Analysis and Design

Based on Chapter 03 Analysis and Design in Object-Oriented Data Warehouse Design: Building a Star Schema by Wm. Giovinazzo
Laws of System Development

- *Data Warehousing: Strategies, Technologies, and Techniques* by Rob Mattison
  - Develops Immutable Laws of System Development
- Other models for systems design and development exist
- These are good places to start when trying to understand how to develop and implement a data warehouse
Other Important “Laws” to Remember: Murphy’s Law

- “If anything can go wrong, it will”
- What can be done, with respect to Murphy’s law?
  - Plan, prepare, plan some more
- A large development project is generally high risk with respect to Murphy’s law
- A large implementation project is not as high risk, but still carries with it fairly high risk
Why do Companies Accept Risks Associated with Large IT/IS Projects?

• The project sponsors are convinced of adequate return on investment

• Types of returns from large IT/IS project
  • Increased productivity through increased efficiencies
  • Competitive edge (always temporary in the case of technology-based advantages)
Summary

- There are NO silver bullets when it comes to systems analysis, design and development
- A data warehouse project must be relevant to the users
  - It must solve a business problem
The first 3 phases of the development spiral are:

- Definition
- Analysis
- Design
Definition Phase

- The first step in developing a data warehouse is to get a clear understanding of the needs and wants of the client (p. 62 Giovinazzo)

- Develop
  - Scope
  - overall objectives

- Deliverable: Mission Statement
Role of Project Sponsor

• Someone in the organization who:
  • Supports the project
  • Believes in the project
  • Is able to defend the project to different audiences as needed
  • Works as a facilitator between the DW development team and the users
    • Users are both operational users and executive management users
  • Has political standing in the organization
Mission Statement

- A deliverable of the Definition phase
- Defines the overarching purpose of the proposed system
- Answers the questions
  - What?
  - Why?
  - Which also lead users to the question: When?
Analysis Phase

- More in-depth examination of the needs expressed in the mission statement
- Study and document the environment in which the proposed solution will exist

- Deliverable: Analysis Model
- Purpose of Analysis Model: Communication between (possibly) diverse groups
- Point: Present the general flow of the business process
Techniques for Analysis: Interviewing

- Interview the people of the organization because that is where the answers to our questions lie
Possible Interview Groups

- Project Sponsor
- Management
- Proposed users of the data warehouse
- Users of the operational systems
- Information Technology Staff (IT)
Analysis Model

- Used to communicate the business process
- Analysis Model document
  - Simple
  - can be understood by all audiences
  - NOT a technical specification
Analysis Model Composition

- A simple model:
- Circles represent objects in the system
- Lines represent behaviors

Diagram:
- Prospective Client
- Payment
- Car
- Sales Person
- Arrows indicate relationships:
  - Makes
  - Takes
  - Purchases
  - Sells
  - Speaks With
Other Issues That May Be Part of Analysis Phase

- Feasibility of the project
- Consensus building
- Estimate of cost
  - Wild Absolute Guess technique
  - More sophisticated cost estimating technique
- Description of how things will work
The Object Model

• Fleshes out details
  • Some details were abstracted away in creation of Analysis model
• Similar to an ER diagram, but
  • Objects have behaviors as well as characteristics (properties)
The Implementation Model

- Conceptual models include analysis model and object model
- Need to move to the implementation model as we use the conceptual models to build a model of the data warehouse
Summary

• First 3 phases of the development spiral establish the concepts
• From there, we can go to design of the warehouse
• First 3 phases are:
  • Definition
  • Analysis
  • Design
• In creating the mission statement and the analysis and design model, the data warehouse designers/developers have developed an understanding of the business processes of the organization and how these business processes will work in the context of the data warehouse and vice-versa
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