Systems analysis and design methods
Jeffrey L. Whitten, Lonnie D. Bentley
Kevin C. Dittman

System Design Phase (chapter 10, 11, 12, 13, 14, 15)

- Information system design are those tasks that focus on the specification of a detailed computer-based solution – (physical design)

Tasks 5.1

Application architecture, describes the patterns and techniques used to design and build an application

5.1 Application ~~applica~~ Architecture
(defines the technologies to be used)
5.2 Design the Systems Database(s)
5.2 Design the Systems Interface (input screen
5.4 ~~Design~~ Package design specification
(- to guide the programer in implementation)
5.5 Update project plan.

- Distributed architecture
  - Centralized
  - Network Architecture

- input screen
- Output Report
-

SYSTEM CONSTRUCTION / IMPLEMENTATION

System construction – Is the development, installation and testing of System components.

& System implementation – Is the delivery of that System into production (means day to day operation).

Purpose :- The purpose of the phase is to develop and test a functional System that fulfils business and design requirements and also to implement the interfaces between the new System and existing production systems.

– Programing is generally is the major aspect of this phase.

Tasks:

6.1 – Build and test network (if necessary).

– in many cases new systems are built upon existing networks, so if it is so — Skip this task – but if it is required – then you must implement the network architecture.

– The task is performed by – network Administrator and or a network designer.

6.2 – Build and test Data bases.

– This is done by the data base specialist

– The input to this task are the data base Schemas specified during the design

– final product – Un populated database.

3 — Install and test New Software Package (if necessary) - This involve all the stake holders —

— There are three levels of Testing

① Stub testing = Is the test performed on events or modules of the program. In other words it is the testing of an isolated subset of the program.

② Unit or program testing - Is a test where by all the events or modules that have been coded and stub tested for a progra are tested as an integrated unit. It is the testing of an entire program.

③ Systems testing - ensures that applicatio programs written and tested in isolatio work properly when they are integrate into the total program.

Once the System test is complete and Successfu we can proceed to the Implementati of the System e.g Maintainance System

THE IMPLEMENTATION PHASE

The implementation phase — delivers the new system into operation.

Tasks

7.1 Conduct System test —
- the input to this phase is the new system as well observation from the previous phase (if any)

7.2. Prepare a conversion plan.
- once a successful system test has been completed, we can begin preparations to place the new system into operation
- the plan include - data bases to be installed,
- end user training and documentation.
- Strategy for converting from the old system to the new system.

- data bases
- end user training

§ This is mostly done by the project manager.

conversion plan may include the following

(i) Abrupt cut-over —
on a ~~day~~ specific date that coincides with an official business period such as month, quarter, — the old system is terminated and the new system is placed into operation
- This is a high-risk approach because there may still be major problems that won't be uncovered until the system has been in operation for at least one business period.

- old system is terminated and new system is placed into operation

* when do we use abrupt cutover?

2. Parallel conversion — Under this approach, both the old and new systems are operated for some time period. This ensures that all major problems in the new system have been solved before the old system is discarded. — The cut-over may be abrupt, or gradual as portions of the new system are deemed adequate.

* this strategy minimizes the risk of major flaws in the new system, — but the cost of running the two systems concurrently may be high.

3. Location Conversion:

When the same system will be used in numerous geo Location, it is converted in one Location first, when it is tested and trusted, then it will be deployed to other Locations

4. Staged Conversion.

— A staged conversion is based on the version concept introduced earlier. Each version of the new system is converted as it is developed

---

The conversion plan includes the Systems acceptance test plan.

It is the final opportunity for end users, management and information systems and other stake holders to accept or reject the system — This is done using real data

system acceptance test. is a final test performed by end users using real data - It is extensive and addresses three levels of acceptance testing; Verification testing, Validation, and audit testing.

① — Verification testing - It also called alpha testing -

Verification testing runs on the system on Simulated ~~data~~ environment using Simulated data. The ~~sti~~ simulated test is ~~sometimes~~ Primarily looking for errors and omissions regarding end-user and design specifications that were specified in the earlier phase but not fulfilled during construction

- look for errors
- requirements that have not been captured

② Validation testing - runs the System in a live environment using real data - It is Sometimes called Beta testing -

- during this testing, a number of clients are tested.

Eg. - System performance - (response time)
- back up and recovery. etc.

③ ~~Audit testing~~ Audit testing

The audit testing certifies that the system is free of errors and is ready to be placed into operation.

system acceptance test. is a final test performed by end users using real data - It is extensive and addresses three levels of acceptance testing; Verification testing, Validation, and audit testing.

① — Verification testing - It also called alpha testing -

Verification testing runs on the system on Simulated ~~data~~ environment using Simulated data. The ~~sti~~ simulated test is ~~sometimes~~ Primarily looking per errors and omissions regarding end-user and design specifica that were specified in the earlier pla but not fulfilled during construction

- look for errors - requirements that has been not been captured

② Validation testing - runs the System in a live environment using real data - It is Sometimes called Beta testing -

- during this testing, a number of users are tested.

Eg. - System performance - (response time)
- back up and recovery. etc.

③ ~~Audit testing~~ Audit testing

The audit testing certifies that the syste is free of errors and is ready to be placed into operation.