DES329 : Chapter 1-2 Summary

- Chapter 1
  Introduction

System analysis and design (SAD) - Process for developing quality IS.

System analyst (SA) role? - Plan/Devl Maintain Info & Manage project / Write Docs./ Report / memo.

Information System (IS) - 5 components puts into the system → task & business fn to achieve specific result.
set of related component. - Hardware / Software / Data / Process / People
↳ Physical layer | facts as raw material ↳ Stakeholders : interested in IS.
↳ Controls hardware → System Software
↳ Application Software
→ Horizontal System → adapted for use in many types of comp
→ Vertical System → designed to met the unique requirement
↳ Legacy System → older system.

Internet Business Strategies - The Internet Model → UI creates comm. b/w DBMS & web servers.
- B2C : customers can do basic customer stuff.
- B2B : carry out using EDI / using SCM to manage inventory / suppliers etc.

Business Information System - Current method: office productivity systems
↳ Operational require decision support / Systems defined by fr & features
- Enterprise Computing : supports company-wide operation & data management reqs.
↳ Enterprise Resource Planning (ERP)
- Transaction Processing (TP) system : generated by day-to-day ops.
- Business Support Systems.: Job-related info. support e.g. MIS / RFID
- Knowledge Management : use knowledge base & inference rules.
↳ find info using keywords ↳ data pattern & relat.
- User Productivity System : e.g. groupware / improve productivity
- Dijital assistants : comb. of knowledge management & user productivity
- System Integration : comb. of TP / business support / knowledge / user prod.

Organization Information Models - Organizational Level
- Top manager : Develop long-term strategy
- Middle manager : provide direction / resource / feedback
to supervisor & Team leaders
- knowledge workers : support org's basic fn

- Supervisors & Team leaders : Oversee employee & carry day-to-day fn
- Employee : rely on TP to do data ops. / handle tasks assigned by supervisors.

System Development. • Structured analysis : Use SDLC / use a set of process models to visualize a system
waterfall { ↳ Plan → Analyze → Design → Implement → Support ↳ "DFD"
System Graphical reps., show its stores, process, & transform data ↵

• Object-oriented analysis : data & process as objects : member of a class
↳ characteristics = properties
can inherits from its class or possess its own

development model : Plan → Analyze → Design ↳ Prototype → Test ; in O-O ; Plan - Analyze - Design interact continuously to generate testable prototype

- Agile Method : Build a series of prototype & Constantly adjust to requirements
  - as a spiral model / require intense interactivity btw dev & user / not begin w/ overall objective / ⊕ allow for more flexible & responsive ⊖ riskier / doomed to fail if not do properly weak documentation / blurred line of accountability / little emphasize on busines
  - Prototyping : early version of an IS / based on fact-finding & modeling techniques / ⊖ important decision might be made before business/tech are fully understand.
  - Tools : Computer-Aided System Engineering (CASE) / Application Lifecycle Management (ALM) Product Lifecycle Management (PLM) ; Integrated Development environment (IDE)

Information Technology Department
- Application Development : system dev. by user / manager / IT staff.
- System support & security : provide protection & support.
- User support : a.k.a Help desk / provide user w/ support & tech info.
- Database Admin : data design / management / security / backup / access
- Network Admin : hardware & software maintainance support & security
- Web Support : design & construct webpages / monitor traffic / manage hw & sw.
- Quality Assurance : review & test app. & verify w/ spec & quality standard,

System Analyst.
- Investigate / Analyze / Design / Develop / Install / evaluate / maintain a information system.
- Constantly interact w/ users outside & inside organization
- Roles
  - Translator btw manager & programmin
  - Best line of defense in IT disaster
  - Ability to listen / seek feedback from user that system won't go off path again
- Have Tech knowledge / Commu. & Business & critical thinkig skills.

Chapter 2 Analyzing the Business Case

Strategic Planning : Process of identifying long-term organizational goals / strategies / resources
- SWOT Analysis → Strength / Weakness / Opportunity / Threats

S	W
O	T

↳ How can we use to achieve business goals? ↳ How can we reduce or eliminate them? ↳ How can we access/manage/respond? ↳ How do we plan to take advantage?

- Role of IT department : Careful project planning / support business strategy / scope is well-defined & clearly stated / Goals are realistic.

The Business Case : Proposal is comprehensive & easy to understand
ask questions like reasons / cost / duration / risk / measurement / alternatives?

System Requests : Starting point of IS projects
↳ 6 main reasons : Stronger control / Reduced Cost / More Info / Better Performance Improved Service / More support for new products

Factors Affecting System Projects

- Internal : Strategic Plan / Top Manager / User Request / IT Dept. / Existing System and Data / Company Finances.
- External : Tech. / Govt. / Econ. / Competitors / Customers / Suppliers

Processing Systems Request

- System review committee / Computer resource committee
  - use combined judgment & experience of several analyst to evaluate system projects.
  - --> Broder viewpoints → established priorities → person's bias is less affected ⊖ actions must wait / favor their own
- System request forms.
  - streamline the request & ensure consistency - foolproof / indicate required docs.
- System request tool : manage workflow

Request Feasibility Assessment.

- can be simple or exhaustive, depends on nature of requests.

Initial fact-findings : study orgz. chart / interviews / review docs. / observing ops. / survey users.

- Operational feasibility : sys. will be used effectively? can be influenced by orgz. culture.
  difficult to measure w/ precision, but must study carefully.
  - Questions : supported by management & user ? / workforce reduction ? / legal & ethical issue?
- Economic feasibility : Projected benefits of sys. > estimated cost (TCO: total cost of ownership)
  TCO requires cost analysis (ppl / hardware / software / training / license / consulting / idling cost)
  cost : tangible cost (in currency / benefit result from revenues)
  intangible cost (IP / affects orgz. performance / important to company)
- Technical feasibility : Technical resources needed to develop and operate the system.
  Questions: Have necessary hardware, software, network resource? / technical expertise?
  Sufficient capacity for future needs? / required prototype? / reliability?
- Schedule feasibility : Project can be implemented in a given acceptable time frame. (Time & Cost)
  Issues : can control factors affect schedule? firm time table established?
  what conditions must be satisfied? posed any risk? management technique?

Priorities Setting - dynamic priorities : priority can change due to changes & various factors.

- Factors : reduced cost? / increase revenue? / more info or better result? / benefit customers & orgz.? / implemented in time? / necessary resource available?
- Projects: Discretionary (Management has choice in implementation)
  Nondiscretionary (-u- no choice / Predictable e.g. payroll update / tax / quarter changes)

! ## Preliminary Investigation

- conduct to study the systems request & recommend specific action.
- after obtained authorization, proceed to interacts w/ users, managers, & stakeholders.
- Planning the investigation.
  - meet the key ppl. to describe project, explain responsibility, answer question, invite comments.
  - focus on improvement not problems.

• Conducting Preliminary Investigation

• Step 1: Understand the problem or opportunity

- "develop business profile that describe current business process and functions"
- Understand how changes affect business ops. and IS / identify ppl, users & business process.

* fishbone diagram.: represents possible causes of problem / for investigating cause & effect).

• Step 2: Define the project scope & constraints

project w/ general def. & expand gradually.

- project scope: define boundaries, extents of the project. - avoid project creep
- create a list w/ sections of "must do / should do / could do / won't do"
- constraints: requirement or condition that system must satisfy & must be identified.
  - e.g. hardware / software / time / policy / law / cost.
  - characteristics: present vs. future / internal vs. external / mandatory vs. desirable.

• Step 3: Perform fact-finding

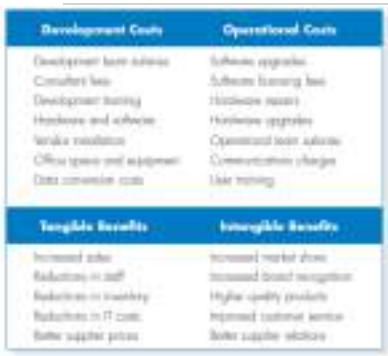
- Gather data about usability / costs / benefits / schedules.
- Might analyze organizational charts / conduct interviews / review docs / observe ops / survey.

• Step 4: Analyze Project Usability, Cost, Benefit, Schedule Data. - must analyze carefully

Questions to be considered: - what info must be obtained, how to gather & analyze?
- who will conduct survey, how many ppl to interview?
- will survey be conducted, who will involved? how to tabulate result?
- How much will it cost to analyze the info?

• Step 5: Evaluate feasibility

- operational: fact-finding included a review of user needs, requirements & expectations
- technical: identify hardware, software, network resources needed to develop, install & operate.
- schedule: include stakeholder expectation on acceptable timing & completion dates.
- economic: cost-benefit data.



• Performing economic feasibility

1: Identify costs & benefit: 4 categories (Dev costs / Ops. costs / tangible benefits / Intangibles)

2: Assign value to cost & benefit: estimate a range of values for the cost or benefits then assign a likelihood estimate to each value

- EXPECTED VALUE for cost or benefit: weighted average

3: Determine cash flow

4: Assess Project's Economic Value: evaluate expected returns in comparison to costs.

not recognize time value ----
- ROI (Return on Investment) = (Total Benefits - Total Costs) / Total Costs
- BEP (Break-even point) = (# years in negative cashflow) + [That year net cashflow - That year cumulative cashflow) / That year net cashflow]
- PV (Present Value) = (Cash flow amount) / (1 + rate of return)^n ; n = year in cash flow occurs.
- * NPV (Net Present Value) = (Σ PV of total benefits) - (Σ PV of total costs)

* as long as NPV > 0, the project is economically acceptable.

• Step 6: Summarize the investigation & presents to management

- present in report
- case for action: summary of requests and its recommendation