# EMBA 122 Course Summaries

April 2022

Modit Ohri

Northwestern | Kellogg

# Contents

Northwestern | Kellogg
School of Management

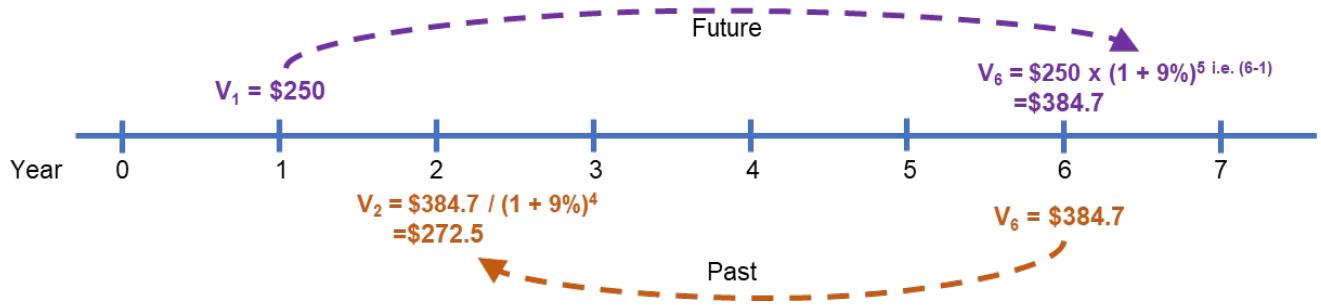
# Managerial Finance 1

*FINCX-430-0*

Professor Craig Furfine

- To evaluate a project, compare the cash inflows with the cash outflows. This is the NPV. But note that all the cash flows should be at the same point in time

- Rules of time travel: To go into the future, **Multiply**. To go back in time, **Divide**.




- NPV = PV(Benefits) – PV(Costs). Two methods to calculate Present Value (PV) are:

  **Method 1: The NPV Formula =NPV (rate, value 1, value 2…)**

  - Note that value 1 should begin with time 1 and value at time 0 to be added separately. It will look like this *=C12+NPV (9%,D12:H12)*

  - Do not use this method if there is a gap in cash flows, such as no cash flow at time 4. Use the manual method, using the carrot ^

  **Method 2: The Manual method**

| Year | 0 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| Cash Flows | -1000.0 | 200.0 | 250.0 | 220.0 | 300.0 | 1000.0 |
| PV (0) | -1000.0 | 183.5 | 210.4 | 169.9 | 212.5 | =H12/(1+9%)^H11 |
| NPV (0) | 426.2 | | | | | |

- Calculating Free Cash Flows (FCF) for NPV:

  **FCF = NOPAT + Depreciation - CapEx - Δ NWC**

  - NOPAT = EBIT – Tax
    i.e., NOPAT = (Revenue - Operating Costs - Depreciation) x (1 - tax rate)

  - CapEx: Consider the salvage value after deducting tax

  - NWC = Cash + Inventory + Account Receivable – Accounts Payable

  - Do not forget to make the NWC zero in the last cell; Δ NWC will be a positive cash inflow in last year

  - Ignore sunk costs in calculation of FCF; E.g. Fee paid to consultant for feasibility report – ignore

- Consider opportunity costs, cannibalization of other revenues
- If the revenues have a probability: E(Rev) = (Prob. of Rev 1) x (Rev 1) + (Prob. of Rev 2) x (Rev 2)..
- Use this formula to convert real rate to nominal and vice versa:

$$r^{real} = \frac{1 + r^{nominal}}{1 + i} - 1$$

- **IRR** is the average return earned by taking on the investment opportunity; If IRR is used to discount cash flows, NPV is zero

- Accept the project if the IRR is more than hurdle rate; otherwise, reject. IRR method is simpler than NPV as cost of capital is not required. However, IRR method can lead to wrong results in some cases, such as when negative cash flows happen after positive cash flows

  **Excel formula: =IRR (values)**

- Perpetuities / Annuities: Apply these formulas only if the same amount is being paid every year

| Type | Example | Formula |
|---|---|---|
| Perpetuity | Dutch Water Board issued a perpetuity bond in 1624. Holders still get €11.34 every year. | PV = Interest (C) / rate |
| Growing Perpetuity | Same as Perpetuity, but the interest grows x% every year. | PV = C / (Rate - Growth) |
| Annuity (Not forever) | Limited number of payments. Used to calculate:<br>1. What will monthly $2K saving become after 25 years? **(FV)**<br>2. If you want $100K saved by 2030, then how much to save (payment) every month? **(PMT)**<br>3. How many years (no. of periods) will it take to repay a loan? **(NPER)**<br>4. If you win a lottery that gives $15m now or $1m every year for 30 years, which one should you opt for? **(PV)** *Pro tip: $15m now*<br>5. If an investment of $25K pays $2K annually for 10 years, what is the return rate? **(Rate)** *Pro tip: This is the IRR.* | **Excel's Financial Swiss Army Knife**<br>After = sign, start with what you want, for example =Rate, and then punch in the other 3 or 4 parameters that you know. You can calculate:<br>*=FV (), =PMT ()*<br>*=NPER (), =PMT ()*<br>*=PV, =RATE ()* |
| Growing Annuity | Same as Annuity, but the installment grows with time. Use Goal Seek or formula. When using formula, calculate $PV_0$ first, then divide $PV_0$ by entire RHS (other than C1, which we need to calculate) | $PV_0 = \frac{C_1}{r-g}\left(1 - \left(\frac{1+g}{1+r}\right)^T\right)$ |

- **Firm Valuation**

  - DCF valuation is the valuation of a firm based on the present value of all its future FCF

  - If the FCF go into perpetuity, then use the following formula to get the value of perpetual cash flows in the last year in which the cash flows stabilize:

$$(\text{Terminal Value})_T = \frac{(1+g)FCF_T}{r-g}$$

  - DCF valuation provides the firm value. Equity value will need to be calculated in the next step as:

*Value of Equity share = (Firm Value – Debt) / Number of outstanding shares*

  - Multiples valuation = P/E Ratio x EPS

- **Risk, Return and Cost of Capital**

  - Total Risk (Standard Deviation) = Idiosyncratic risk + Systematic risk (Beta). Idiosyncratic risk affects cash flows only; Systematic risk affects both cash flows and cost of capital

  - Investors deserve a risk premium only for assuming systematic risk; there no risk premium for idiosyncratic risk because it can be eliminated through diversification

  - Formula to calculate annualized total risk from monthly data: (Average monthly SD) x 12^(1/2)

  - We calculate the cost of capital to find the discounting rate to be applied to cash flows to get NPV. The cost of capital, or weighted average cost of capital (WACC), is calculated as:

$$WACC = \frac{D}{D+E}(\text{Cost of Debt}) * (1-T) + \frac{E}{D+E}(\text{Cost of Equity})$$

  - The cost of debt and cost of equity can be calculated using CAPM equation:

**E(R) = Risk-free return + (Beta x Market Premium)**
*where, Market Prem. = Market Return – Risk-free return*

  - Consider risk-free return that is commensurate with the project life; for a 5-year project, use a 5-year treasury rate, not a 30-year treasury rate

  - Do not forget to multiply cost of debt with (1-tax rate); debt is beneficial over equity because the interest paid on debt is tax deductible

Northwestern | Kellogg
School of Management

# Managerial Finance 2

*FINCX-441-0*

Professor Mitchell Petersen

**More about Beta**

- Total Risk = Systematic Risk + Idiosyncratic Risk. Systematic risk is represented by Beta.

  The value of a security is determined by **Cash Flows** and **Cost of Capital / Discount Rate**

  - Affected by both systematic and idiosyncratic risk
  - Affected by whether information is public

  - Affected only by systematic risk
  - Affected by leverage

$$\text{Beta} = \frac{\text{\% change in stock return}}{\text{\% change in market portfolio}}$$

- To get an intuition about beta, look at how the price of the security changes in response to the change in the stock market. Also, think about the returns or payoffs in recession and boom scenarios to figure out the risk and estimate beta.

- Bond or debt beta is calculated in a similar manner. For convenience, low risk or investment grade bonds have a debt beta of 0.2, while high risk or junk bonds have a debt beta of 0.65.

- Financial distress changes the nature of assets – defaults are more likely during recessions and value is retained during booms. So, one side is unchanged, and the other side is more sensitive. This means that the beta of assets has changed and increased.

**Bonds and Yield**

- Yield to Maturity (YTM) is simply the IRR of a bond. It is the discount rate that equates the cash inflows with the cash outflows.

- Calculations of YTM assume that all the coupon payments are reinvested at the same rate as the bond's current yield. However, in reality, this reinvestment rate changes with the interest rates. Therefore, as interest rates increase, YTM will increase. And as interest rates reduce, YTM will reduce.

- Increase in interest rate = Increase in YTM = Reduction in Bond Price. This relationship is like that of discount rate and valuation. As discount rate increase, the valuation goes down.

- YTM utilizes the promised rate and not the actual cash flow. Due to this, the YTM of a defaultable bond exceeds the expected return from investing in such a bond.

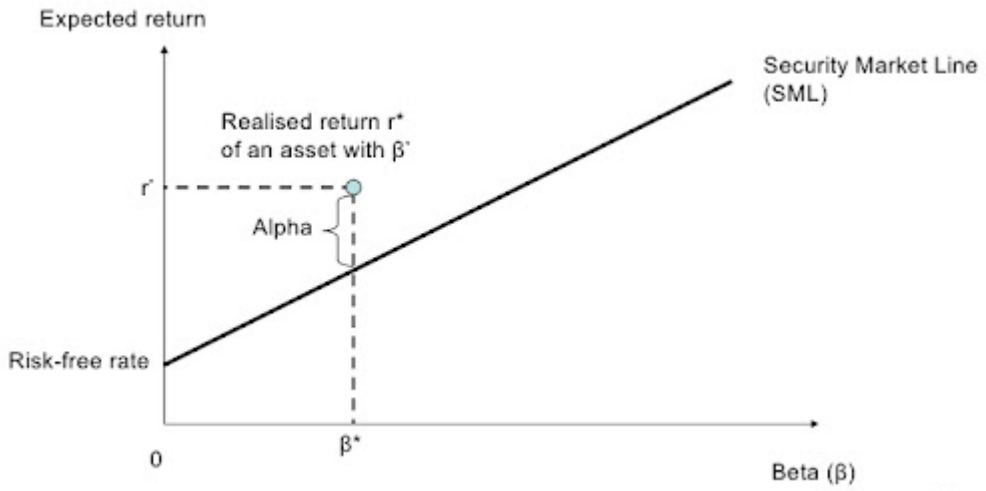
## Estimating the Cost of Capital

- Capital Assets Pricing Model (CAPM) to calculate expected returns:

$$r_i = r_f + \beta \times \left(E[R_{mkt}] - r_f\right) + \alpha + \varepsilon$$

| | | | | | |
|---|---|---|---|---|---|
| r is the Expected return. R is the Actual return | Risk free return | Beta | Market Risk Premium | Alpha; Explained below | $\varepsilon$ is Error; Zero on average |

- **Alpha (α)** is a measure of how much the actual return is different from the expected return that is computed using CAPM. If you plot a graph with beta on x-axis and expected return on y-axis, you will get a line that is called the Security Market Line (SML). Remember that the points on SML are only expected returns and that the actual return maybe different. If α is positive, the stock has performed better than the CAPM prediction (and is undervalued), and the stock will appear above the SML. Below chart shows SML and Alpha.




- If there is debt or leverage in the business, the beta (and correspondingly the cost of capital) will need to be adjusted accordingly. The key is to be consistent – equity cash flows need to be discounted with equity cost of capital; debt cash flows like interest need to be discounted with debt cost of capital. If the capital structure has both equity and debt, then use asset (or unlevered) cost of capital.

- Asset beta $\beta_u$ is the weighted average of equity beta $\beta_E$ and debt beta $\beta_D$. E and D below represent equity and debt in the financial structure. Use net debt[1] in the formula:

$$\beta_u = \frac{E}{E+D} \times \beta_E + \frac{D}{E+D} \times \beta_D$$

[1] *Net Debt = Debt -Excess Cash and Short-Term Investments*

- As an investor who is using their own equity to finance an investment, you will need to know the asset or unlevered cost of capital or Pre-tax WACC, using the following formula:

$$r_u = \frac{E}{E+D} \times r_E + \frac{D}{E+D} \times r_D$$

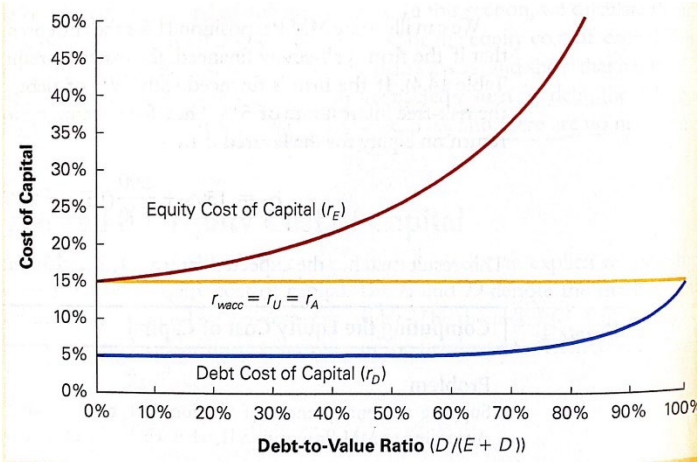
- On the other hand, a business that has both debt and equity will use Weighted Average Cost of Capital (WACC) to compute the actual cost of capital:

$$r_{WACC} = \frac{E}{E+D} \times r_E + \frac{D}{E+D} \times r_D \times (1 - Marginal\ Tax\ Rate)$$

- CAPM makes managers think of risk in the correct way. Managers of widely held corporations should not worry about diversifiable risk, which the shareholders can eliminate from their portfolios by diversifying. They should instead be focused on systematic risk and be prepared to compensate investors for it.

**More about Leverage**

- Leverage increases the risk of the equity even when there is no risk that the firm will default. Accordingly, both the cost of debt and the cost of equity will increase with increasing leverage. In a perfect capital market, the firm's WACC remains unchanged even as the firm assumes more and more debt. This phenomenon is reflected in the following chart, in which WACC is represented by the constant middle orange line.




- A perfect capital market is one in which the capital structure is irrelevant, and has following six assumptions:

1. No Taxes
2. Control does not matter (managers maximize shareholder value)
3. Constant investment policy (invest only in positive NPV projects)
4. Zero bankruptcy cost
5. Efficient Market Hypothesis (market price of securities is equal to the PV of their future cash flow)
6. Zero transaction costs

- However, in the real world, we need to consider the above factors. Following formula brings together the constituent parts that are important in the valuation of a leveraged business:

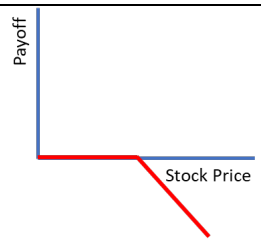
$$V_L = V_U + PV(Interest\ Tax\ Shield) - PV(Financial\ Distress\ Costs) - PV(Net\ Agency\ Costs\ of\ Debt)$$

  Where,

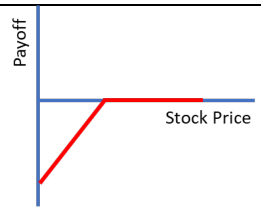
  - $V_L$ is value of levered firm and $V_U$ is the value of unlevered firm
  - PV(Interest Tax Shield) = Marginal tax rate x Debt
  - PV(Financial Distress Costs) and PV(Net Agency Costs of Debt) are rough estimates. Start with thinking if this number should be $1k, $1m or $1b.

**Financial Options**

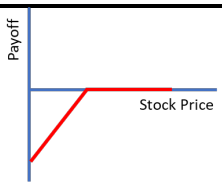
- **Call Option:** A call option gives the owner the right to buy an asset:

| | | | |
|---|---|---|---|
| *Choice* | Long Call Position<br>(Purchased a call option) | Value of Long call Option = max(S-K,0)<br><br>Where,<br>S - Stock Price<br>K - Exercise Price |  |
| *Obligation* | Short Call Position<br>(Sold a call option) | Value of Short Call Option= – max(S-K,0) |  |

- **Put Option:** A put option gives the owner the right to sell an asset:

| | | | |
|---|---|---|---|
| *Choice* | Long Put Position<br>(Purchased a Put option) | Value of Long Put Option = max(K-S,0)<br><br>Where,<br>S - Stock Price<br>K - Exercise Price |  |
| *Obligation* | Short Put Position<br>(Sold a Put option) | Value of Short Put Option= – max(K-S,0) |  |

- Bullish and Bearish bets:

| Negative slopes are Bearish bets (if the goal is selling the asset, you expect the prices to go down) | | | Positive slopes are Bullish bets (if the goal is holding the asset, you expect the price to go up) | | |
|---|---|---|---|---|---|
|  |  |  |  |  |  |
| Short Call | Long Put | Short Stock | Long Call | Short Put | Long Stock |

**Real Options**

- A real option is the right to make a particular decision after new information is learned. The cost of a real option is justified as it allows the decision maker to choose the most attractive alternative based on new information. Accordingly, the option to delay a particular investment or a real-life decision is similar to buying a call option – there is an option to invest or not based on the situation later.

- As per the Black Scholes model, an option is priced based on the following parameters:

    - Stock Price
    - Time to expiration of option
    - Volatility
    - Risk Free Rate
    - Strike Price

Northwestern | Kellogg
School of Management

# Operations Management

*OPNSX-430-0*

Professor Sunil Chopra

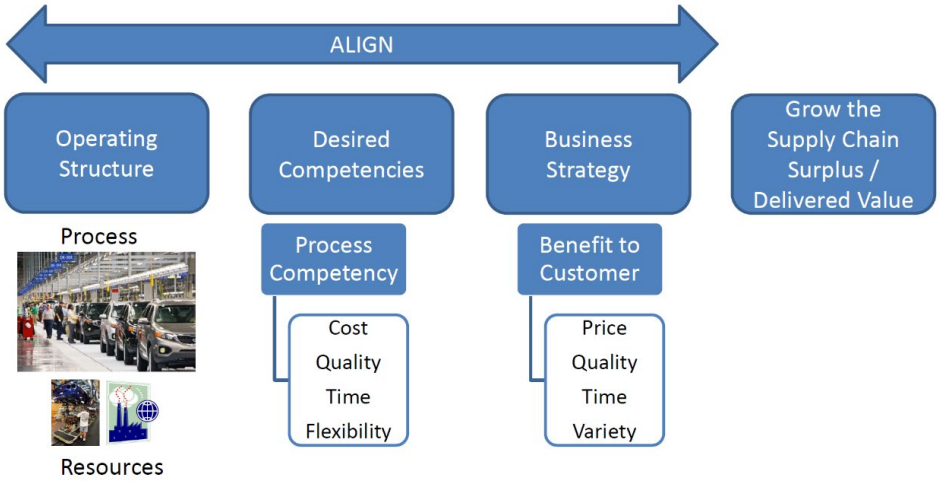
- Three aspects of successful operations:
    - **Operating system:** The way processes are designed to create value
    - **Management infrastructure:** Metrics required to manage and improve processes and resources
    - **Mindsets, capabilities and behaviors:** The way people think, feel and conduct themselves

**Strategic Framework for Operations**

- A good process improves the delivered value or creates a supply chain surplus.

***Delivered Value / Supply Chain Surplus = Benefit to Customer - Process Cost***

- In the following framework, start from the right – the business strategy that provides benefit to the customer. Then move towards left to identify desired competencies and the ideal operating structure.




**Return on Invested Capital (ROIC)**

$$ROIC = \frac{Income}{Invested\ Capital} \quad \textbf{or} \quad ROIC = \frac{Income}{Revenue} \times \frac{Revenue}{Invested\ Capital}$$

$$\boldsymbol{ROIC = Profit\ Margin \times Velocity}$$

- From the equation above, ROIC depends on Profit Margin and Velocity. Therefore, to increase the ROIC, either improve the profit margin or improve velocity/asset turns or both.

- Impact of operational improvement on ROIC:
    - Increase in Income:
        - Increase in quantity by more efficient use of assets
        - Lower unit costs through improved processes
        - Increase unit price by improving quality or being more responsive to customer need
    - Reduce capital needs by reducing inventory or better utilization of assets

**Little's Law**

$$\boldsymbol{Inventory\ (I) = Throughput\ (R) \times Flowtime\ (T)}$$

- Terminology:
  - **Inventory:** Input that has not exited the system
  - **Throughput:** Rate of output. E.g., 2 updates per week
  - **Flowtime:** Time spent on waiting and processing
  - **Takt time (1/R):** It is the inverse of throughput and tells us the time taken per unit of output. E.g., half a week for each update. Shorter takt time requires more people

- Example:
  - If a business receives 200 claims/week and it takes 3 weeks to process each claim, then what is the average claims inventory?
  - We are given that R = 200 claims/week, T = 3 weeks.
  - Applying Little's Law, I = R X T or I = 200 x 3 = 600 claims

**Cash Conversion Cycle (CCC)**

- Rearranging the Little's Law, we get T = I/R and this relationship can be used to derive the CCC of a business:

$$\textbf{CCC} = \boldsymbol{Days\ of\ Inventory + Days\ of\ Receivables - Days\ Payable}$$

$$= \frac{\boldsymbol{Average\ Inventory}}{\boldsymbol{COGS}} + \frac{\boldsymbol{Average\ Receivables}}{\boldsymbol{Sales}} - \frac{\boldsymbol{Average\ Payable}}{\boldsymbol{COGS}}$$

**Process Analysis**

- The critical path (or paths) is the longest path (in time) from Start to Finish; it indicates the minimum time necessary to complete the entire project

- The flowtime of the process equals the critical path

- Levers to reduce flow time:

  - Reduce waiting time

  - Decrease work content on critical path
    - Detect defects quickly
    - Work smarter / faster

  - Move work content away from critical path
    - E.g., standardization, front loaded EMBA classes

**Overall Equipment Effectiveness (OEE)**

**OEE = Availability x Performance x Quality**

- For example, if an equipment is available 85% of the time, performs at 90% of its capacity, and produces 95% quality, then the OEE is 73% (85% x 90% x 95%)

**Types of Waste**

- Extra processing
- Motion
- Transportation
- Over-production
- Inventory
- Waiting
- Unutilized talent
- Defects / Rework

Northwestern | Kellogg
School of Management

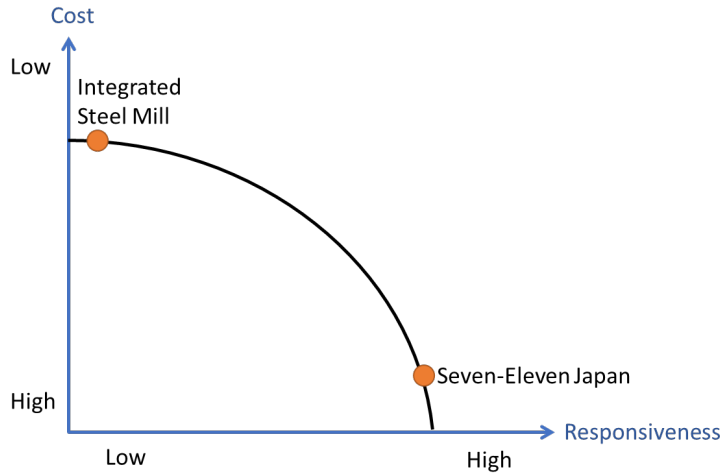
# Strategic Decisions in Operations

*OPNSX_454-0*

Professor Achal Bassamboo

- On a strategic level, there are two key operational values:
  - **Price Effectiveness:** Minimizing the cost to move goods and services across supply chain
  - **Responsiveness:** Supply chain's ability to handle uncertainty and a wide range of quantities, varieties

- These two values are contradictory, as reflected by the **Cost-Responsiveness Efficient Frontier** below**:**




- The two ends of the frontier are demonstrated by two very different operations. While Seven-Eleven Japan is highly responsive to uncertainty and customer requirements, it achieves this responsiveness at a higher cost. On the other hand, an integrated steel mill is highly optimized on cost, it is slow to respond to customer needs and usually plans supply chain many months in advance.

- Even the most efficient firm faces uncertainty. Following 6 levers can be used to absorb uncertainty:
  - Facilities
  - Inventories
  - Transportation
  - Sourcing
  - Information
  - Pricing

**<u>Optimal Lot Size</u>**

- Economic order quantity (EOQ) is the ideal order quantity a company should purchase to minimize inventory costs such as holding costs, shortage costs, and order costs.

$$\boldsymbol{EOQ\ or\ Q} = \sqrt{\frac{\boldsymbol{2DS}}{\boldsymbol{H}}}$$

*Where D = Annual Demand, S = Setup/order cost per lot, H = Holding cost per unit p.a.*

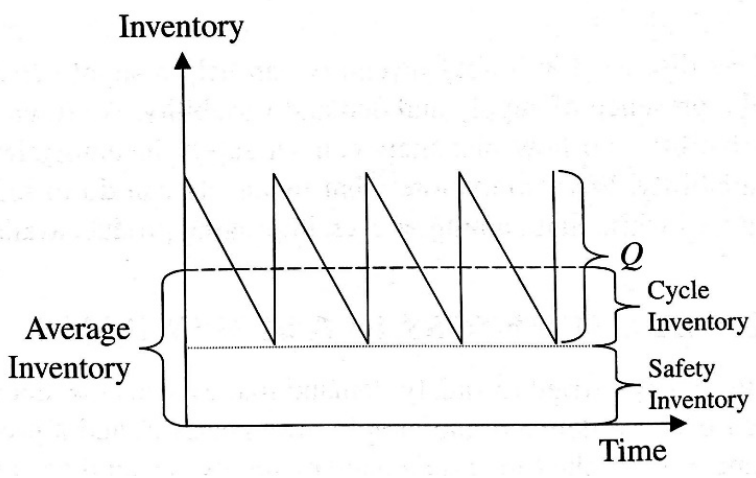
- The EOQ equation should drive intuition:

| All Else Constant | Do we want this? | Result |
|---|---|---|
| Option 1: Demand (D) increases ↑ | Yes | Q will increase ↑ |
| Option 2: Ordering cost (S) increases ↑ | No | Q will increase ↑ |
| Option 3: Holding cost (H) increases ↑ | No | Q will decrease ↓ |

- To reduce inventory, the order quantity or Q needs to be reduced. Based on the above intuition, we can ideally reduce Q by reducing S, the ordering cost (We don't want to reduce D or increase H). To Reduce S:
    - Aggregate across multiple Stock Keeping Units (SKUs)
    - Local sourcing or co-location

**Safety Stock**

- An inventory profile has two important elements:
    - **Cycle Inventory:** The portion of inventory available to meet normal demand during a given period
    - **Safety Inventory:** Extra quantity of a product that is stored to prevent an out-of-stock situation




- Safety stock is determined by following factors:
    - Lead Time (L): Time from the moment order is placed to the moment it is delivered
    - Variability in demand: Quantified by standard deviation or coefficient of variation
    - Service Level or Cycle Service Level (CSL)
    - Replenishment Policy

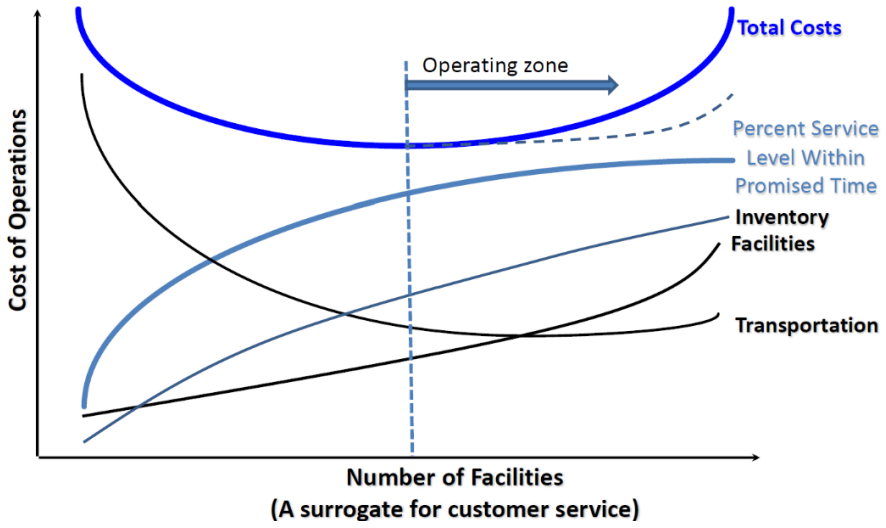
## Replenishment Policies

- There are two types of replenishment policies – Continuous Review and Periodic Review. More details:

| Details | Continuous Review | Periodic Review |
|---|---|---|
| **What is it?** | Order a fixed quantity on reaching the reorder point (ROP) | Determine the stock at a fixed time interval and then load up to a certain level |
| **How much to order?** | A fixed pre-determined quantity.<br>E.g., 2,000 units | Order as much as required to reach the Order up to Level (OUL).<br><br>*Order Quantity = OUL – Inventory at hand* |
| **When to Order?** | When Inventory at Hand ≤ Reorder Point | Every T periods. T is the reorder interval.<br>E.g., every 3 weeks |
| **Safety Stock (SS) Formula** | $\boldsymbol{SS = NORMSINV(CSL) \times \sigma D \times \sqrt{L}}$ | $\boldsymbol{SS = NORMSINV(CSL) \times \sigma D \times \sqrt{L+T}}$ |
| | ○ *CSL is the desired service level, such as 90%. NORMSINV(CSL) gives z-value for such a service level*<br>○ *σD is the standard deviation in demand. This captures the variability*<br>○ *L is the lead time*<br>○ *T is the reorder interval* | |
| **Features** | • Relatively difficult to implement. May require inventory management system<br>• Requires less safety stock as only the lead time needs to be considered | • Relatively easy to implement. Based on checking stocks at regular intervals<br>• Requires more safety stock as both lead time and reorder interval need to be considered |

## Network Structure

- Identifying the ideal network structure is a tradeoff. More facilities mean higher customer responsiveness, but it leads to an overall increase in costs. This tradeoff is reflected in diagram below:



- Given the tradeoff, inventories can be aggregated/centralized, or they can be local/decentralized. Some scenarios in which one is more suitable than the other:

| Scenario | Centralized Inventories (Think Amazon) | Decentralized Inventories (Think Seven-Eleven Japan) |
|---|---|---|
| Low Volatility<br><br>(Diaper – predictable demand) | 🔴<br>High transportation cost | 🟢 |
| High Volatility<br><br>(Diamonds – unpredictable demand) | 🟢 | 🔴<br>High inventory cost if entire variety maintained at every location |
| Fast Moving Product<br><br>(Diaper – fast moving, consumable) | 🔴<br>High transportation cost | 🟢<br>More appropriate if customer completes the last mile |
| Slow Moving Product<br><br>(Diamonds – slow moving, luxury) | 🟢<br>Blue Nile (online retail) successful | 🔴<br>High inventory cost. Viable if customer pays premium (Tiffany) |

- Illustrative network structures:

| | |
|---|---|
| Manufacturer storage with Drop Ship |  |
| Manufacturer storage with merge in-transit | DELL |
| Distributor storage with package delivery | amazon |
| Distributor storage with last-mile delivery | Walmart+ |
| Manufacturer/distributor storage with local pickup |  |
| Local storage with pickup (Retail stores) | COSTCO WHOLESALE |

**Omnichannel Business**

- The following framework reflects omnichannel business in the context of information channels and fulfillment channels.

| | | | |
|---|---|---|---|
| **Information Channel** | **Face-to-face** | **Traditional Retail** | **Showroom + Online Delivery** |
| | **Online** | **Curbside Pickup** | **Pure Online** |
| | | **Pickup** | **Home Delivery** |
| | | **Fulfillment Channel** | |

- The top left cell (Traditional Retail) is marked by face-to-face interaction and in-person pickup. Such a supply chain offers high information exchange as the customers can touch and feel the products. However, this benefit is offset by high uncertainty that arises from higher levels of stocks spread across locations.

- The bottom right cell (Pure Online) is the opposite situation of the Traditional Retail. Pure online offers low information exchange as customers cannot interact with the goods, but the stocks are centralized and hence the uncertainty is less.

Northwestern | Kellogg
School of Management

# Strategic Crisis Management

*KPPIX-910-0*

Professor Timothy Feddersen

- A crisis is a sequence of **urgent** and **important** decisions. There are two types of crises:
  - Health and Safety
  - Strategic Risk

**Strategic Risk**

- Reputational / Business
  - Risk comes from stakeholder response: customers, employees and suppliers
  - It is Important to identify the exact stakeholder whose response is the prime source of risk

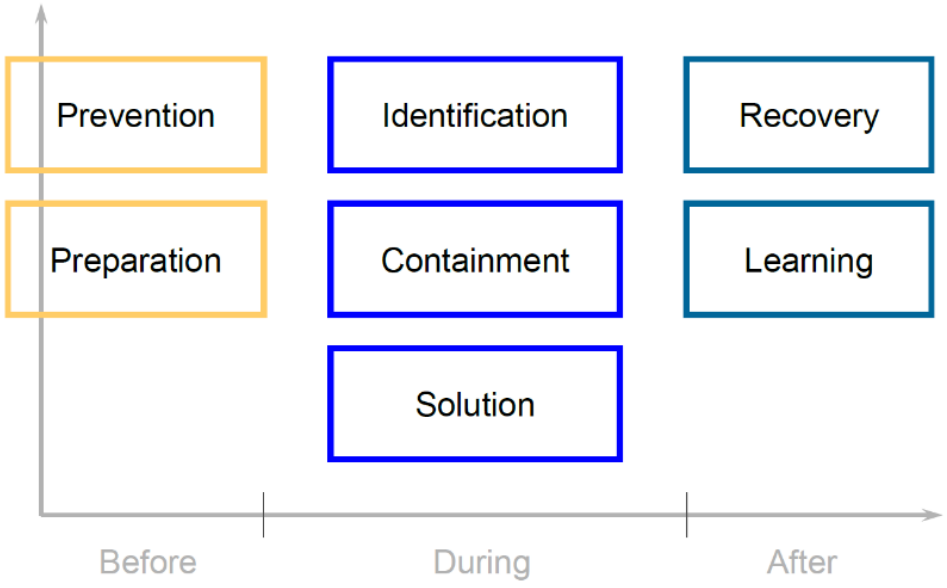
- Legal
  - Risk comes from law, rules of evidence and procedure

- Legislative / Governmental
  - Risk comes from changes in legal and regulatory environment
  - Activists, voters and political interests become important

- Regulatory
  - Appointed and funded by government and hence responsive to activists, voters and political interests
  - Different from government because regulators such as FDA are insulated from government outreach

**Crisis Lifecycle**

- The crisis lifecycle – before, during and after – is shown in the following figure:



**A. Before the crisis:**

- **Prevention:** Reduce the probability of occurrence
- **Preparation:** Reduce the potential impact

**B. During the crisis:**

- **Identification**: What type of crisis is this?
  - Health and Safety; and/or
  - Strategic Risk

- **Containment:**
  - Contain is triage
  - Develop options and deadlines
  - Aggregate and disseminate information

- **Solution**
  - Implement overall strategy
  - Monitor metrics and outcomes
  - Find and collaborate with partners

**C. After the crisis:**

- Recover
- Learn

**<u>Strategy to Handle Health & Safety Crisis</u>**

1. Create Options
   - Pull product off shelf in region
   - Pull product off shelf in country

2. Reinforce Core Values
   - Put health and safety of customers first
   - Select that option which is aligned with core values

3. Get credit for steps 1 and 2
   - Get credit, but do not claim credit
   - Use a partner to gain credit and exceed public expectations

4. Transform Competitive Landscape
   - Strategic course of action should raise the bar for competitors and create higher barriers to entry for new entrants

**Strategy to Handle Strategic Crisis**

- Identify the type of strategic crisis and then use the appropriate high-level strategy:

| Type of Strategic Crisis | Appropriate high-level strategy |
|---|---|
| **Reputational** | **Build Trust**<br><br>Trust can be generated through:<br>o Transparency<br>o Expertise<br>o Commitment<br>o Empathy (most important) |
| **Legal** | **Build a case** |
| **Legislative** | **Build a coalition** |
| **Regulatory** | **Coalesce, comply and build trust** |

**Crisis Communication**

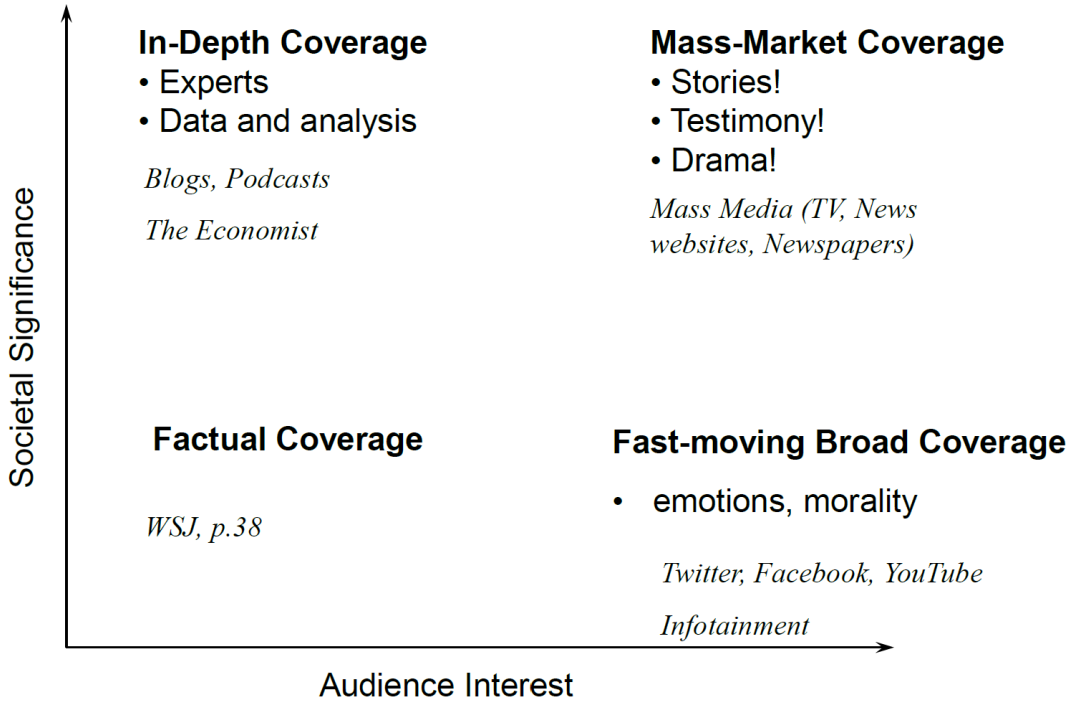
- Who are you talking to?
  - Who are the key stakeholders?
  - What are their values

- What are you telling them?
  - Which messages are you trying to get across?

- What are they hearing?
  - What people "hear" depends on what they value and care about
  - Anticipate how your message will may be distorted or misheard

- Message needs to resonate with your key stakeholders

**Reputational Terrain**




**Activist Vulnerability Checklist**

Following make a company vulnerable to direct activist action:

- Brand recognition or industry leadership
- Products that have a "credence good" attribute (a feature that customers care about that cannot be experienced during consumption. E.g., child labor)
- Close substitutes and low switching cost to customers
- Multinational operations
- Decentralized decision structures

Northwestern | Kellogg
School of Management

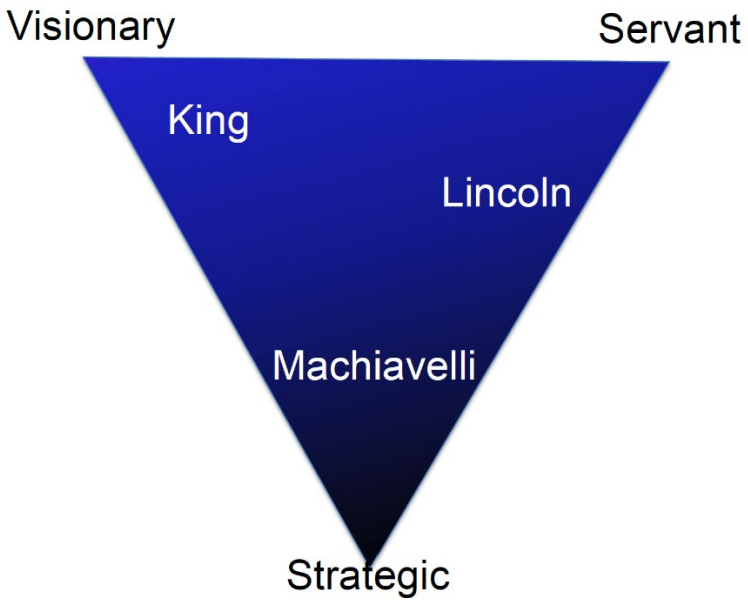
# Ethics & Executive Leadership

*KPPIX-472-0*

Professor Timothy Feddersen

***"The arc of the moral universe is long, but it bends towards justice."***
***-Martin Luther King Jr.***

**Leadership Types**




- A leader has private information that is not available to followers, but the leader also needs to rely on the support of followers to maintain leadership. This is a leader's dilemma

- In order to persist (or exist), the leader needs to sometimes take a public position that the public wants to hear, even if it is against some core values. This is called pandering, and this is why a leader must also have certain Machiavellian characteristics

- Ultimately, leaders [influence others] [to collaborate] [toward a shared aspiration]

**Summary of Kidder's Book – How Good People Make Tough Choices**

- Tough choices involve right v. right type of decisions. There are 4 types of dilemmas:
    - Truth vs loyalty
    - Justice vs Mercy
    - Individual vs. Community
    - Long Term vs Short Term

- Principles for decision making:

    1. **Ends-based or Utilitarianism or Teleological**: Do what results in the greatest good for the greatest number of people. Decisions should be based on a cost v. benefit analysis, and most public policy is based on utilitarianism

2. **Rules-based or Deontological or Kantism**: Follow the principle, don't care about the consequences. Do what you would like to become a universal principle. If your action was immediately repeated by everyone in the world and if it still creates goodness, then the action is ethical

3. **Care-based:** Do unto others what you would like them to do to you

- Nine checkpoints for ethical decision making:

1. Recognize that there is a moral issue

2. Determine the actor

3. Gather facts

4. Test for right vs wrong issues

5. Test for right vs right paradigms:
   - Truth vs loyalty
   - Justice vs Mercy
   - Individual vs. Community
   - Long Term vs Short Term

6. Apply the resolution principles (ends-based, rules-based or care-based)

7. Investigate the "trilemma" options. That is, look for a middle ground

8. Make decision

9. Revisit and reflect

**Haidt's Argument**

- We are like a rider on an elephant. The elephant signifies our intuition and emotions. As a rider, we are constantly justifying our emotions under the illusion that we are controlling an elephant

- Unlike Kidder, who uses a normative theory (what ought to be), Haidt uses a positive theory (what is) to explain that as humans we have following 6 flavors of morality or moral dimensions:

1. Care/Harm
2. Fairness/Cheating
3. Loyalty Betrayal
4. Authority/Subversion
5. Sanctity/Degradation
6. Liberty/Oppression

- These six dimensions are like buttons that can be pressed to make people think in a certain way

**Advocacy Effect**

- Advocacy effect means that we believe what we start advocating, even if we were initially opposed. The tendency to have more positive attitudes toward whatever or whomever one advocates than to whatever or whomever others advocate

- Leaders must both decide and explain. We cannot entirely escape being persuaded by our own rationalizations, but we can try to reflect before we speak or act. Listen to others and don't jump in to advocate

- Leaders can leverage advocacy effect:

    - Don't explain why something is good
    - Ask others to explain why your choice is the best
    - Use the advocacy effect to implement desirable values and advocate values not outcomes.

**Moral Licensing**

- If people are given an opportunity to virtue signal, then they have a higher tendency to never actually be virtuous. Psychologically, we believe we can balance out our less favorable actions because we have been good in the past

- In one of the experiments, participants who were given the opportunity to disagree with blatantly sexist statements were later more willing to select a man for a stereotypically male job

**Suggested Reading**

The Righteous Mind by Jonathan Haidt

Northwestern | Kellogg
School of Management

# Corporate Governance

*MORSX-913-5*

Professor Edward Zajac

**Board of Directors (Board) Relationship with Shareholders**

- Fiduciary
  - Low discretion
  - Board acts as an agent of the shareholders (principal)
  - In this relationship, agent can quit but not debate or influence with principal

- Trusteeship
  - Medium discretion
  - Board takes a more paternalistic view and acts as a trustee for its beneficiaries (shareholders)

- Self-guided
  - High discretion
  - Decisions are aligned with board values

**Types of Boards**

1. **Minimum Boards:** These fulfill statutory requirements and usually exist in case of a closely held company

2. **Cosmetic Boards:** These are rubber stamps for management prerogatives and are meant for cover ups

3. **Oversight Boards:** These review policies, proposals and performance, but does not involve in decision making. *"Don't bake the cake, taste the cake"*

4. **Decision Making Boards**: These get into decision making in more detail. Take responsibility to authorize corporate policy, management objectives and implementation plans.
   *"I don't want to be sold; I want to be told"*

**Important Tips**

- Mantra to save yourself from getting sued:

  ***"We made our decision after careful considerations of what would be in the best long-term interests of the company and its shareholders"***

- Use executive committee to drive decisions in case of an excessively heterogenous board. This executive committee is a sub-set of a larger board.

- As a board member, ask the right questions:

  - Where will we be active? (Arenas)
  - How will you get there? (Vehicles)
  - How will we win in the marketplace? (Differentiators)
  - What will be our sequence of moves? (Staging)
  - How will we obtain our returns? (Economic Logic)

- For board structure, think about low to medium and medium to high on every parameter like size, diversity etc. Low to medium gives true returns, while medium to high yields negative returns.

- Those looking for board positions:

    - Start with non-profit boards
    - Use online resources to track movements in boards such as director moves, directorsandboards.com, and boardagenda.com

- Depth v. breadth of experience to join a board

    - Start with deep expertise in one field and then expand to broader subject like strategy
    - In the long term, do not be branded as a functional director
    - Follow the path of confidence, competence and credibility

- Organizational structure

    - When designing the organizational structure, make sure that the structure confirms to the RACI framework and that the structure clearly identifies the following:

        - **R**esponsible
        - **A**ccountable
        - **C**onsulted
        - **I**nformed

    - Be clear about what kind of organization you are building:

        - **Rational:** Group of people working towards a common goal
        - **Bureaucratic:** A system of rules, roles and responsibilities that is based on Standard Operating Procedures
        - **Political:** Group of people working with conflicting goals and individual agendas

Northwestern | Kellogg
School of Management

# Executive Perspectives on Leadership

Professor Harry M. Jansen Kraemer, Jr.

**Summary of Book 'From Values to Action' by Professor Kraemer**

- 4 Principles of Value Based Leadership:

  1. **Self-Reflection**

     - Identify what you stand for, what your values are and what matters most. This helps filter out noise and distractions
     - Don't try to be Jack Welch, leadership must come from your core
     - See pattern and look at things holistically
     - Prioritize and realize that we can't do everything

  2. **Balance**

     - Ability to see issues, problems and questions from all possible angles even if they are contradictory
     - Have the ability to zoom in and zoom out; sometimes you need to focus on roots, sometimes on trees and sometimes on the forest
     - Leadership is no democracy, seek input, not consensus. Do not suffer from analysis paralysis
     - The answer is YES. Leader must balance long term and short term, thoroughness, and expectancy
     - We have 168 hours per week, no more, no less. Choose the bucket in which you park your hours
     - More discipline leads to more flexibility, even if that appears counterintuitive

  3. **True Self Confidence**

     - Be comfortable with who you are. There will be others who are better than you, but come to terms with it and be improvement oriented
     - Do the right thing, and do the best you can

  4. **Genuine Humility**

     - Your attitude is a gift to others
     - Acknowledge that you've done well, but don't let it go to your head
     - Being irreplaceable is a double-edged sword. If you can't be replaced, you might get stuck where you are

- Own the talent management process, and never outsource it. If you hire the right people, everything else can be outsourced.

- Set a clear direction and break a complete task into smaller pieces. Give holistic understanding to every team member.

- Effective communication is clear, simple, straightforward and concise.

  - There is no such thing as too busy to communicate. Spend time on "back briefing" to ensure that message is not misinterpreted
  - Communicate in good times and 3 times as often during bad times

- Elements of effective communication

    - Be credible and trusted
    - 90% of communication is listening
    - Your heart must be in it to relate to people
    - Use personal stories to connect and deliver message
    - People will get influenced if they feel they can influence you

- To motivate and engage team, have a clear, elevating goal.

- Execution and Implementation

    - Balance delegation and involvement; become a leader while continuing to be a manager

    - 4 processes required for execution:

        1. Strategic Process: High level roadmap that is constantly updated and referred
        2. People Process: Include HR in strategy. Building talent pool takes time and perseverance
        3. Operation Process: You need to manage both short term and long term objectives
        4. Measurement Process: Balance metrics and over-reporting. Colin Powell said that don't take action if chances of success are less than 40%, but don't wait till 100% as that will be too late.

- 3Cs – change, controversy, crisis. Prepare for the 3Cs when things are going well

- Change + Uncertainty = Chaos
  In this dynamic, change is inevitable but try to keep uncertainty in check through proper communication

**Suggested Readings**

- The Road Less Travelled by M. Scott Peck

- Give and Take: A Revolutionary Approach to Success by Adam Grant

- 'The Dash' poem by Linda Ellis

- 'Man in the Arena' speech by Teddy Roosevelt

Northwestern | Kellogg
School of Management

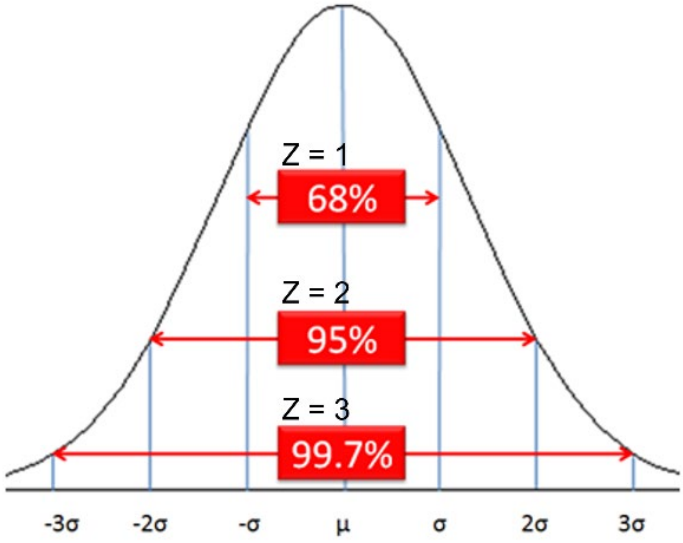
# Statistical Decision Analysis

*MECNX-434-0*

Professor Nancy Qian

**Normal Distribution**

- Z-value measures the number of standard deviations (SD) the observed value is from the mean.




| Z-value | Meaning | Coverage |
|---|---|---|
| Z = 1 | Mean +/- (1*SD) | 68% of distribution |
| Z = 2 | Mean +/- (2*SD) | 95% of distribution |
| Z = 3 | Mean +/- (3*SD) | 99.7% of distribution |

- A 95% confidence interval means that there is a 95% probability that the upper and lower bounds will contain the true population mean. As also seen in the graph above, a 95% confidence interval will cover a range of 2 SDs (to be exact Z = 1.96) from the mean.

Upper bound = Mean + 2 * SD
Lower Bound = Mean – 2 * SD.

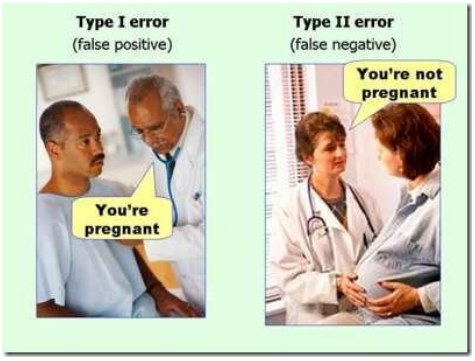
- When sample size is small, that is less than 30, then use t-value instead of z-value.

**Hypothesis Testing**

- P-value is the probability that the relationship is a fluke. So, lower the p-value the better. For instance, if the p-value is 0.3, it means there is a 30% chance that the cause-effect relationship is fluke. Alternatively, a p-value of 0.02 means that there is just 2% that the relationship is fluke.

- Generally, the acceptable threshold of p-value (also called significance level) is 5%. So a p-value of less than 0.05 is good and demonstrates a statistically significant relationship.

- It is possible for errors to exist – the p-value is less than 0.05 and we accept a relationship, whereas in reality there was none. These errors are of 2 types:




| | | |
|---|---|---|
| Type I Error | False Positive | No relationship exists, but we think there is |
| Type II Error | False Negative | Relationship exists, but we don't think there is (more dangerous) |

.

**Regression**

- Regression line is the line that best fits the observed data. It helps in prediction by providing an equation ($y = a + bx$) that has a dependent variable (y), an independent variable (x) and a constant (a)

- $R^2$ measures how well the independent variable explains the variation in the dependent variable. If $R^2 = 1$, then we can predict an exact value of dependent variable if we know the value of independent variable. For example, if you know the length of a side (independent variable) of a square, you can calculate the exact area (dependent variable) of the square. An $R^2$ of zero means we have no idea what's going on

- But $R^2$ is not a silver bullet. A high $R^2$ does not necessarily mean that the prediction is going to be true. For example, an analyst might use 50 different variables to explain the historical variation in the price of a Tesla stock, but the same model might make poor prediction of expected stock price next month

- To avoid the pitfalls of regression, $R^2$ must be viewed in conjunction with p-value. A high $R^2$ and very low p-value signifies that the model explains the variation and the relationship is statistically significant to provide a robust prediction. $R^2$ and p-value scenarios for clarity of concept:

| | |
|---|---|
| High $R^2$ / Low p-value ***(Best Case Scenario)*** | Model explains the variation and the relationship is statistically significant. The predictions are expected to be robust |
| Low $R^2$ / High p-value ***(Worst Case Scenario)*** | Model does not explain variation in the dependent variable and the relationship is not significant. Time has been wasted |
| High $R^2$ / High p-value | Model explains the historic variation, but it is unlikely that it will be able to do so in the future, since the relationship is not statistically significant (high p-value). Like the Tesla stock example above |
| Low $R^2$ / Low p-value | Model does not explain the variation, but relationship between variables exists. For example, snowfall and commute times are related, but knowing the amount of snowfall does not lead to an accurate prediction of commute times |

Northwestern | Kellogg
School of Management

# Analytical Approach to Uncertainty

*MECNX-433-0*

Professor Ehud Kalai

**Probability**

$$Probability = \frac{Number\ of\ Favorable\ Outcomes}{Total\ Number\ of\ Outcomes}$$

- If we want to calculate the probability of getting an even number with a fair die, then we begin with identifying the favorable outcomes and the total number of outcomes. There are 3 Favorable outcomes – 2,4 or 6, and 6 total outcomes – 1,2,3,4,5,6. So the probability of getting an even number with a fair die is 3/6 or 0.5

- If we are given two events A and B, there can be 4 scenarios – A or B, A and B, not A and not B.

- **"Or" Formula:** A researcher submits a grant proposal to two agencies, A and B. Their approval rates are 60% and 50% respectively, and the probability of being approved by both is 30%. Now, we can calculate the probability that the researcher will get a grant by using the "Or" formula:

  **Pr(A or B) = Pr(A) + Pr(B) – Pr(A and B)**

  Applying the above formula, Pr(A or B) = 60% + 50% - 30% = 80%. Therefore, there is an 80% probability that the researcher will get a grant.

- **Conditional Probability** is the likelihood of an event occurring given that another event has already happened. This concept is helpful in analyzing the merits of an initiative or demerits of an act or omission. For example, conditional probability can be used to determine the probability of a sale given that advertisement amount has been spent. The formula for condition probability, that is, the probability that A will happen given that B has already happened is given below:

$$\Pr(A|B) = \frac{\Pr\ (A\ and\ B)}{\Pr\ (B)}$$

  *Illustration*: 10% of the population is high income and 90% are commoners. 2% of high income and 1% of the commoners own a Mercedes. IRS wants to know the probability of a person being high income if they own a Mercedes. Here, IRS is looking for Pr(High Income|Mercedes) – the probability that a person is high income given that they own a Mercedes. To find the answer, we start with probability of being high income and owning a Mercedes. This number is 2%. Then we look for the probability of owning a Mercedes. This number is 3% (2% + 1%). Pr(High Income|Mercedes) = 2% / 3% = 67%. Therefore, there is a 67% chance that a person who owns a Mercedes is high income.

- Summary of other conditional probability formulas:
  - $\Pr(A\ and\ B) = \Pr(A)\ \times \Pr(B|A)$
  - $\Pr(A\ and\ B) = \Pr(B)\ \times \Pr(A|B)$
  - $\Pr(B|A) = \frac{\Pr(A|B)\times P(B)}{\Pr\ (A)}$

## Random Variables

<table>
<tr><th>Detail</th><th>Mean</th><th>Median</th><th>Mode</th></tr>
<tr><td>Definition</td><td>Mathematical average or expected value</td><td>Value separating the higher half from the lower half of a data</td><td>The value with highest probability</td></tr>
<tr><td>Pros</td><td>▪ Most popular<br>▪ Gives one distinct answer</td><td>▪ Unaffected by outliers<br>▪ Gives one distinct answer</td><td>▪ Unaffected by outliers<br>▪ Works with numeric and non-numeric data</td></tr>
<tr><td>Cons</td><td>▪ Inflated or deflated by outlier values</td><td>▪ Not sensitive to details of distribution. Sometimes outliers are important</td><td>▪ May not give one distinct answer</td></tr>
<tr><td>Illustration</td><td colspan="3"><table><tr><th>X-Value</th><th>Probability</th></tr><tr><td>1</td><td>0.3</td></tr><tr><td>2</td><td>0.3</td></tr><tr><td>400</td><td>0.4</td></tr></table></td></tr>
<tr><td></td><td>Mean = (1x0.3) + (2x0.3) + (400x0.4) = 160.9</td><td>Median = Center value = 2</td><td>Mode = Highest probability = 400</td></tr>
</table>

## Probability or Decision Trees

- Conditional probabilities and sequential decisions are similar concepts in the sense that sequential events affect the chances of the final outcome. Such cases can be graphically represented using a probability tree or a decision tree. In the below example, the decision to develop a new drug is analyzed using decision tree analysis:

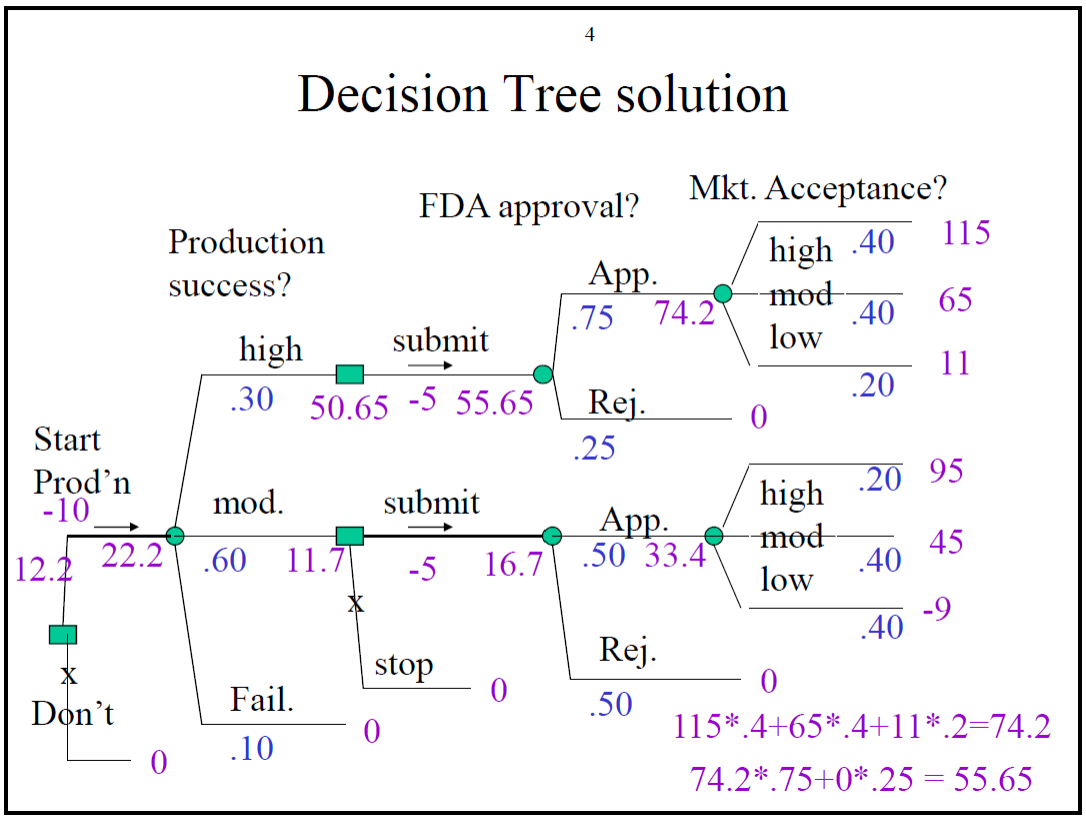
3

Engineering data: Expected development costs (all in $ millions) 10, Prob's of high success, moderate success and failure are .30, .60, .10

FDA data: Expected cost of submission is 5. Prob's of approval are .75 for a highly successful product and .50 for a mod. succ. one.

Marketing data: a highly successful product will generate revenues of 115, 65 or 11, with prob's .40, .40 and .20.
a moderately successful produced will generate revenues of 95, 45 or -9, with prob's .20, .40 and .40.

What is the best thing to do, if they want to maximize expected profit?




- In the decision tree solution above, the purple numbers, representing the expected value at every step, are moving from right to left direction. The value of $22.2m on the left represents the gross value of the drug sales, which needs to be adjusted with the initial investment of $10m to arrive at a net expected value of $12.2m.

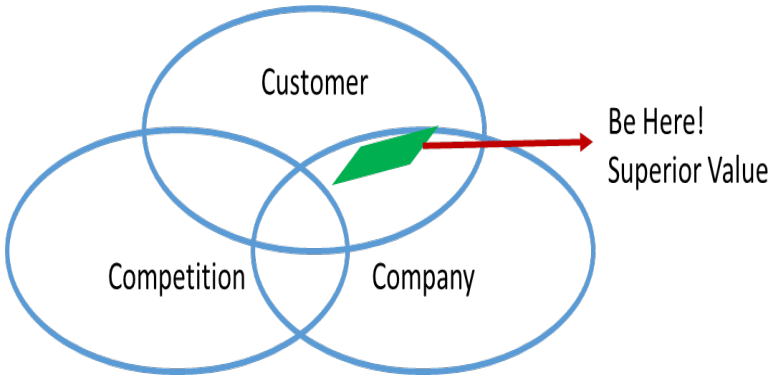
Northwestern | Kellogg
School of Management

# Marketing Management

*MKTG-430*

Professor Aparna Labroo

- Marketing is all about identifying and delivering value
    - *Identify* value using the following 3C framework:




    - In the above figure, the favorable location is the overlap between the customer's needs and the company's capabilities. In this context, truly understanding the problem or customer's pain point is 99% of the job. Solving these problems will seem natural, but these solutions will seem extraordinarily creative from the outside. For example, Netflix

    - *Deliver* value using the Goals, Strategy, Tactics, Implementation and Control (G-STIC) Framework provided later in the summary of Strategic Brand Management (Professor Alexander Chernev)

- Choose between different sources of value because you need to pick your battles:

$$\text{Value} = \frac{Functional\ Benefits + Psychological\ Benefits}{Monetary\ Costs + Time\ Costs}$$

- To serve everybody, you need to have an average product. But because nobody wants an average product, it is important to target a specific customer segment. The decision criteria when choosing a target should be the overlap of two aspects:

    1. **Attractiveness:** We are looking for something that provides desired profitability, volume, sustainability

    2. **Compatibility:** Company should have resources, brand and skill set to target such a segment

- Regarding compatibility, it is important to identify the value discipline to which the company belongs. There are three value disciplines and most successful companies demonstrate just one value discipline. Very rarely a company might be able to master more than one. The three value disciplines are:

| Value Discipline | Characteristics | Examples |
|---|---|---|
| 1. Operational Excellence | • Sharp distribution and no-hassle service<br>• Lots of standard operating procedures<br>• Centralized management structure<br>• Believes **"One size fits all"** | FedEx, Dell Computer, Walmart |
| 2. Product Leadership | • Nurtures ideas and translates to new products<br>• Innovation is the mantra<br>• Ad-hoc, loose knit structure<br>• Thinks **"Out-of-the-box"** | Nike, Johnson & Johnson, Bausch & Lomb |
| 3. Customer Intimacy | • Customized solutions to customers<br>• Pushes empowerment close to customer contact<br>• Flexible and thinks **"Have it your way"** | Home Depot, Staples, Kraft |

- Next, think about differentiating customers. Following segments were identified in the *Red Lobster* case:

  - **Experientials:** Enjoy trying new things. Well educated and high income. Does not tolerate bad service
  - **Indulgents:** Motivated by generous volumes. Agnostic choices. High school diploma or some college
  - **Traditionalists:** Looks for functional utility. Price sensitive. Average education
  - **Eclectics:** Adventurous. Psychological satisfaction paramount. Least price sensitive. Highly educated
  - **Frugals:** High elasticity of demand. Chooses basic plans and products

- After the requisite analysis involving identification of customer needs, matching attractiveness of target with compatibility and differentiating target customers, it is important to bring everything together in a succinct **Positioning Statement**. A template is provided below:

  - For **[Insert Target Market]**, **[Insert Brand]** is just like **[Insert Frame of Reference]** but **[Insert Point of Differentiation]** because **[Insert Reason to Believe]**

  - For example, For **[consumers seeking affordable transport]**, the **[Nano]**, just like a **[two-wheeler]**, allows you to affordably transport your loved ones, but with **[greater protection]** from road hazards because **[our mission is to empower responsible choices]**

- **Brands** convey meaning to customers and they create value for consumers in the following ways:

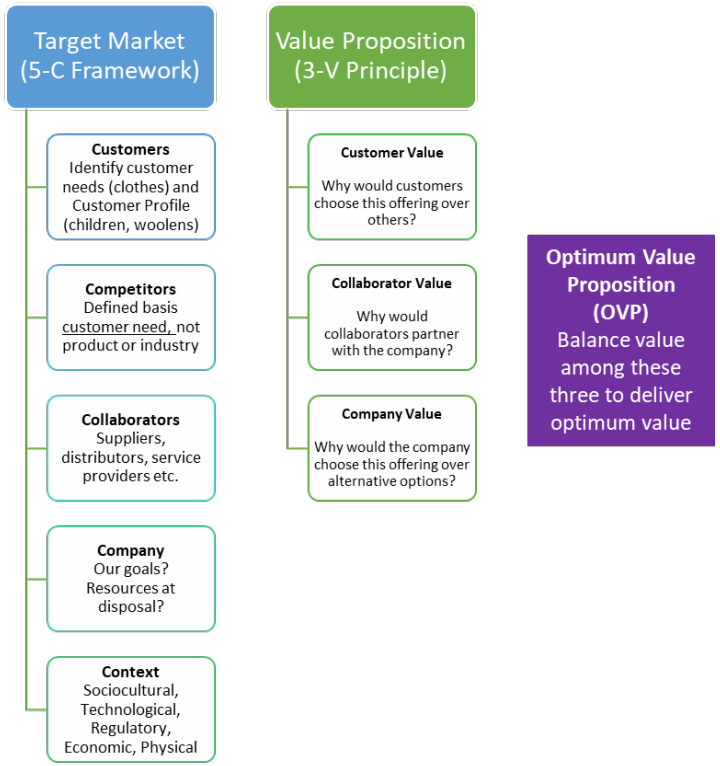
  - Identify a product
  - Differentiate a product
  - Psychological value over and above functional value. Brands help people express themselves or feel warm feelings

- Note that brand in itself is a tactic and not a strategy. It is one of the 7 tactics (7T): Product, Service, Brand, Price, Incentive, Communication and Distribution. The distinction between strategy and tactics is further explained on the next page

## Strategy

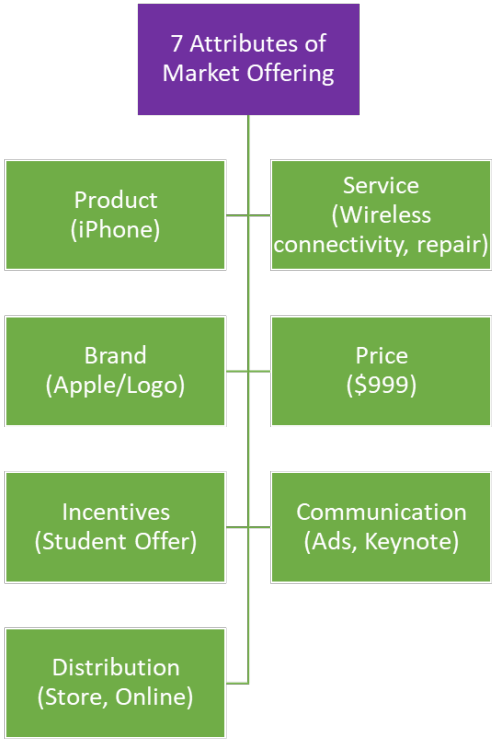
Outlines company's choice of market and the value it intends to create

**Key Components**




## Tactics

Determine the specific offering that will deliver the intended value



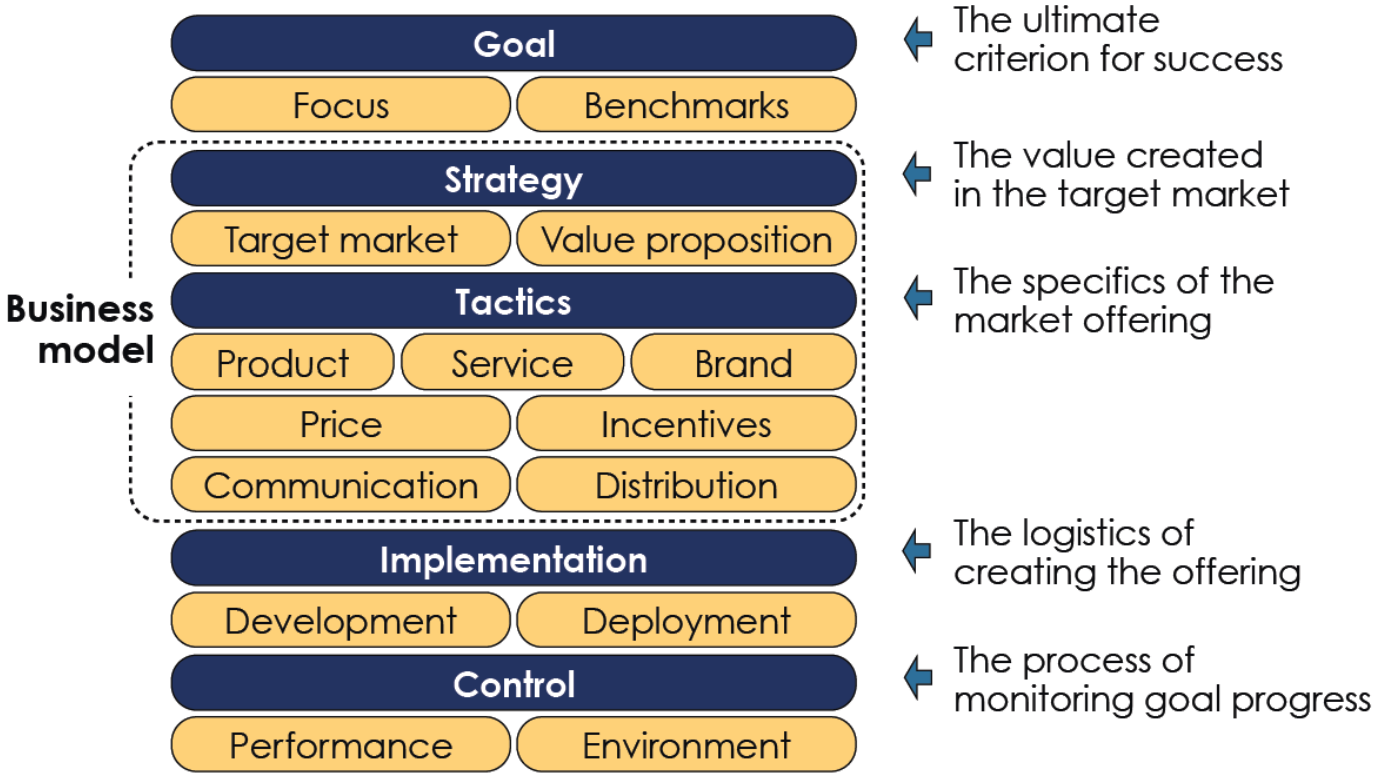
Northwestern | Kellogg
School of Management

# Marketing Management

*MKTGX-466*

Professor Alexander Chernev

- The G-STIC framework offers a systematic approach to evaluate the viability of the market offerings:




- Strategy is <u>always</u> about value. When thinking about value, reflect on the following:

  **<u>What?</u>**

  - What unfulfilled need can we address?

  *"People don't want to buy a quarter-inch drill. They want a quarter-inch hole!"*
  *– Theodore Levitt*

  - What are they buying today?
  - If we launch the product, what will the target customer buy less of?

  **<u>Who?</u>**

  - Whose need can we fulfill?
  - Who is <u>not</u> our customer?
  - What is the target market?

- Never rush into the tactics such as advertisement or branding before being absolutely clear about the goal and strategy. A misalignment between strategy and tactics can lead to failure. For instance, Golden Island

Jerky was a healthier alternative for a niche customer segment. The initial tactics of launching through Walmart backfired because there was a mismatch between strategy (value and target customer) and tactics (distribution). An alignment was achieved only when the product was recalled from Walmart and then later launched at Costco.

- If there are too many degrees of freedom, then the target market is too broad, and it needs to be narrowed down. For instance, a toothpaste will have color, flavor and benefits as degrees of freedom. Initially there seem to be unlimited number options for launching a toothpaste. However, as the target market is made more precise, such as toothpaste for children, the degrees of freedom will substantially reduce. At this point, the product needs to appealing to children so taste and color become paramount.

**How to Identify Value and Target Customers?**

- In the Calyx Flowers case, we learned the following step-by-step process to identify value and target customers:

  **Step 1: Identify Value Drivers**

  List all the value drivers for the product. In case of flowers, we can consider 3 main value drivers:

  1. Longevity
  2. Speed
  3. Presentation

  **Step 2: Put yourself in the shoes of each customer segment and score the value drivers**

  Assuming there are 3 types of flower customers – Impulsive Gift Buyers, Planned Gift Buyers and Décor Buyers. Now assign a score from 1-5 in the order of how important a particular value driver is for a particular customer segment. For instance, an impulsive gift buyer who just remembered that today is their anniversary will value Speed at 5. Longevity of flowers might not matter as much to this buyer so they would score longevity at 1. On this basis, score all the value drivers:

| Value Driver | Impulsive Gift Buyer | Planned Gift Buyer | Décor Buyers |
|---|---|---|---|
| 1. Longevity | 1 | 3.5 | 5 |
| 2. Speed | 5 | 1 | 1 |
| 3. Presentation | 5 | 5 | 1 |

**Step 3: Score the players based on their capability to fulfill each value driver**

A supermarket displays the flowers on shelf and waits for the buyer. This operational structure hinders the supermarket from maximizing longevity and so a supermarket will score 1 for the longevity value driver. On this basis, score all the players based on their capability to fulfill each value driver:

| Value Driver | 1800-Flowers | Supermarket | Calyx Flowers |
|---|---|---|---|
| 4. Longevity | 3.2 | 1 | 5 |
| 5. Speed | 3 | 5 | 1 |
| 6. Presentation | 5 | 3 | 1 |

**Step 4: Compare the results of step 3 and step 4 to find a match**

| Value Driver | Impulsive Gift Buyer | Planned Gift Buyer | Décor Buyers | 1800-Flowers | Supermarket | Calyx Flowers |
|---|---|---|---|---|---|---|
| 7. Longevity | 1 | 3.5 | 5 | 3.2 | 1 | 5 |
| 8. Speed | 5 | 1 | 1 | 3 | 5 | 1 |
| 9. Presentation | 5 | 5 | 1 | 5 | 3 | 1 |

From the above comparison, we can see that Décor Buyers customer segment is a great match for Calyx Flowers.

Northwestern | Kellogg
School of Management

# Economics of Competition

*MECNX-441-0*

Professor Daniel Aaronson

- Relevant costs for decision making:

| Decision Type | Relevant Cost / Formula |
|---|---|
| Short-run Output Optimization | P = MC; operate at full capacity if P > MC but stop production temporarily when P < MC |
| Long-run Exit Decision | Continue if P ≥ minimum FR-ATC |
| Entry Decision | Enter if P > minimum FR-ATC |

  - P = Average Market Price
  - Minimum means operating at full capacity; average costs at full capacity are considered
  - FR-ATC means full redeployment Average Total Costs (ATC). This is the ATC including opportunity cost in the form of salvage value or redeployment costs. In case of an exit decision, the opportunity cost is the salvage value, but in the case of an entry decision, opportunity cost is the annual capital charge.

- An externality is the cost or benefit caused producer that is not financially incurred or received by that producer. For example, a negative externality is a business that causes pollution and diminishes the property values in the surrounding area. A positive externality is like wearing a mask to curb spread of disease. When there are externalities, interventions such as fines can align incentives.

- Price leadership means signaling price to competitors without direct or indirect communication. Methods:

  - **Trigger Strategies:** Start with a certain price but if the competitor charges a lower price, then set a permanent lower price. This is called Grim Trigger.

  - **Price Matching**: Price at a high price but match your rival's price if they charge a lower price. Contrary to intuition, this strategy does not benefit the customer.

Northwestern | Kellogg
School of Management

# Foundations for Strategy Formulation

*STRTX-431-0*

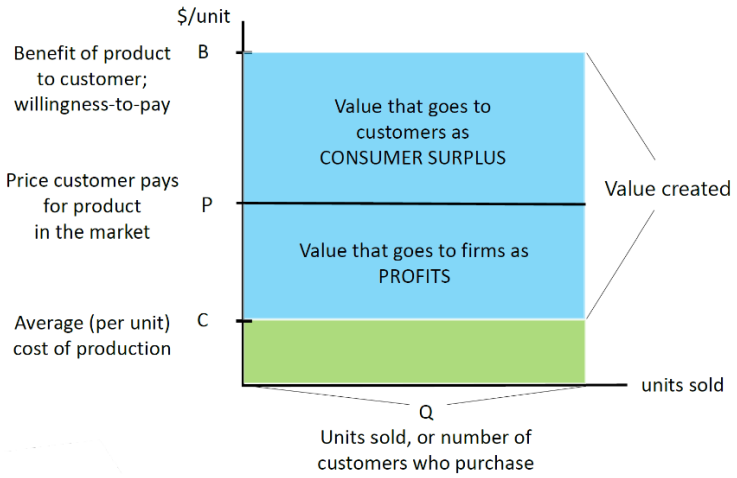
Professor Craig Garthwaite

- **Strategy** is long on detail and short on vision. It is a theory about how to gain competitive advantage and is built with tangible goals, scope and logic.

- If no competitor would ever feasibly have a contrasting goal, then you don't have a strategic goal.

- Good strategies are well suited to the economic context of the firm. E.g., Pets.com competed with Walmart, but Amazon competed with high margin book sellers.

- Value creation and capture framework:




**Porter's Five Forces Framework**

- Following five forces determine a business' ability to capture value:
    - Existing players
    - New entrants
    - Substitutes
    - Suppliers
    - Customers

- Purpose of five forces framework is not to pass judgment on industries, but to figure out how big are the potential industry profits and how much of that potential is a firm likely to obtain.

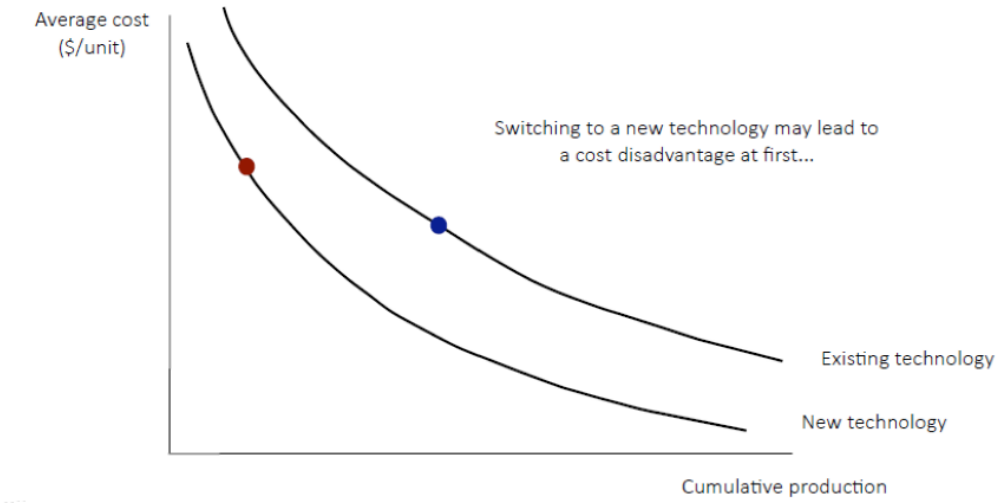
- Don't start the analysis too broad; start with obvious competitors and the substitute force will ensure that potential rivals are comprehensively covered.

**Learning Curve v. Economies of Scale**

- Learning curve depends on cumulative production, but economies of scale depend on current production level.

- Switching to a new technology can appear unprofitable, but that is an incomplete picture.

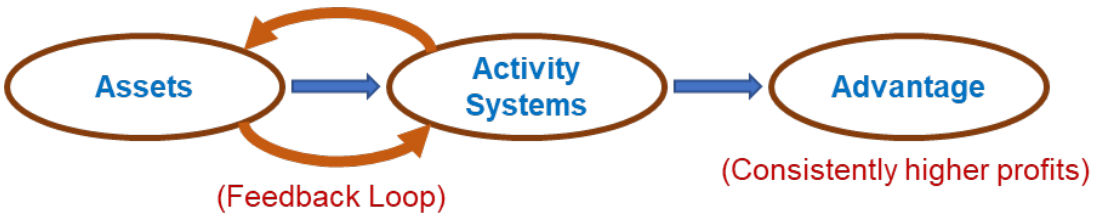
THE LEARNING CURVE ADVANTAGE




**Strategic Competitive Advantage**

- Competitive advantage is not necessary to be profitable. Competitive advantage is the ability to be consistently more profitable than competitors in the same market or industry.

- A-A-A framework allows such a competitive advantage:




- Assets do not automatically generate advantage; it is about what you choose to do with those assets. The choices create a cohesive activity system that generates a competitive advantage. This activity system is difficult to imitate even if some of the assets or activities are copied.

**Characteristics of sustainable strategies:**

1. **Heterogeneous:** Something different or done in a different way from what competitors are doing

2. **Inimitable:** If competitors imitate, they end up paying the PV of future benefits. This results in zero or negative NPV, also called winner's curse.

3. **Foresight:** A firm that is not exhibiting foresight is imitating an existing idea or paying upfront the full value of assets that it acquires.

4. **Appropriable:** Above three points create value, but who captures the value is determined by appropriability, which arises from the following:

    - **Imperfectly mobile:** Employees are imperfectly mobile if they find it difficult to search alternative work or if other firms find it expensive to poach them. E.g., Merrill Lynch poached Morgan Stanley brokers, but could not derive value.

    - **Co-specialized:** The whole is greater than the sum of parts. If another firm could imitate one of the sources of competitive advantage, it cannot get the same benefit.

**Types of Differentiation**

- **Horizontal Differentiation:** At equal prices, customers choose different products. E.g., Mustards – Dijon, French, Honey etc.

- **Vertical Differentiation:** At equal prices, customers choose the same product. E.g., Economy v. business class.

- Both strategies can be profitable if they optimize the basic equation: Profit = (Price – Cost) x Qty

**Insourcing v. Outsourcing**

- While insourcing provides the luxury of a captive internal buyer, market gives the outside firm stronger incentives to produce at a low cost. Insourced facility is less likely to remain competitive in the long run.

- However, insourcing is better if it is difficult to monitor or deter the external vendors from cutting corners.

- **Markup Fallacy:** Do not buy a business to avoid markups. Ask – can we acquire a company at a price less than the value we expect to obtain from it? If supplier is in a competitive market, the markup will be close to the opportunity cost of doing it on our own. If the supplier has market power, P.V. of future profits will need to be paid upfront.