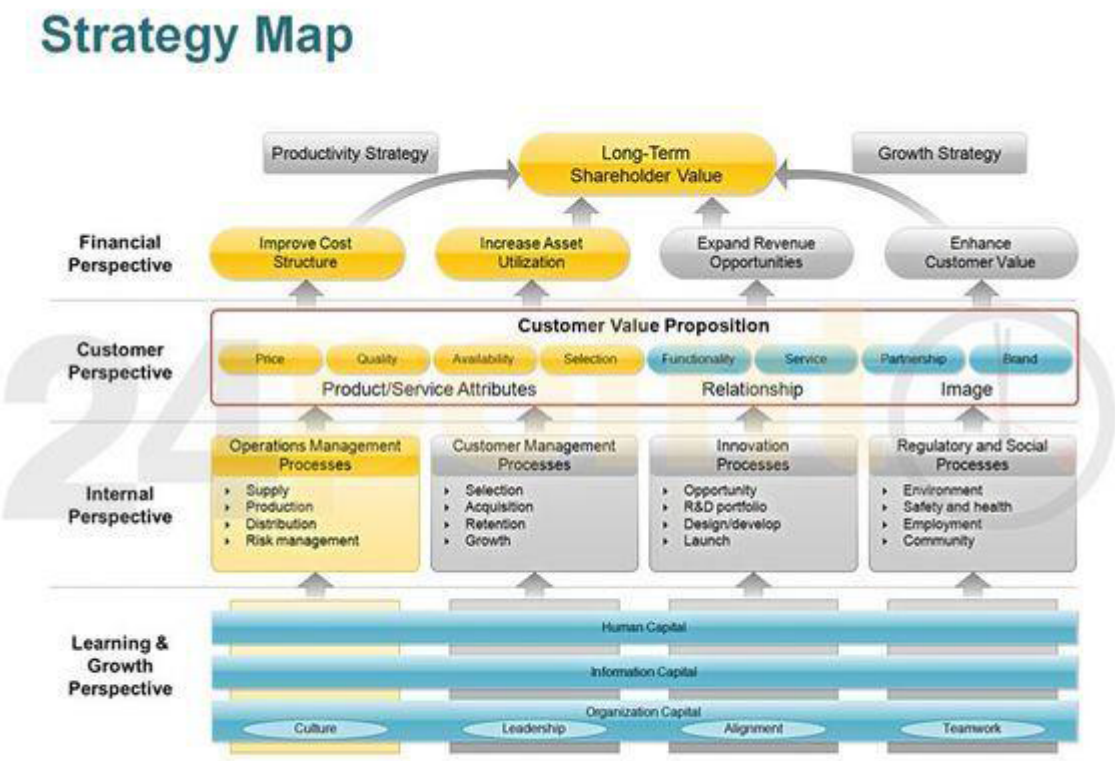
L1 Introduction

Strategy

- Finding a way to accomplish one's ends
- Moving from a current position to a more desirable future position but with economies of time, effort, cost, or resource utilization

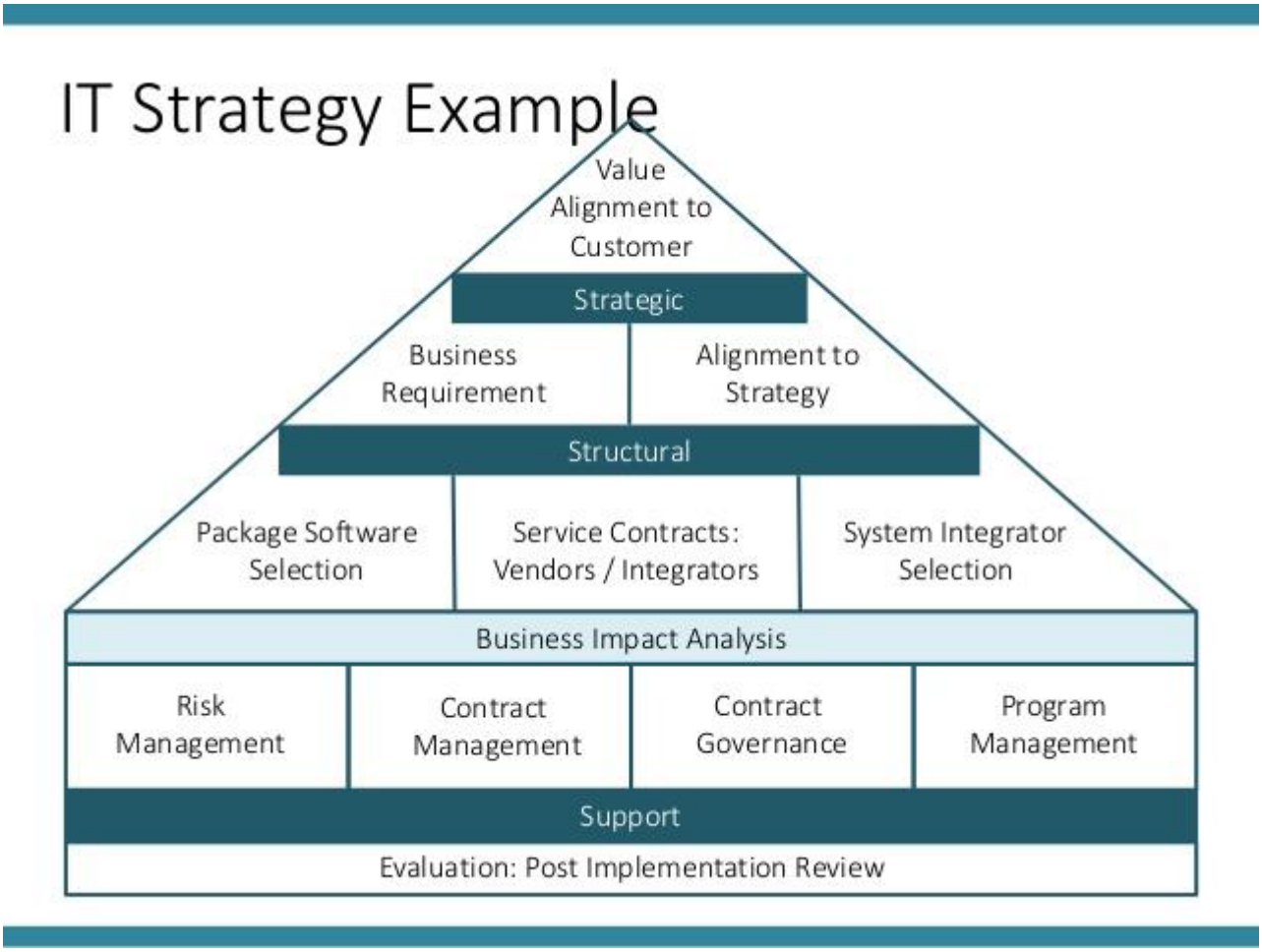
Business Strategy

- Three essential elements:
    - A diagnosis based on forecasting and/or environmental scanning
    - A Guiding Policy (may be driven by a clearly expressed vision) specifies an approach to dealing with critical challenges
    - Coherent actions (resource commitments, and other concrete steps guided by the policy) aimed at achieving **sustainable competitive advantage**
- Set-of managerial decisions and actions that determines the long-run performance of a corporation
- emphasizes the monitoring and evaluating of external opportunities and threats in light of the organization's strengths and weaknesses
- includes environmental scanning, strategy formulation, strategy implementation, and evaluation and control



IT Strategy

- IT strategy (information technology strategy) is a comprehensive plan that outlines how technology should be used to meet IT and business goals.
- An IT strategy is typically a written document that details the multiple actions and resource deployments that affect the organization's investment in and use of information technology(eg. Digital strategy)



- key concerns:
  - Most importantly, alignment with business strategy
  - Contemporary concerns, digital disruption/digital transformation
  - Key technologies, cloud computing, big data (turning big data into critical insights and action etc.)

Business Strategy -- IT Strategy Alignment

- IT is changing our understanding of:
  - Markets
  - Industries
  - Strategies
- Before: Back-office support in the basement
- Now: an embedded part of business strategies
- Successful management of IT is necessary for competitive advantage
- Information Technology (IT) has been a source of opportunity and uncertainty, of advantage and risk
- The chasm in organizations:
  - Business executives: What do these tech nerds know about business?

    - IT executives: They don’t know what’s going on out there. No vision at all! (Lacking the vision to exploit all that technology has to offer)
    - Both struggle as they attempt to implement increasingly complex systems in the face of rapid change in business and technology
- Dual Objectives:
    - Help business executives recognize the potential of technology in creating business advantage
    - Help IT executives assume the leadership positions, to define and execute both technology and business strategy.

L2 General Strategies

General Strategies

1. **Corporate Strategies**

- Directional Strategies
- Portfolio Strategies
- Parenting Strategies

2. **Business Strategies**

- Competitive Strategies
- Cooperative Strategies

3. **Functional Strategies**

- Action plans for each functional area

Business Strategy

- Focuses on improving the competitive position of a company's products or services within the specific industry or market segment that the company serves
- **Competitive**
    - **Battling against all competitors for advantage**
    - Porter’s Generic Competitive Strategies
    - A firm’s relative position within its industry positioning determines whether a firm’s profitability is above or below industry average
    - The competitive strategies made up of:
        - Two types of generic competitive advantage –low cost or differentiation
        - Scope of activities –cost focus or differentiation focus
    - Firm must make a choice
- **Cooperative**
    - **Working with one or more companies to gain advantage against other competitors**
    - **Collusion** (共谋)
        - the active cooperation of firms within an industry to reduce output and raise prices to avoid economic law of supply and demand

- **Strategic alliance** –Partnership of two or more corporations to achieve strategically significant objectives that are mutually beneficial
    - When two or more firms agree to cooperate for their mutual benefit
    - Possible reasons/benefits:
        - Obtain technology or manufacturing capabilities
            - Tesla and Toyota's deal to develop an electric RAV4 sport-utility vehicle has fizzled(2014, May)
            - Tesla CEO says could sign new deal with Toyota in 2-3 years(2014 Sep)
        - Obtain access to specific markets
        - Share risks and expenses
        - Achieve or ensure competitive advantage
- **Types of alliances**:
    - **Mutual service consortium** - Pooling resources to gain a benefit that is too expensive to develop alone
    - **Joint venture** (合资企业) - Two or more separate organizations creates an independent business entity
        - GE, Intel to form new healthcare joint venture, 2010
        - Extremely popular in international undertakings
            - E.g. ChanganFord Automobile. Co., Ltd.
        - Disadvantages of joint ventures include loos of control, lower profits, probability of conflicts with partners, and the likely transfer of technological advantage to the partner.
    - **Licensing arrangement**
        - Licensing firm grants rights to another firm to produce / sell a product
            - The licensee pays compensation to the licensing firm in return for technical expertise
        - contractual arrangement whereby one organization obtains the rights to use the proprietary technology of another organization
        - benefits for licensees:
            - less expensive
            - rapidly acquire a technology it does not possess
        - benefits for licensors:
            - technology can penetrate a wider market
            - preempt(抢占，防止) competitors from developing their own competing technologies
        - **Value-chain partnership** (供应链合作)- long-term arrangement with key supplier or distributor for mutual advantage

Corporate Strategy

- the choice of direction for the firm as a whole
- deals with three key issues:
    - Directional strategy - the firm's overall orientation toward growth, stability or retrenchment (裁员)
    - Portfolio strategy - the industries or markets in which the firm competes through its products and business units
    - Parenting strategy - the manner in which management coordinates activities, transfers resources and cultivates capabilities among product lines and business units

1. Directional Strategy

- deals with the company's orientation towards growth
- Composed of three general orientations:
    - **Growth** Strategies expand the company's activities - Concentration on current product lines in one industry
        - Vertical Growth
            - taking over a function previously provided by a supplier or by a distributor
            - Can be achieved by expanding current operations or through acquisitions
            - Result in **Vertical Integration**
                - The degree to which a firm operates vertically in multiple locations on an industry's value chain
                    - Backward integration
                    - Forward Integration
        - Horizontal Growth
            - Extending products into other geographic locations
            - Increasing the range of products and services it offers to current markets.

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        - Internal Growth - Expand operation globally and domestically
        - External Growth - Through merges, acquisition ion and strategic alliances
        - Diversification into other product lines in other industries
            - Concentric (同心)
                - Related industry
                - uses the firm's competencies and resources
                - Search Information system for synergy(协同效应)
                    - two business will generate more profits together than they cold separately
                    - companies attain synergy through transferring knowledge and market intelligence, sharing resources and combining operations
            - Conglomerate (集团)
                - unrelated industry
                - uses the firm's financial or managerial assets
    - **Stability** Strategies make no change to the company's current activities
        - A corporation may choose stability over growth by continuing its current activities without any significant change in direction.
        - Although sometimes viewed as a lack of strategy, the stability family of corporate strategies can be appropriate for a successful corporation operating in a reasonably predictable environment.
        - Stability strategies can be very useful in the **short run**, but they can be dangerous if followed for too long.
    - **Retrenchment** strategies reduce the company's level of activities
        - A company may pursue retrenchment strategies when it has a weak competitive position in some or all of its product lines, resulting in poor performance -- sales are down and profits are becoming losses

2. Portfolio Strategy -- Portfolio Analysis

- Used to develop corporate strategy in a diversified firm to boost overall corporate performance
- Framework for charting the different businesses in a firm
- Classic tool for analysis
    - BCG Growth-Share Matrix
        - Cash cows: Produces cash that can be used to fund other businesses
            - support question marks and stars
        - Dogs: Low market share and potential
            - sold off or managed carefully
        - Stars: High relative share / Able to generate cash
        - Question marks: Low relative share in growing markets / Requires cash for development
            - with uncertain or weak future prospects should be divested

3. Parenting Strategy -- Corporate Parenting (?)

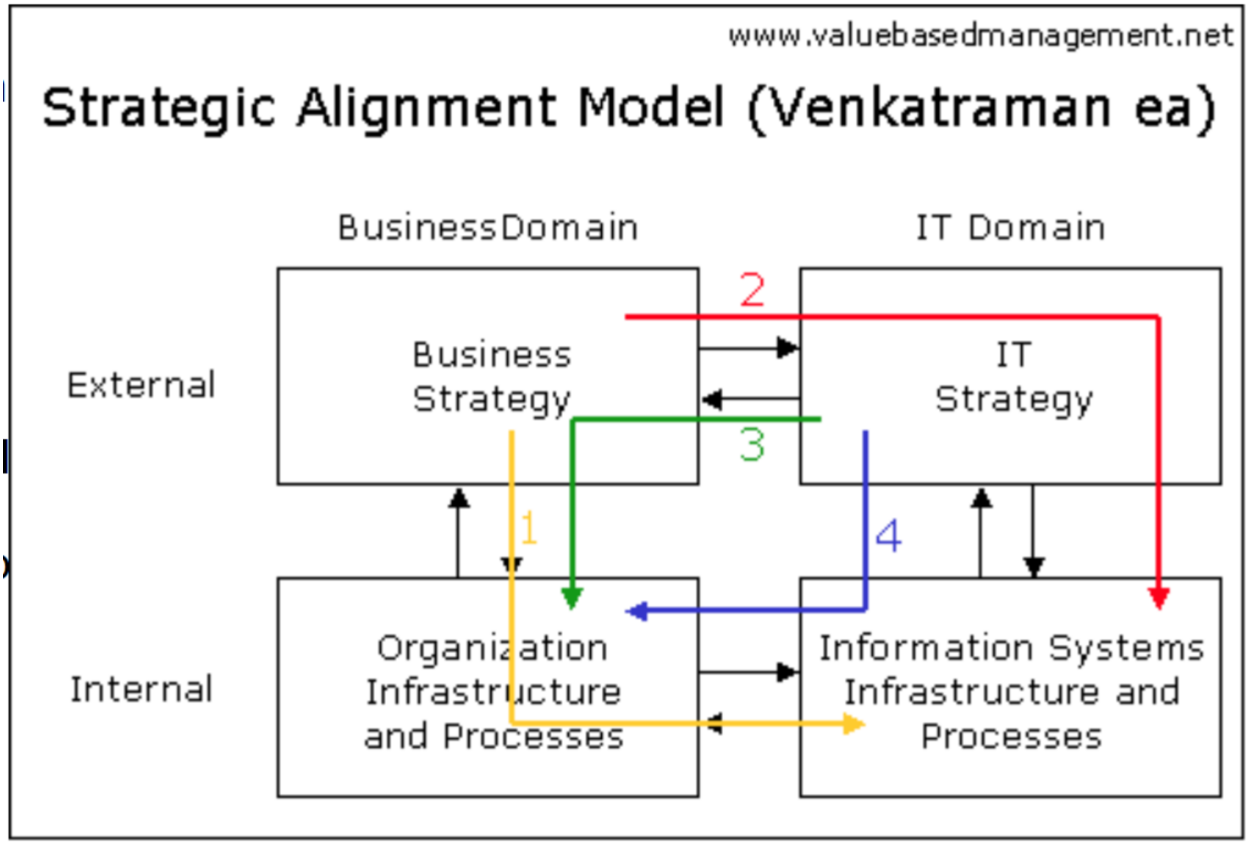
- Views the corporation in terms of resources and capabilities that can be used to build business unit value as well as generate synergies across business units
- Generates corporate strategy by focusing on core competencies of the parent and on the value created from the relationship between the parent and its businesses
- Developing a Corporate Parenting Strategy
    - Examine each business unit/product line in terms of its strategic factors
    - Examine each business unit/product line in terms of areas in which performance can be improved
    - Analyze how well the parent corporation fits with the business unit

Functional Strategy (?)

- Approach taken by a functional area to achieve corporate and business unit objectives and strategies
- Directed at improving effectiveness of basic operations, such as marketing, R&D, HR, etc.
- Involves:
    - Maximizing resource productivity
    - Developing distinctive competency

L3 Digital Business Strategy and Alignment

- Key concerns regarding IT strategy
    - Alignment
    - Digital disruption/transformation
    - Key technologies
- Strategic alignment model



1. Strategy Execution
2. Technology Potential
3. Competitive Potential
4. Service Level

- Alignment
  - Business drives IT
  - IT enables Business
  - Triggered by critical developments in information, communications, and connectivity
  - emergence of pervasive digital technologies
- **SMAC stack**
  - Social
    - majority of social media users are now staunch followers of brands
    - fast increasing
  - Mobile
    - fast growing adoption and penetration
    - quickly engage customers on the go makes mobile marketing
  - Analytics
    - data is constantly flowing in multiple formats and from a variety of sources
    - turn raw data into actionable data insights
  - Cloud
    - eliminates the need to invest heavily in hardware, software and infrastructure
    - SaaS reduces costs incurred on expensive data centers.
- **Significant Trends**
  - Big data, AI, Machine Learning

    - Global connectivity
    - Much lower price-performance levels
    - Ability to carry out work across boundaries of time, distance, and function
    - Embedding of products and services in digital technologies
    - Platform models and technologies
- **Digital Business Strategy**
    - Digital business strategy as org. strategy formulated and implemented by leveraging the digital resources to create significant value increase,
        - going beyond individual systems and technologies
        - attempt to drive sustainable competitive advantage
    - Scope
        - transcends traditional functional and divisional boundaries
        - crossing traditional industry boundaries
        - platform models
        - digital infrastructure
    - Scale
        - rapid scaling up or down
        - network effects
        - digital partnerships
        - abundant data, competing on insights
    - Speed
        - Speed of new product/service launch
        - real-time, rapid decision making
        - outsourcing and supply chain orchestration
        - dynamic network formation and adaptation
    - Value capture and appropriation
        - value from data
        - innovative business models
        - networks, platforms
        - digital architecture
        - sources of value creation and location of value capture

L4 Digital Business Strategy and Value

- Nation State/Regions
    - Overall productivity levels
    - GDP growth
    - Internet penetration / digital divide
    - Average bandwidth availability
    - percentage of mobile / smartphone users in the population
- Industry level value metrics
    - Productivity statistics
    - (Industry) level ROA (return of assets)
- Firm level metrics
    - Efficiency vs. Effectiveness measures

    - Internal
        - Business process level
        - Inventory reduction
        - Productivity increases
        - Cost reduction
        - Return on Investment
    - External
        - Market share change
        - Customer Value
        - Reputation
        - Competitive Advantage
        - Revenue increase
        - Share price movement
- Business Value
    - An approach for estimating the tangible and intangible worth of organizational assets
    - An appraisal (评价) of intellectual assets such as knowledges, experience, and skills
    - A technique for determining the complete worth of an investment to an enterprise
    - A method of determining the health and well-being of a firm in the long run
    - A set of measures including employee, customer, supplier, alliance, management, and societal value
- Value from digital business strategy
    - new business platform
        - identifying growth
        - improving competitiveness
        - Adapting to change
    - Business value and the Role of ICT
        - Management team
        - Commercial Advantage
        - Innovation
        - Financial Performance
        - Customer Value
    - The value of Business Intelligence
        - improving the decision-making process
        - significant decrease of the dependency on the IT Department
        - Increased visibility over the entire business
        - Optimize the business for future changes
- (IT) Project Level Value
    - Theories, approaches and methodologies investigating the business value generating potential of IT
    - Gartner Model
        - How the business must succeed
        - Outcomes of business processes
        - How IT must succeed
        - Outcomes of IT processes
        - Measures of IT performance
    - Total Economic Impact (TEI)

        - Options created –> Flexibility –> Risk
        - Business value –> Benefits –> Risk
        - Technology cost –> Costs(TCO) –> Risk
- Balanced Scorecard
    - Translates **Strategy into Action**
    - Four perspectives:
        - Customers
        - Financial
        - Internal process
        - Learning And Growth
    - Focus on measuring **Performance**
    - **Balance** should exist between these four perspectives
- Value Engineering
    - Do nothing
    - provide framework
    - predict value
    - deliver value
    - share value
- **Conclusion**
    - **any IT business case has to seriously understand, track, document, and demonstrate business value**
    - **Value measures are diverse and they should be fit-for-purpose**
    - **Value needs to be thought thru in terms of longer term strategic benefits and short-term internal measures**
    - **Aspects of risk also needs to be addressed**

L5 Technological Forecasting

- Definition: The prediction of the invention, timing, trajectory, characteristics, performance, or rate of diffusion of a machine, material, technique, or process (or combination thereof) to serve some useful purpose.
    - Difficult to make sound strategic decisions w/o some consideration of the future trajectories of key technologies
    - One of the approaches to 'scanning the environment'
    - Help anticipate emerging tech changes
    - Enables organizations think thru alternative scenarios
    - Help plan for future technology needs
- Key stages in tech forecasting
    - framing the problem
    - gathering and analyzing the data using a variety of methodologies
    - Interpreting the results and assembling the forecast/stories based on the available information
- Assumptions reg. the future in forecasting
    - Extrapolation (预测未来走向) - future is a logical extrapolation of the past
    - Future is too complex to get it right thru statistical and trend analyses - need to rely on expert/human judgment
    - Pattern Analysis
    - Contrarian (逆势)

- Forecast performance
    - Accuracy (useful but not the only consideration)
    - Actionability
    - Reducing surprises
- Planning for the future
    - Trend extrapolation
        - Extension of present trends into the future
        - Assumes that the world is consistent and changes slowly
    - Judgmental/intuitive methods
        - Knowledgeable people propose ideas
            - Delphi Method/Expert opinion
                1. involves asking a group of experts to provide forecasts and projections and their comments and rationale
                2. The forecasts and comments are circulated among all the experts for a second round and asked if they would like to revise their forecasts and comments based on the inputs
                3. This process can continue for a few rounds until some kind of **consensus** emerges – possible convergence
                - advantage:
                    - Anonymity, reduce the effects of groupthink
                    - relatively cheap
                    - does not require the experts to meet physically
                    - can address a variety of topics
                    - can develop a reasonable sense of the rationale behind the forecasts
        - Experts attempt to forecast likely developments
    - Statistical modelling
        - Discover causal or explanatory factors
    - Scenario Planning
        - it is a method of **preparing** for the future regardless of what happens. But **NOT** a method for predicting the future. Enable better decisions making.
        - When
            - Uncertainty is high
            - Too many costly surprises occurred in the past
            - Few new opportunities exist
            - Significant change occurred in industry or will occur
            - Strong differences of opinion exist concerning the future
        - How
            - stage 1: Key focal issue
                - identify a focal(焦点) issue
                - Set time frame
                - set scope of analysis (in terms of products,markets,geographic areas and technologies)
            - stage 2: Driving forces identification
                - major categories of drivers
                    - social

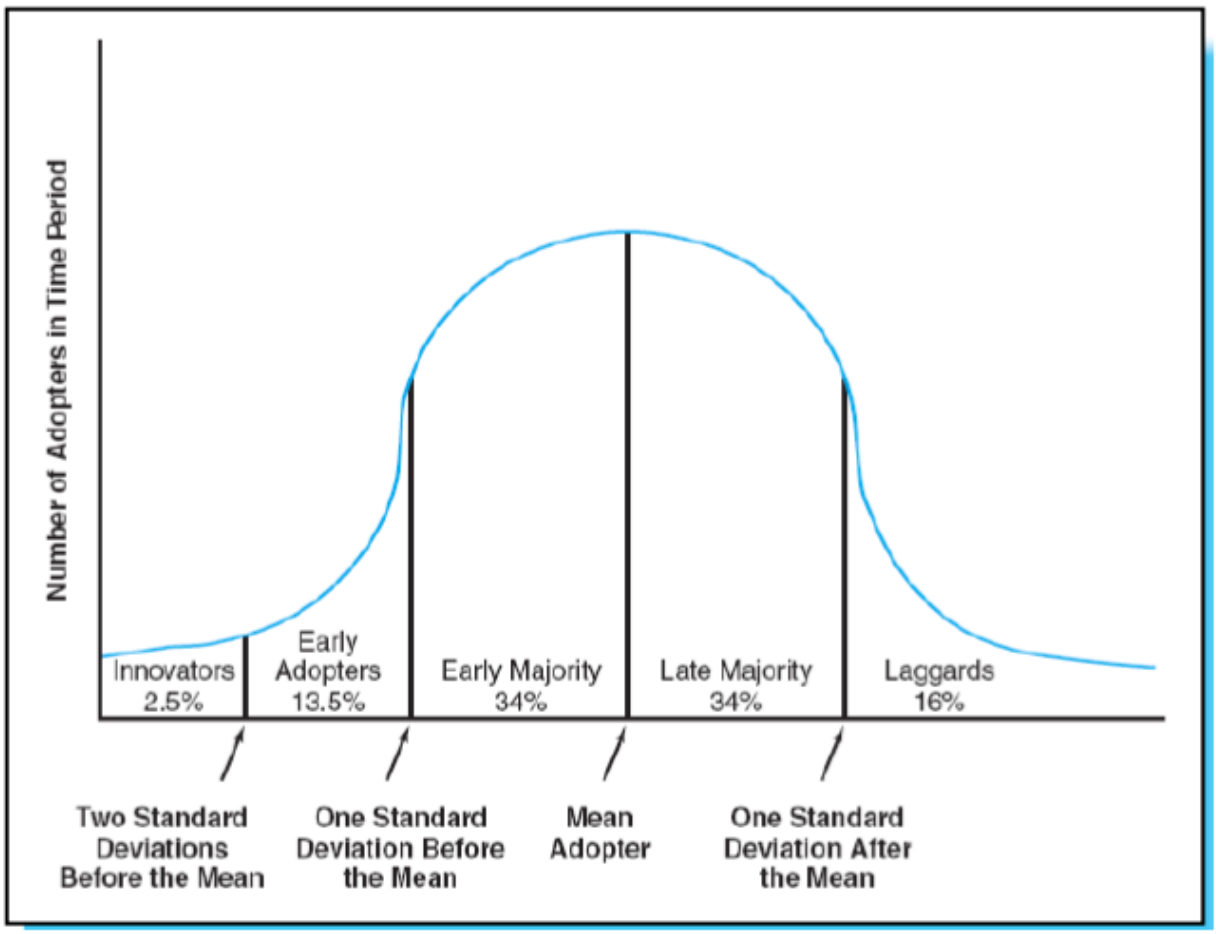
        - economic
        - political
        - technology
    - stage 3: Scenario Framework
        - Construct scenarios
            - Select two most important uncertainties
        - Check for consistency and plausibility
            - Must be very low correlation between pair of uncertainties

     Capture

    - stage 4: From scenarios to options
        - develop implications
            - return to the key focal issue
            - place the organization within each scenario
            - identify strengths and vulnerabilities
        - develop options
            - to address gaps in capabilities
            - further research requirements, necessary actions
            - critical decisions and choices

L6 Technology Adoption and Diffusion

- To formulate an effective technology strategy, one need to understand the patterns of customer adoption and technology diffusion
    - To figure out the likely distribution of adopters
    - to follow particular strategies to transition from innovators to the majority of the market
    - To accurately forecast the growth of demand
- Distribution of adopters
    - Adoption: the decision of customers to purchase a new product or service
    - Normal distribution is the most common pattern of adoption of new technology products and services
        - early markets
            - innovators: advertising not necessary
            - early adopters: not price-sensitive
        - mainstream markets
            - early majority: advertising is necessary
            - late majority: price-sensitive
        - late market
            - laggards



- Crossing the Chasm
  - transition to the majority of the market
    - needed to achieve an adequate return on investment
    - differences in the adoption decisions of early adopters and the majority of the market
  - how
    - show the value
    - develop a complete solution to customers' problems
    - pursue a vertical marketing strategy rather than a horizontal marketing strategy
    - segment the early majority of the market and focus on a niche whose needs are not well met (Beachhead strategy)
- forecasting demand
  - determine how much to produce
  - project your costs in businesses based on economies of scale
  - determine the payback on your investment in product development
  - make pricing and advertising decisions
  - determine the competitiveness of the market
- information diffusion models
  - **Diffusion** is the rate at which a new tech product becomes adopted by potential users
  - the functional form of diffusion is primarily a result of the distribution of innovators and imitators
    - innovators
    - imitators: 模仿者

    - S-shaped pattern of market growth (sigmoid函数类似的增长): few innovator, many imitators
    - Convex curve: many innovator, few imitators
- The Bass Model
    - a quantitative tool for forecasting the diffusion of new tech products that many companies use
    - based on the size of the market (m), the rate of adoption by innovators(p) and imitators(q), and the cumulative number of adopters in the previous time periods(n_{t-1})

$$St = [p + (q/m)n_{t-1}](m - n_{t-1})$$

    - can be modified to include a variety of factors that affect the diffusion of new tech products
    - most accurate at predicting the diffusion of consumer durables
    - Limitations:
        - Accuracy of predictions depends on the acc of assessments of size of the potential market
        - assumes that the diffusion of a tech product depend on only demand-side factors
        - further away in time from the initial adoption point, the acc declines
- functional strategy
    - approach taken by a functional area to achieve corporate and business unit objectives and strategies
    - directed at improving effectiveness of basic operations, such as marketing, R&D, HR, etc.
    - Involves:
        - Maximizing resource productivity
        - Developing distinctive competency
    - We will focus on tech/ R&D strategy and IS/IT strategy

L7 Platform Strategy

- platform: to characterize product, services, firm or institutions that mediate transaction between two or more group of agent
- **Digital platform**
    - enablers
        - the evolution of the internet
        - connecting tech
        - globalization
    - less requirement on physical infrastructure and assets
    - easy to scale up
    - players
        - external
            - producers: creators of the platform's offerings (apps developer)
            - consumers
        - internal
            - providers: interfaces for the platform
            - owner
- **"pipeline" business**

- create value by controlling a linear series of activities – the classic value-chain model. inputs at one end of the chain undergo a series of steps that transform them into an output that's worth more: the finished products

	Pipeline Business Model	Platform Business Model
Value Creation	Developing differentiated products for specific customer needs	Connecting users and third parties
Value Capture	Charging money for the products	Charging fees for access to the platform
Emphasis	(1) Meeting specific customer needs (2) Product-related sources of competitive advantage (such as product differentiation)	(1) Encouraging mass-market adoption in order to maximize the number of interactions (2) Network-related sources of competitive advantage (the network effects of connecting many users and third parties).

- from pipeline to platform
  - from resource control to resource orchestration(资源编排)
  - from internal optimization to external interaction
  - from a focus on customer value to a focus on ecosystem value
- competitive threats for platform business
  - an established platform with superior network effects that uses its relationships with customers to enter your industry
  - a competitor may target an overlapping customer base with a distinctive new offering that leverages network effects
  - platforms that collect the same type of data that your firm does suddenly go after your market, is still emerging
- success of platform strategy is determined by
  - **Connections**: how easily others can plug into the platform to share and transact
  - **Gravity**: How well the platform attracts participants, both producers and consumers
  - **Flow**: how well the platform fosters the exchange and cocreation of value
- three building blocks of successful platform
  - **Magnet**
    - create pull that attracts participants to the platform with a kind of social gravity
    - for transaction platforms, both producers and consumers must be present to achieve critical mass
    - platform builders must pay attention to the design of incentives, reputation systems, and pricing models. They must also leverage social media to harness the network effect for rapid growth
  - **Toolbox**（开发者工具）

        - create connection by making it easy for others to plug into the platform. This infrastructure enables interactions between participants(for developer)
    - **Matchmakers**（推荐算法）
        - fosters the flow of value by making connections between producers and consumers
        - data is at the heart of successful matchmaking, and distinguished platform from other business models
        - captures rich data about the participants and leverages that data to facilitate connection between producers and consumers
    - not all platform place the same emphasis on all three building blocks
- challenges in adopting platform strategy
    - trust
    - legal
    - security

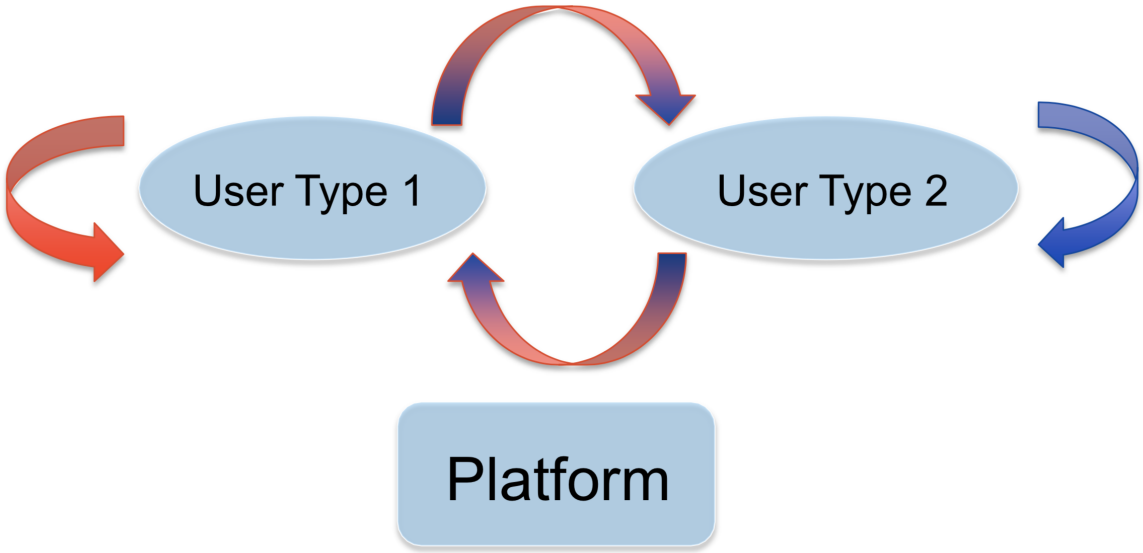
L8 Network Effects and Strategy for Increasing Returns

- Increasing Returns businesses
    - Some industries, particularly knowledge-intensive ones, are subject to increasing returns, which means that profit margins increase with the volume of production

$$Profit = Revenue - Cost$$

- Why Industries Display Increasing Returns
    - They have high up-front costs (前期成本) and low marginal costs
        - Unit costs drop dramatically as volume increases (价格随数量上升而下降)
    - Producer learning is high
        - When learning curves are steep, firms increase their efficiency at producing and selling products as they make/market more units.
    - Network externalities
        - when the purchase of a product by a new customer creates additional value for existing customers
            - Companies can charge later-to-adopt customers more for networked products than they can charge earlier-to-adopt customers.
            - When customers pay for a product on an ongoing basis, companies have the opportunity to raise prices on additional units of networked products sold to existing customers.
- Types of Network Effects
    - Network externalities come in two varieties
        - **Direct network effects** come from the direct interaction of users
            - **Metcalfe's law**: the value of a network is proportional to the square of the number of devices in it
        - **Indirect network effect**: develop when the presence of complementary products (products that are used along with the focal product) increases a products value
            - e.g. Video game console; DVD player
            - more apps –> more value for customers –> more customers –> more value for developers –> more apps

- **Two-sided network (?)**



    - a **same-side** effect for each side: preference regarding number of other users on own side
    - a **cross-side** effect in each direction: preference regarding number of users on other side

- **Strategy for Increasing Returns**

1. **Build a large installed base quickly**

- Firms in increasing return industries need to build a large installed base, the number of current users of a product or service, quickly
    - Because customer adoption decisions are affected by the size of the installed base
- A large installed base
    - Helps to make the product the industry standard, which gives long-lasting leverage over other firms in the value chain
    - Makes the product more attractive to the providers of complementary products
    - Pushes the company down the learning curve
    - Improves the economics of developing new technologies
    - Will keep out competition by creating a positive feedback loop that is hard for competitors to break
- How to build
    - Penetration pricing: comes at risk of lack of profitability
    - Bundling the product with other products that are already popular with customers
    - Targeting the mass market from the start

2. **Get Customers to Ignore lock-in**

- Customers lock-in occurs when customers view the costs of switching suppliers as too high to justify doing so
- How
    - Offer customers their money back if they are unhappy with the product or service (7天包退)
    - **razor-razor blade model (?)**
        - Create a unique system, composed of a base product and additional components that are not compatible with competitor's base product
        - Sell the base product at cost and the components at a high margin

3. **Be a first mover**

- Because the likelihood of new customer adoption increases with the size of the installed base

    - Getting to market quickly is more important than having superior technology
        - Because customers will not switch to superior technology if the inferior technology has already been adopted by a large installed base
    - Contracting, rather than owning the different parts of the value chain, facilitates getting to market quickly
- Limitation to a Strategy Based on Increasing returns
    - Have to evaluate whether increasing returns are really present in the industry before setting strategy
        - In some cases, network effects may only apply below a certain “critical mass” of customers; once this number has been reached, increases in network size may no longer create additional value for customers, so returns might not increase with network size
    - Late movers’ technologies may turn out to be much better than those of first movers
        - Leading customers to switch suppliers anyway
- Technical Standards
    - Specifications to ensure that different components of the same system are compatible
    - Permit independent companies to produce different components for the same product
    - Technical standards are of particular importance to start-up firms, which generally cannot, due to capital, produce all of the components needed to make a product
    - Technical standards **develop** because:
        - Of chance occurrence
        - Some technical solutions are better than others
        - Governments mandate them
        - Industry trade associations or standards-setting bodies establish them
        - Companies take strategic action
    - Industries sometimes converge on standards that are technically inferior to other alternative
        - Often because a technology achieves a **large installed base** and the **cost to change is too high**
    - Technical standards influence customer adoption because:
        - Customers don’t want to adopt products that might be abandoned or discontinued
        - Customers desire compatibility, particularly for systemic products
        - They make products more functional
        - They facilitate the creation of complementary products
    - How to Win a Standards Battle
        - To win a standards battle, companies may
            1. Gain the support of producers of complementary products
            - Have a complementary “killer application” making one technology much more attractive than another
            2. Make the product backward compatible so that it works with a previous generation of products (向下兼容)
            3. Manage customer and competitor expectations
            - Through pronouncements and preannouncements

L10 IT Investment and Strategic Outsourcing

- Statistic about IT investment
    - IT investment grew from 32% to 52% between 1980 and 2009

    - 3555 IT projects between 2003 and 2012 that had labor costs of at least $10 million and only 6.4% of them were successful
        - 68% IT projects fail
        - IT failure costs global economy $6.2 trillion per year
        - taking over 180 per cent of target time to deliver (完成时间需要1.8倍于预计时间)
- Irrational decisions on IT investment
    - **Factor 1: Path Dependence**
        - **Path dependence** explains how the decision one faces is limited by the decision one has made in the past, even though past circumstances may no longer be relevant (受历史因素影响或限制)
            - It is easier or more cost effective to simply continue along an already set path than to create an entirely new one
            - E.g. QWERTY vs. Dvorak keyboard
        - Organizations tend to continually invest in the same type of IT assets
            - competency building
            - hardware and software compatibility
            - switching costs
        - Negative effects in the long term
            - technological lock-in (技术受限)
            - no exploration of new IT or innovative use of existing IT
    - **Factor 2: Time-lagged effect**
        - The effect lag is the amount of time between the time action is taken and an effect is realized
        - IT investments yield time-lagged effects, therefore, their impact might not be immediately evident in contemporaneous financial measures
        - Time lag of IT investments:
            - Allocation -> Adoption-> Usage -> Appropriation
        - Compared to R&D investment, HR investment, IT investment takes longer to be paid off
        - Measurements:
            - **Traditional financial measures**
                - ROI
                - ROA (Returns on asset)
                - Net margin
                - Tobin's Q
            - **Non-financial measures**
                - Operational efficiency: by the cost of goods sold
                - Product innovation: By the number of new and modified products introduced
                - Employee work satisfaction
                - Industrial recognition
        - Impacts of IT investment reflect **faster** in non-financial measures than financial measures
        - Evaluating IT investment (L12)
            - impacts in the long term
            - both financial and non-financial measures
    - **Factor 3: Institutional Information Asymmetry**

        - Prisoner's dilemma: is based on the game theory and used to understand the balance between competition and cooperation
        - Managerial dilemma of investment in a particular IT
        - It is most likely that both companies will invest
        - Competitors' actions are expected to influence managers' IT investment decisions
            - Managers have strong incentives to outperform competitors so that they invest in IT
        - Also, managers imitate the IT investment behavior of other organizations in their reference group
            - To signal conformity with external norms and expectations
            - To establish and maintain the legitimacy of their organization
            - E.g. ERP,EDI,healthcare systems
        - In determining an appropriate business strategy, it is not sufficient to look at a static view of your competitors, you also need to take into account what their response will be to your strategy
        - Business is like a Game
            - Encourages an organization to consider competitors' likely moves and the implications of these moves for its own strategy
            - Offers organizations ways to influence the behavior its rivals and hence change the market to maximize profits.
            - It helps resolve situations where all participants are trying to influence, outguess, and adapt to the decisions of each other.
            - Assists simultaneous cooperation and competition
            - Key Concept
                - Look forward and reason backwards!
                - Put yourself in the head of the competitor
- A portfolio approach on IT investment
    - A portfolios is a collection of assets held by an investor
    - IT portfolio management is an increasingly common way to help management teams match IT investments to strategic objectives
    - A study of more than 300 enterprises in 23 countries found that faster-growing and more agile firms such as 7-11 Japan, United Parcel Service (UPS) and ING Direct all had a portfolio approach to IT investment.
- Four dimensions of IT investment
    - Infrastructure IT investment
        - e.g. servers, networks
        - made to provide a flexible base for future business initiatives
        - is associated with higher short-term costs, lower short-term profitability, and higher profitability and operation performance in the long run
    - Transactional IT Investment
        - e.g. order processing, point of sale processing, bank cash withdrawal
        - made to reduce costs in standard, repetitive processes
        - is associated with immediate cost reductions but not with more firm-level product innovation
    - Informational IT investments
        - e.g. decision support, sales analysis
        - provide information for managing, accounting, reporting, and communicating internally and with customer, supplier, and regulators

        - it can reduce costs and identify new opportunities for revenue generation and profitability improvements
    - Strategic IT investment
        - e.g. online product catalog
        - successful strategic investments typically change the nature of service delivery or organizational processes in an industry
        - reposition firms in the marketplace by supporting entry into a new market or the development of new products, services, or business processes
    - what's the Impact of IT investment on performance
        - Firms' total IT investment is not associated with performance, but investments in specific IT assets explain performance differences
        - IT investments into different IT assets are guided by firm's strategies
            - firms with cost leadership strategies will likely allocate investments toward transactional IT systems designed to cut costs
            - firms pursuing differentiation strategies will likely invest more in strategic IT systems that support product and process innovation
    - IT investment and firm strategies
        - IT investment brings both value and risk
            - without good strategic planning and effective investment, there is an equally significant risk to destroy value
        - Manage IT investment as a portfolio
            - Explore new IT and innovative use of existing IT
            - Focus not only short term gains but also long term impacts
            - analyze competitors and action strategically
            - Align IT investment with specific firm strategies and evaluate impacts accordingly
- Strategic IT outsourcing
    - Use of external service providers to effectively deliver IT-enabled business process, application service and infrastructure solutions for business outcomes
        - Total outsourcing: outsourcing an entire activity to a supplier
        - Selective outsourcing: outsourcing only part of an activity and performing the rest of the activity in-house
    - Which IT service to outsource
        - IT services that are unique to a company and provide it with significant competitive advantages over competitors (具有竞争力的不外包)
            - Tend not to be outsourced
            - Not to vendors that are trying to sell similar services to all their customers
        - Commodity-like IT services, the priorities are reliability and low cost (简单便宜的服务外包)
            - Tend to be outsourced if the vendors can provide reliable and low cost
    - General Outsourcing decisions
        - purchasing services or products from another party

1. offshore outsourcing (海外外包)
2. nearshore outsourcing (邻国外包)
3. onshore or domestic outsourcing (本地外包)
4. cloud computing

        - SAAS model
            - delivering applications over the internet as a service
            - manage fluctuating demands efficiently
            - rent it capabilities as needed
        - managed services (network management functions e.g. VPN)

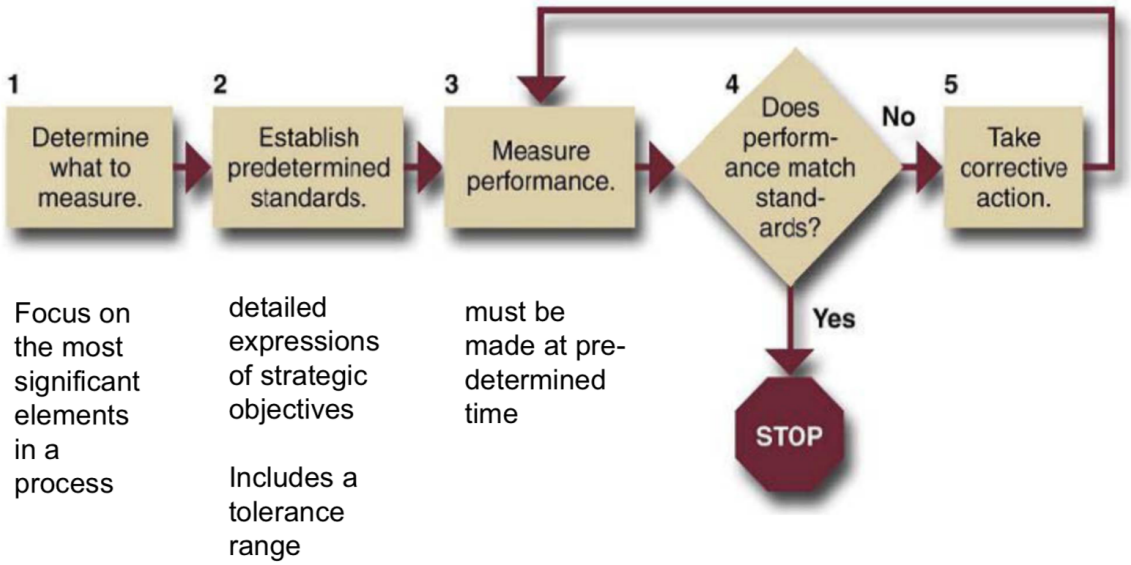
L11 IT strategy implementation

- **Process by which the IT strategy that has already been developed is actually executed or put into action**
- Strategy implementation even more important than formulation
- Strategy implementation as competitive advantage (implementation as key)
    - Successful execution of strong and robust strategies gives any organisation a significant competitive edge
    - In current turbulent environments, the ability to develop and execute new strategies quickly and effectively may be the difference between success and failure for organisations
    - Well-formulated strategies only produce superior performance for organizations when they are successfully executed
    - Even the best-made strategies are worthless if they are not executed successfully
- Why does IT strategy implementation fail so often
    1. Failure to achieve the necessary level of buy-in from all the relevant stakeholders
    2. Failure to create the necessary conditions for the implementation; managing the change as the implementation work progresses
    3. Need to pay careful attention to the strategy execution process, content, and context
- **What must be done**
    1. Develop a clear plan to implementation strategies
    2. Develop an implementation plan and a budget
    3. Monitor the plan periodically
    4. Develop processes and procedures that detail the activities to be carried out as part of the implementation
    5. Create necessary organizational units such as steering committees and project teams with suitable and accountable leadership
- Develop a clear and attractive vision
    - Successful strategy formulation and implementation begins with developing a sound and clear strategic vision (容易理解和清晰的目标与决策，符合现状)
    - The strategic vision describes the desired future state of the organization and clarifies the direction in which an organization is to move (满足未来的发展趋势)
    - The strategic vision needs to be attractive and easy to communicate to organizational members, customers and other stakeholders (容易与他人交流)
    - A clear and attractive strategic vision increase the confidence of employees in a successful outcome of the implementation effort (增加自信)
- **Employee Involvement**
    - Involve managers, employees, customers and external stakeholders
    - Train and develop employees
    - Align decentralized structure to strategy to increase employees' decision-making
    - Create a safe and innovative culture to encourage employees' to say their voice and opinions
- Resistance to change
    - Take political interests into account

        1. Strategic change inevitably raises questions of power within an organization
        2. The very prospect of organizational change confronts established positions and may lead to resistance to change
        3. Politics and struggles over power and leadership undermine a strategy execution effort
        4. Resistance to change many lead to passivity toward the strategy and its execution or even sabotage
        5. Overcome resistance to change by involving potential opponents in decision-making, taking their interests seriously, clearly communicating the new strategy to them and confronting dissidents
- Culture and strategy
    - Culture can affect a company's ability to implement a new strategy
    - When implementing a new strategy, a company should consider the strategy-culture compatibility
    - Communication is key to effective management of cultural change
- Reward system
    1. Build a reward system that monitors the process of the execution and demonstrates top management's commitment to the realization of the strategy (监管)
    2. Reward systems are essential for motivating staff and ensuring appropriate behavior in relation to the strategy (重要一环)
    3. Rewarding execution performance increase the motivation, commitment and performance of organizational members (正式的奖励增加动力，提高质量)
    4. Informal rewards greatly increase greatly increase the motivation, self-confidence and performance of organizational members (非正式奖励更能大大提高动力，自信)
    5. Employees often do not get compliments when performing well but do get criticism for making mistakes. This reduces motivation self-efficacy and performance (缺乏奖赏容易导致效率和质量低下)
- Critical factors in IT strategy implementation
    1. Competent management (挑选才有能的管理)
    2. People Skills
    3. Political Interests
    4. Execution Plan
    5. Structure
    6. Culture
    7. Leadership
    8. Strategy Communication
    9. Monitor and Control
- Recommendations for managing changes
    1. Get support and commitment from top management
    2. Involve as many people as possible
    3. Make constant change an expected part of the culture
    4. Tell everyone as much as possible about everything as often as possible
    5. Make liberal use of financial incentives and recognition (财政激励, reward sys)
    6. Work within the company culture but changes to the culture may be needed at times

L12 strategy evaluation and control

- Evaluation and Control



- Measuring performance
  - Performance – End result of activity
  - Types of controls that can be used to measure performance:
    - Output controls – Focus on actual performance results
    - Behaviour controls – Focus on activities that generate the performance
    - Input controls – Focus on resources that are used in performance
- Problems in Measuring Performance
  - Short-term orientation
    - Difficult to measure long-term benefits and

    implications
  - Goal displacement
    - Confusion of means with ends
    - Behavior substitution – Wrong activities are being rewarded
    - Suboptimization – A unit optimizes its goal accomplishment to the detriment of the organization as a whole
- Leading and Lagging indicators (指标)
  - Leading indicators - An indicator that predicts future events and tend to change ahead of that event. Sometimes used as a predictor.
  - Lagging indicators - follow an event
- Balanced Scorecard
  - The Balanced Scorecard is a management tool that provides stakeholders with a comprehensive measureof how the organization is progressing towards the achievement of its strategic goals.
    - Balances financial and non-financial measures
    - Balances short and long-term measures
    - Balances performance drivers (leading indicators) with outcome measures (lagging indicators)
    - Leads to strategic focus and organizational alignment
  - Four perspectives:

        - financial
            - survive
            - succeed
            - Prosper
        - customers
            - New products
            - Responsive supply
            - Preferred suppliers
            - Customer partnerships
        - Internal processes
            - Manufacturing excellence
            - Design productivity
            - New product introduction
        - Learning and innovation
            - Technology leadership
            - Manufacturing learning
            - Product focus
            - Time to market
    - Financial perspective
        - Limitations:
            1. Well-documented inadequacies
            2. backward-looking focus
            3. Inability to reflect contemporary value - creating actions
            4. Do not improve customer satisfaction, quality, cycle, and employee motivation
            5. result of operational actions, and financial success
        - Advantages:
            1. enhance rather than inhibit an organization’s total quality management program
            2. alleged linkage between improved operating performance and financial success is actually quite tenuous and uncertain
- IT Scorecard
    1. User orientation
    2. Business contribution
    3. Operational excellence
    4. Future orientation
    - Practical recommendations
        1. Every measure is part of a chain of cause and effect linkages
        2. A balance exists between outcome measures and the performance drivers or desired outcomes
        3. Start simultaneously constructing a business and IT scorecard
        4. Consider the scorecard technique as a supportive mechanism for IT/business alignment and IT governance