



Business School  
UNIVERSITY OF COLORADO DENVER

Information Systems Program

# Module 3

## Relational Database Design and Enterprise Data Warehouse Development

### Lesson 6: Data Warehouse Design Methodologies



# Lesson Objectives

- Gain insights about issues involved with enterprise data warehouse development
- Compare and contrast methodologies for data warehouse design
- Understand the importance of grain on data warehouse flexibility and capacity

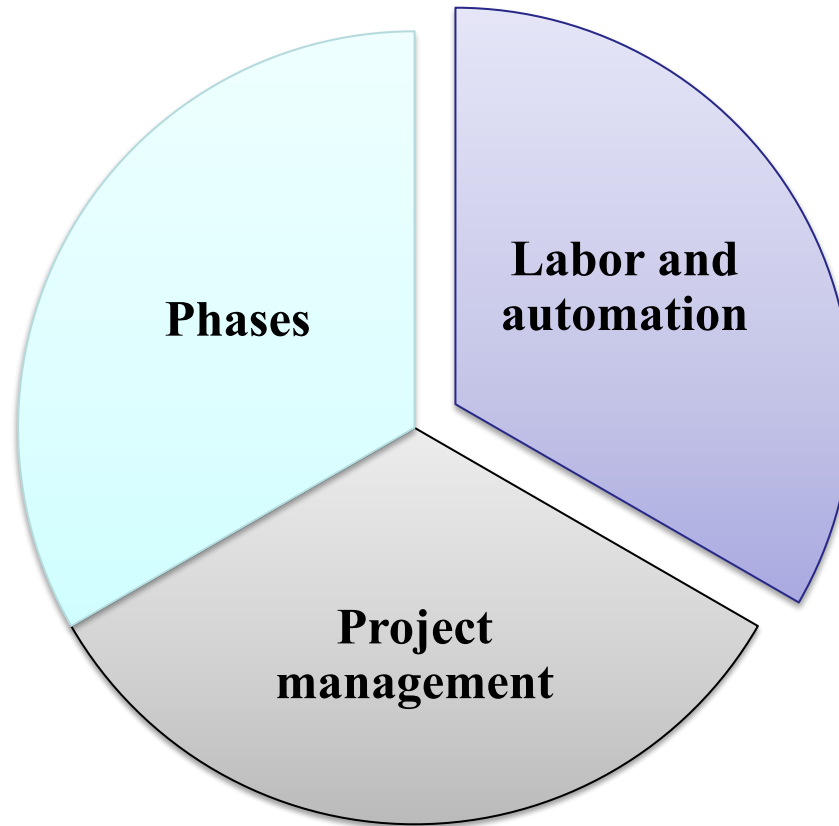


# Design Methodology

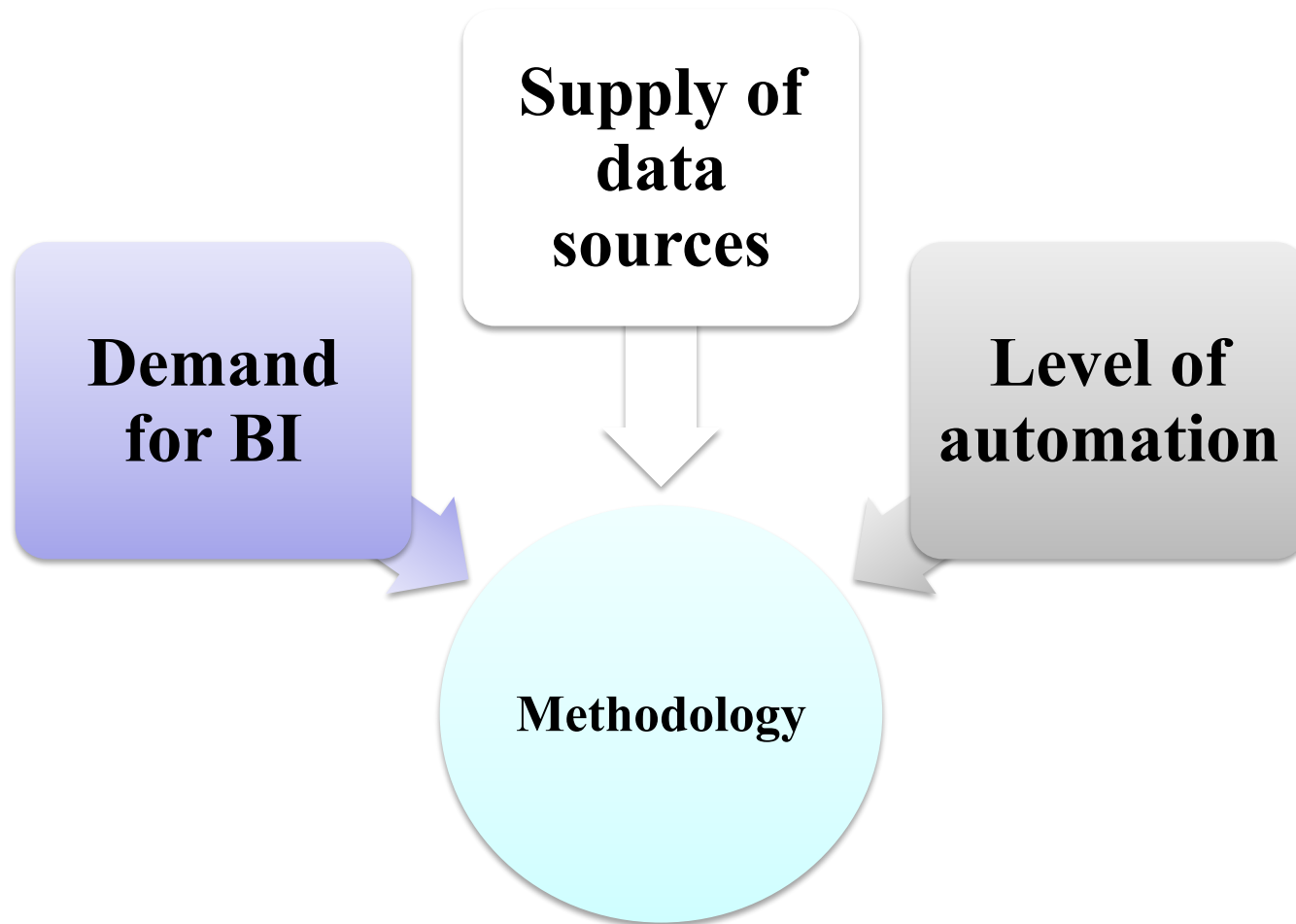
- Elements
  - Phases to create design artifacts and working system
  - Human and automated processes
  - Project management skills required
- Support the design of dimensional models, data warehouses, data marts, and data integration procedures



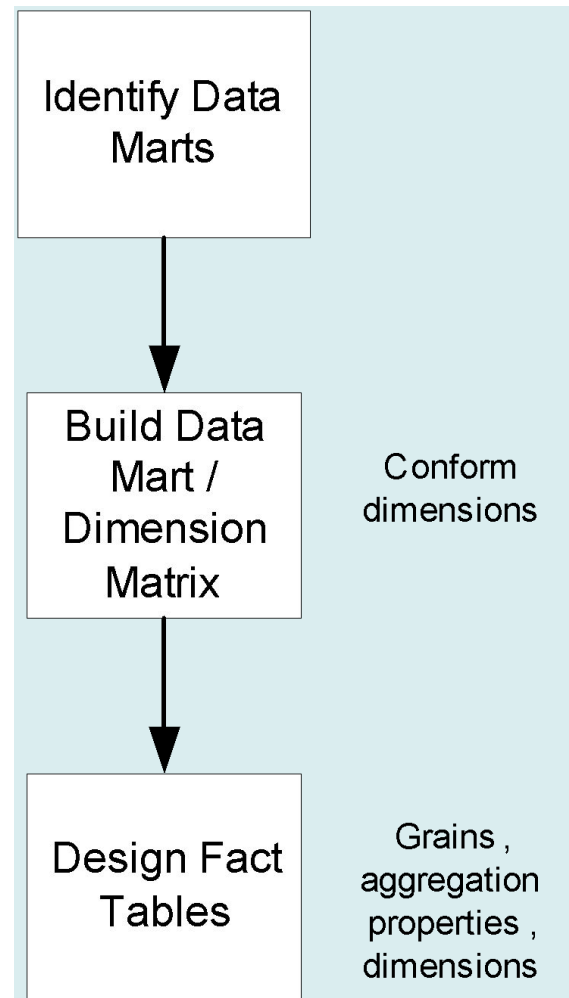
# Design Methodology



# Design Methodology Issues



# Demand-Driven Methodology

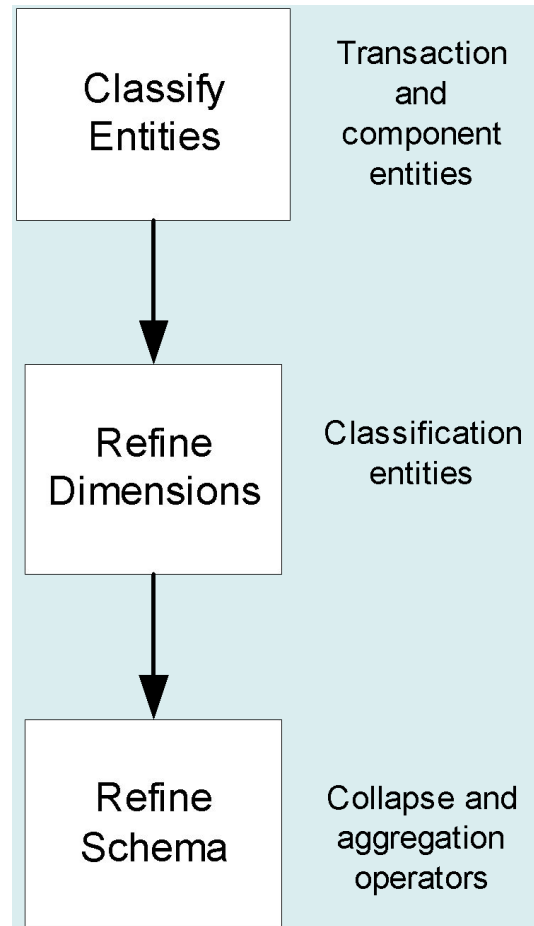


# Demand-Driven Methodology Details

- Identify data marts
- Identify dimensions for data marts
  - Matrix relating data marts and dimensions
  - Standardize (conform) dimensions
- Design fact tables
  - Define grain
  - Determine details of dimensions
  - Define measures



# Supply-Driven Methodology



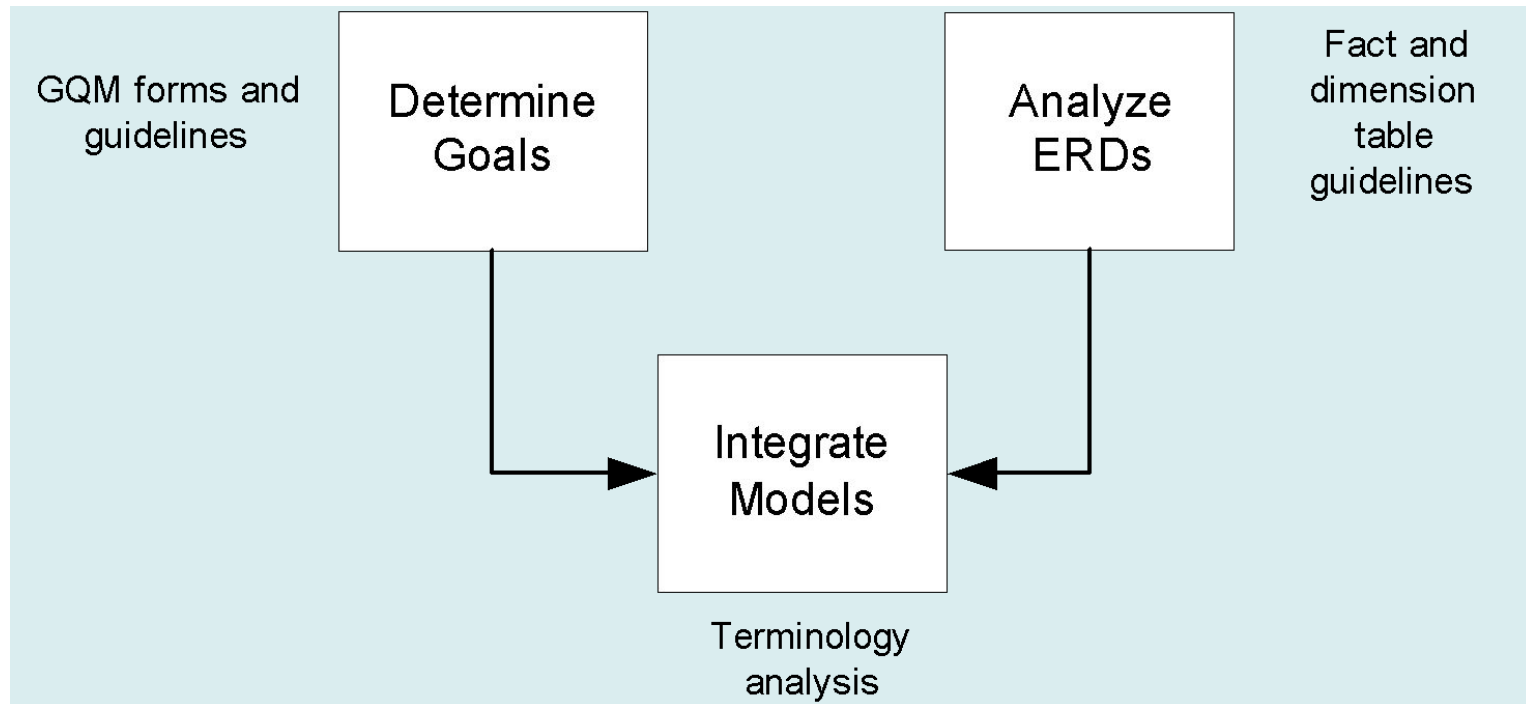


# Supply-Driven Methodology Details

- Classify entity types
  - Transactional entity types: events
  - Component entity types: related to events in 1-M relationships
- Define dimensions
  - Classification entity types: related to component entity types in 1-M relationship
  - Dimension hierarchies for component/classification entity types
- Refine dimension model
  - Collapse
  - Aggregate



# Hybrid Methodology



# Hybrid Methodology Details

- Collect user requirements:
  - Use Goal/Question/Metric approach
  - Develop dimensions and measures (demand driven)
- Analyze existing ER diagrams
  - Identify entity types representing facts and dimensions
  - Create star schemas (supply driven)
- Integrate star schemas
  - Convert schemas to common terminology
  - Match demand and supply models



# Summary

- Methodology matters
- Balance demand, supply, and automation
- Grain determination importance



# Grain (unit of analysis)

- Determines level of detail
- Typical granularities
  - Individual transactions
  - Snapshots (points in time)
  - Line items on a document
- Flexibility versus size tradeoff

