place relative to competition products in the minds of target consumers

CUSTOMER LIFETIME VALUE

Product centric business models

- Great product, and producing at the same scale
- KPIs: market share, number of new products
- Growth engines: new products and new markets
- But,
  - Product life cycles have reduced
  - Competition has increased because of internet
  - Move from selling products to solutions

Customer centric business models

- Maximise customers' long term value, not necessarily the additional margin of their current purchase
- Build relationships and look at the future
- Customer acquisition: who are the ideal customers and how much to spend?
- Customer retention: do we make attempt to retain every customer?
- Customer development: who are the best customers to be developed further

Customer lifetime value

- CLV: dollar value of a customer relationship: net present value of all future cash flows from a customer relationship
- Computed with past data about a customer to predict future
- Useful to know how much to spend on customer acquisition and retention
- PV of future cash flows = $\frac{cash\ flow}{(1+i)^t}$, i = discount rate
- CLV = $(M - R)(\frac{1+d}{1+d-r})$
  - $M: margin from every customer
  - $R: retention spending
  - r: retention rate
  - d: discount rate
  - Survival rate: probability that customer has a relation in a given period t = r^{t-1}
- Low retention rate and high discount rate
  - Much of CLV achieved in first few periods
- High retention rate and low discount rate
  - Very less of CLV achieved in first few periods
- In case of businesses where revenue is obtained after service is delivered
  - CLV = $(M - R)(\frac{r}{1+d-r})$

CLV and managerial decisions

- Targetting and market segment
  - CLV (segment) = CLV (avg customer) * number of customers in segment
  - Decide marketing spend based on this
- Marketing expenditure for a particular customer
- Fire customers with negative CLV
- Acquisition: spend should be less than CLV of customer
- Retention: spend should be less than difference in CLV
- Margin expansion: up-selling, cross-selling and cost cutting resulting in high enough CLV to cover costs of investments

PRICING

- Most tactical of 4P's: product, place, promotion
- Only P that produces revenue
- Inflation/ recession
- Dynamic

Factors influencing price

- Economics: demand & supply
- Finance: costs
- Marketing: segmentation, targeting and positioning (product, promotions, place strategies)
- Internal factors: marketing objectives (market share, reseller support), mix strategy costs (design, distribution, promotion, price competition parallel importers), organisation for pricing
- External factors: nature of market & demand, competition, resellers
  - Competition: pure, monopolistic, oligopolistic, monopoly
  - PED and CED
  - Perception: price-quality relationship, price used in absence of other cues
- Fixed, variable total, average, marginal costs

Methods and Strategies: new-product pricing

- Price skimming: set a high price for new product
  - Use when: segmentation, supportive, safety
- Price penetration: set a low price for new product
  - Use when: price sensitive, potential competition

Methods and Strategies: cost-oriented strategies

- Markup pricing based on cost: predetermined percentage added to product cost
- Target return or target profit pricing: predetermined return on capital used to produce
  - P = DVC + FC/X + rK/X,
  - X = standard vol., DVC = dir. var. cost, K = capital used, r = desired rate of return

Methods and Strategies: demand-oriented

- Methods used to affect consumer perception

Methods and Strategies: perceived-value pricing

- Price based on buyer's perception of value

Methods and Strategies: odd pricing

- Set prices below even-dollar amounts ($9.99)

Methods and Strategies: loss-leader pricing

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

Methods and Strategies: optional-product pricing

- Sell accessory products with main product

Methods and Strategies: captive-product pricing

- Products that must be used with main product

Methods and Strategies: bundled pricing

- Several products combined and sold as bundled

Methods and Strategies: price discrimination

- Time: peak vs off-peak
- Place: ERP → downtown or outskirts
- Customer: adults, child, seniors

FINALS SAMPLE

Platforms, marketing, pricing

- Customer perceptions of product's value → ceiling for prices; product costs → floor for prices
- Setting prices for first time → market-penetration pricing or market-skimming pricing
- Faced with competitor who has cut product's price → alter the company's marketing communications
- Modern marketing is:
  - Creation of value for customers
  - Managing profitable customer relationships
  - Involves satisfying customers' needs
  - NOT selling and advertising