

Information System Design

Final Term

Project Initiation and Planning:

↳ Purpose: Organizing a team to conduct a planning for a new sys.

↳ Key steps include: Team formation, customer relationship, plan creation, management procedures, environment setup & developing project charter.

Project Planning key elements:

Baseline Project Plan (BPP)

Project Scope Statement (PSS)

Project Planning Components:

L scope, alternatives, Feasibility

L Task division

L Resource & schedule planning

L Communication planning

L standards & procedures

L Risk Assessment

L Preliminary budget

L Project scope statement

Deliverables:

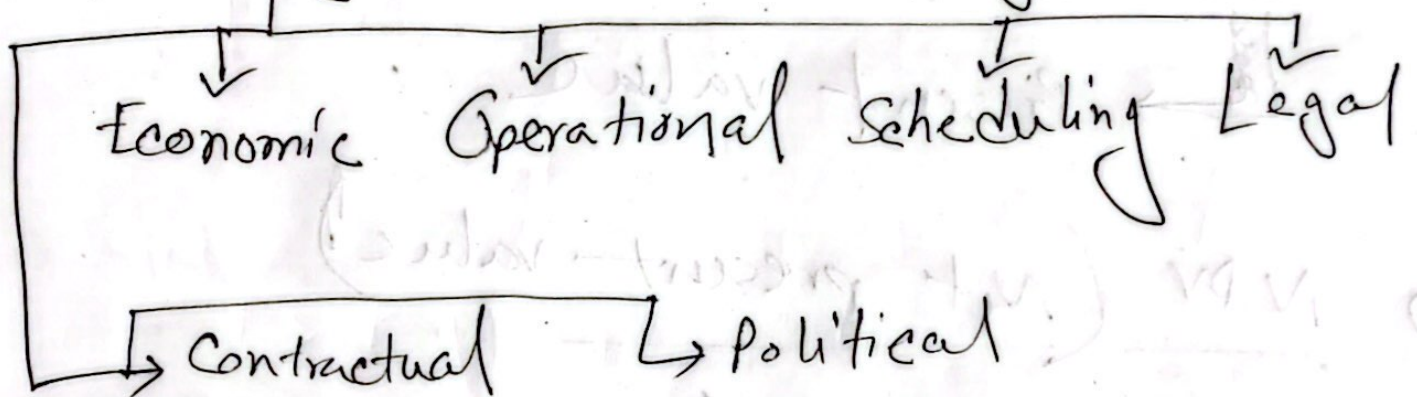
Baseline project plan:

↓ ↓ ↓ ↓

Project scope Risk Costs Benefits

PSS: → Summary for the customer
→ Outlining project deliverables.

Assessing Project Feasibility:



Project Benefits: - Tangible (eg. Measurable reduced cost)
↳ Intangible (Morale, Publicity)

Project Costs: Tangible (hardware, labor)
↳ one time costs vs
↳ recurring costs

Intangible (Fixed cost, variable costs)

Time Value of money (TVM) : concept of money value based on time available.

↳ Discount Rate

↳ Present value

→ NPV (Net present value)

$$PV_n = (Y \times I) / (1 + i)^n$$

NPV = Sum of present values across years.

Break-even Analysis | BEA

$$\text{Break-Even Ratio} = \frac{(\text{Yearly NPV cash Flow} - \text{Overall NPV reqd})}{\text{Yearly NPV cash Flow}}$$

⇒ Technical Feasibility

(Development org ability to build)

⇒ Project Risk Factor:

Size, Structure, team exp, user familiarity

⇒ Risk Assessment Rules:

Larger, less structured and employing new tech

⇒ Other Feasibility —

Operational, scheduling, legal, contractual
& political

Lecture 6

Determining System Requirements

System Analyst characteristics:

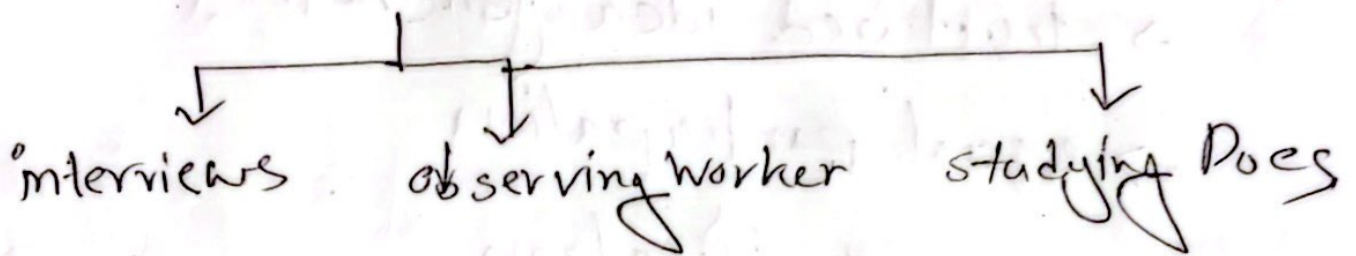
Impertinence, Impartiality, relaxed constraints
detail focus, & reframing

Organizational Components:

Understand business objectives, data needs,
flow, dependencies, rules, policies

Deliverables: interview Transcripts,
meeting minutes, business documents, system
models & prototypes.

Traditional Methods



Effective Interview:

Plan Prepare listen take notes review

be neutral seek diverse views

Interview Questions: open ended & close ended

Group Interview Adv: Efficient use of time

Nominal Group Technique

- structured idea generation
- equal participation
- idea clarification

② Direct Observation

Document Analysis: Historical views

~~to~~ understand current design

Formal vs informal ~~designs~~ sys: Formal is the official process, In formal are the actual process.

Useful Documents: Business forms, sys reports, Current sys req.

Contemporary Methods:

L JAD

L CASE tools

L Prototypes

JAD: Documents on current sys

CASE Tools: Diagramming, form building
allows direct model entry

Benefits of

CASE Tools: Productivity, collaboration
quality Assurance, Automated
Documentation & Risk Manage..

Prototyping: Iterative development with user

Types: Evolutionary or Throwaway

Chapter 9 : Designing DB

logical & physical Design

Describe Data
using notation of
Data Management
system

Technical specifications
for
Storing Data

Process DB Design

- ↳ Logical model for each user interface
- ↳ Consolidate requirements into one model
- ↳ Translate conceptual E-R Model
- ↳ Compare and refine logical model

Physical DB Design

- ↳ Choosing storage formats for each Attribute
- ↳ Grouping attributes into physical records
- ↳ Arranging records in secondary ~~format~~ memory for efficient access

Deliverables & outcomes:

- ↳ logical design: Normalize relations
- ↳ physical design: Database tables with specifications

Relational DB Models:

- ↳ Data as related tables / relation
- ↳ Relations: table with columns and rows
- ↳ Relations have simple entries, column consistency

Unique rows

⊗ well structured Relation

↳ minimizes redundancy

↳ supports insertions, modifications

Normalization: Converting complex data to simpler structure

Normal Form:

↳ 1NF: Unique rows, no multi-valued

↳ 2NF: Non-Key attributes depend on

↳ 3NF: Non-Key attributes don't depend on each other.

Functional Dependency: Attribute B depends on A if each value of A uniquely deter.

Designing Forms and reports (ch 10)

→ Forms vs Reports

⇒ Form: Business Document containing pre defined data, with spaces for additional data (instances)

⇒ Report: Business document with only predefined data, often for reading or viewing

Common Types of Reports:

scheduled	Key-indicator	Exception
Drill-down	ad hoc	

Process of Designing Forms & Reports

User-focused prototyping approach

understand user needs & tasks

Use wireframes for layout

Iterative process until acceptance

Deliverables & outcomes:

=> Design specifications with a narrative, simple design & usability

more important things to consider:

↳ Aesthetics, emphasis color uses

↳ Mixed case, left justification

↳ clear and separate column labels

↳ Use graphics to summaries, display trends

↳ ~~Use graphics to summaries, display trends~~

Chapter 13 (system Implementation)

Converting final physical system specifications to working software.

Documenting the work, & providing user help.

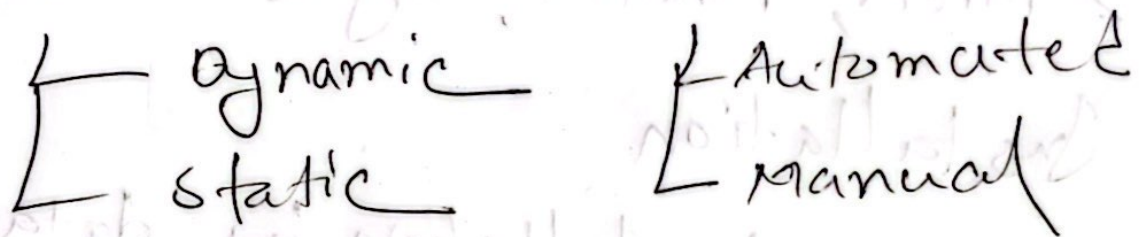
Coding → testing → installation → document → training → support

Soft. App. testing:-

→ master test plan, unit, system, integration test plans.

→ tests done during implementation.

Types of tests



There is

↳ Functional Testing

↳ Non-Functional testing

① Document specific test scenarios

① Acceptance Testing

↳ Alpha (simulated data)

↳ Beta (real data)

⇒ Direct, Parallel, single-location
Installation

⇒ Planning installation by data
conversion, error correction, sys.
shutdown

⇒ Documentation

└─ ~~the~~ System Documentation (design/analysis)

└─ User Documentation (how to use the sys)

⇒ Project - close-down by reevaluating
team, reassign, notify stakeholders,
post-project reviews, contract close out.