Business School
UNIVERSITY OF COLORADO DENVER

Information Systems Program

Module 1
Data Warehouse Concepts and Architectures

Lesson 5: Data warehouse architectures and maturity

Lesson Objectives

- Compare and contrast characteristics of architectures
- Explain insight from maturity model
- Reflect about relationships between project challenges and architecture choices

Architecture Issues

- Organizational issues rather than technology
- Data warehouse scope
- Integration level

Architecture Choices

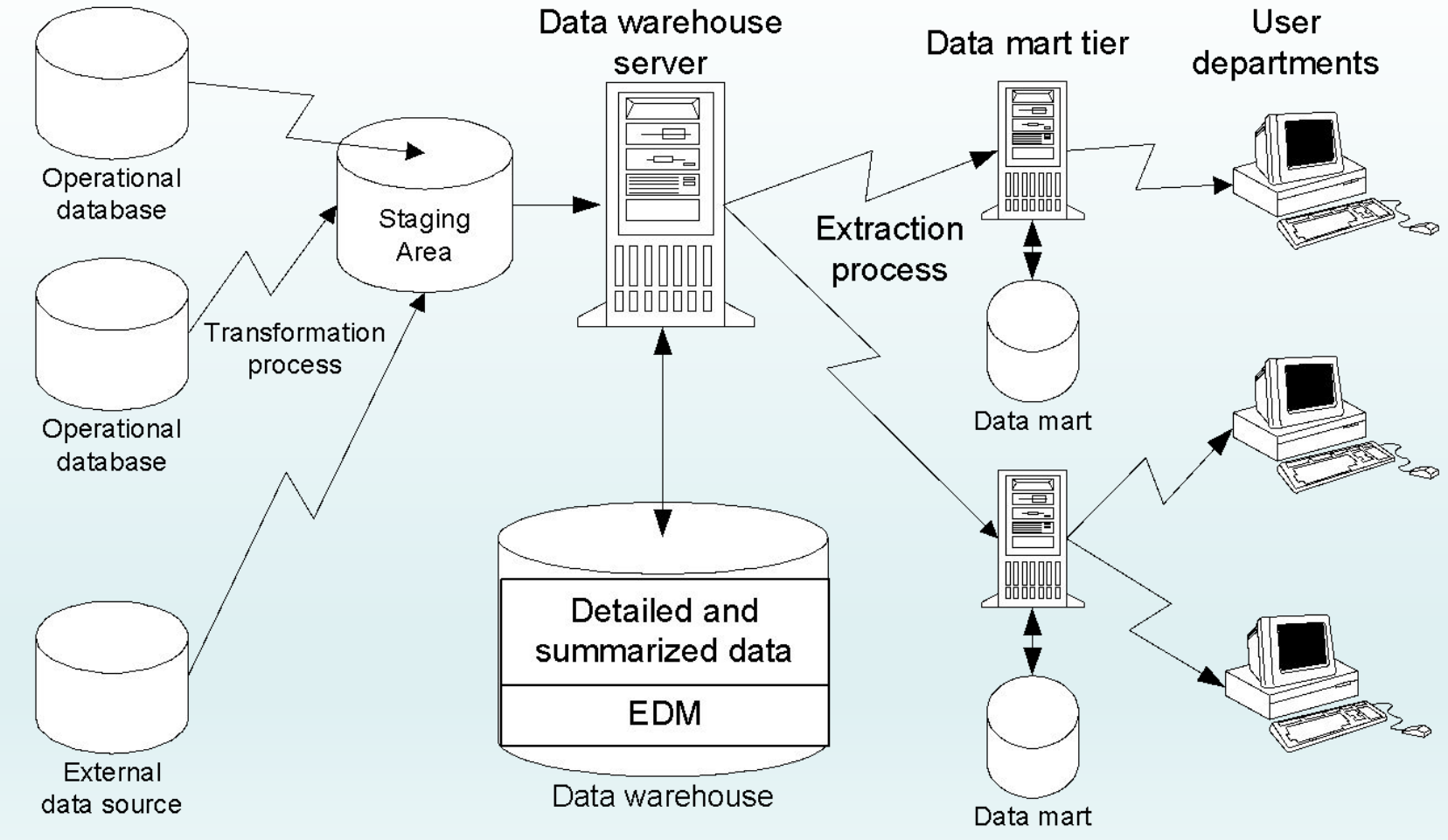
Top Down

- Enterprise data warehouse
- Higher integration levels
- Logically centralized
- Larger project scope

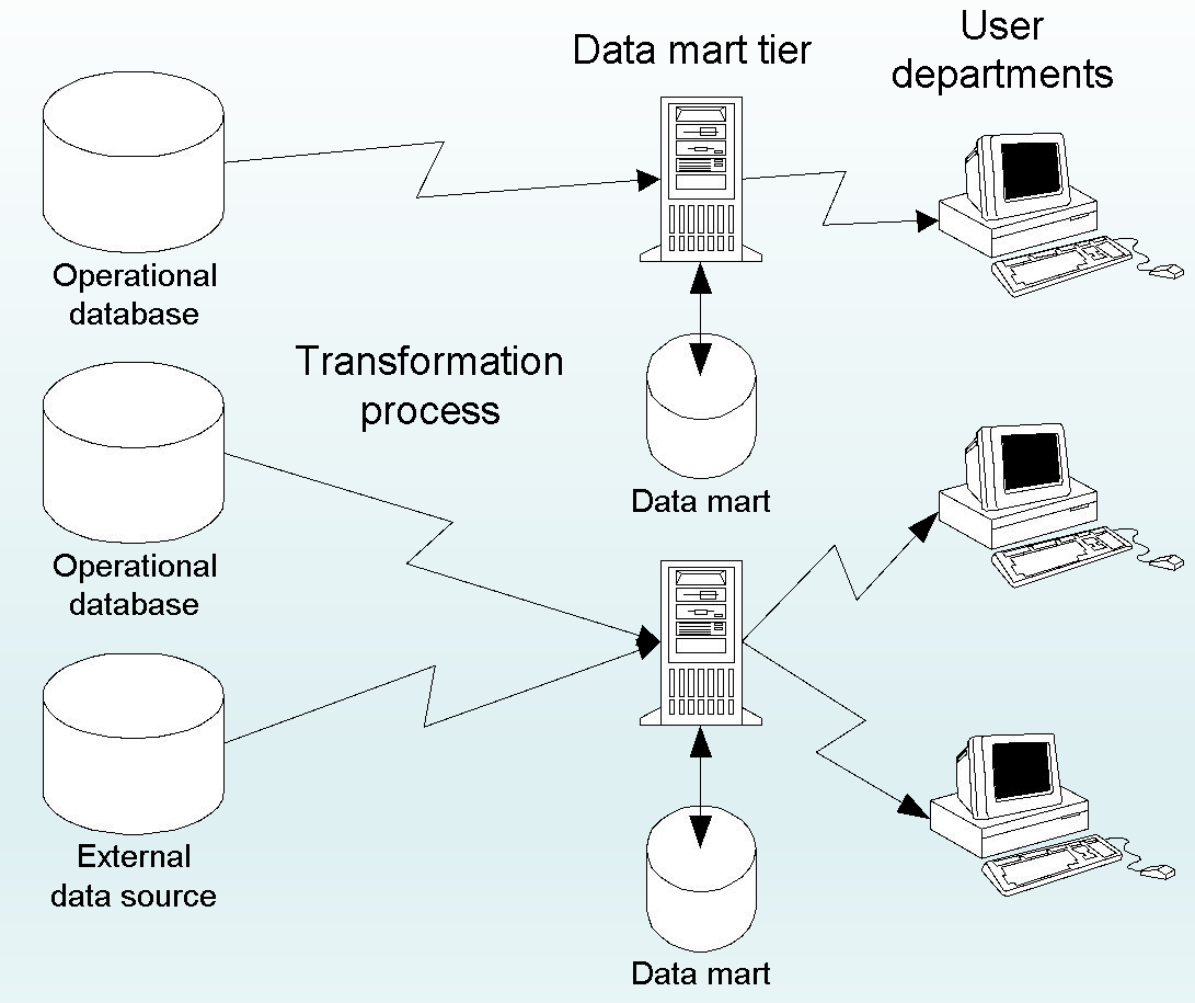
Bottom Up

- Independent data marts
- Lower integration levels
- Logically decentralized
- Smaller project scope

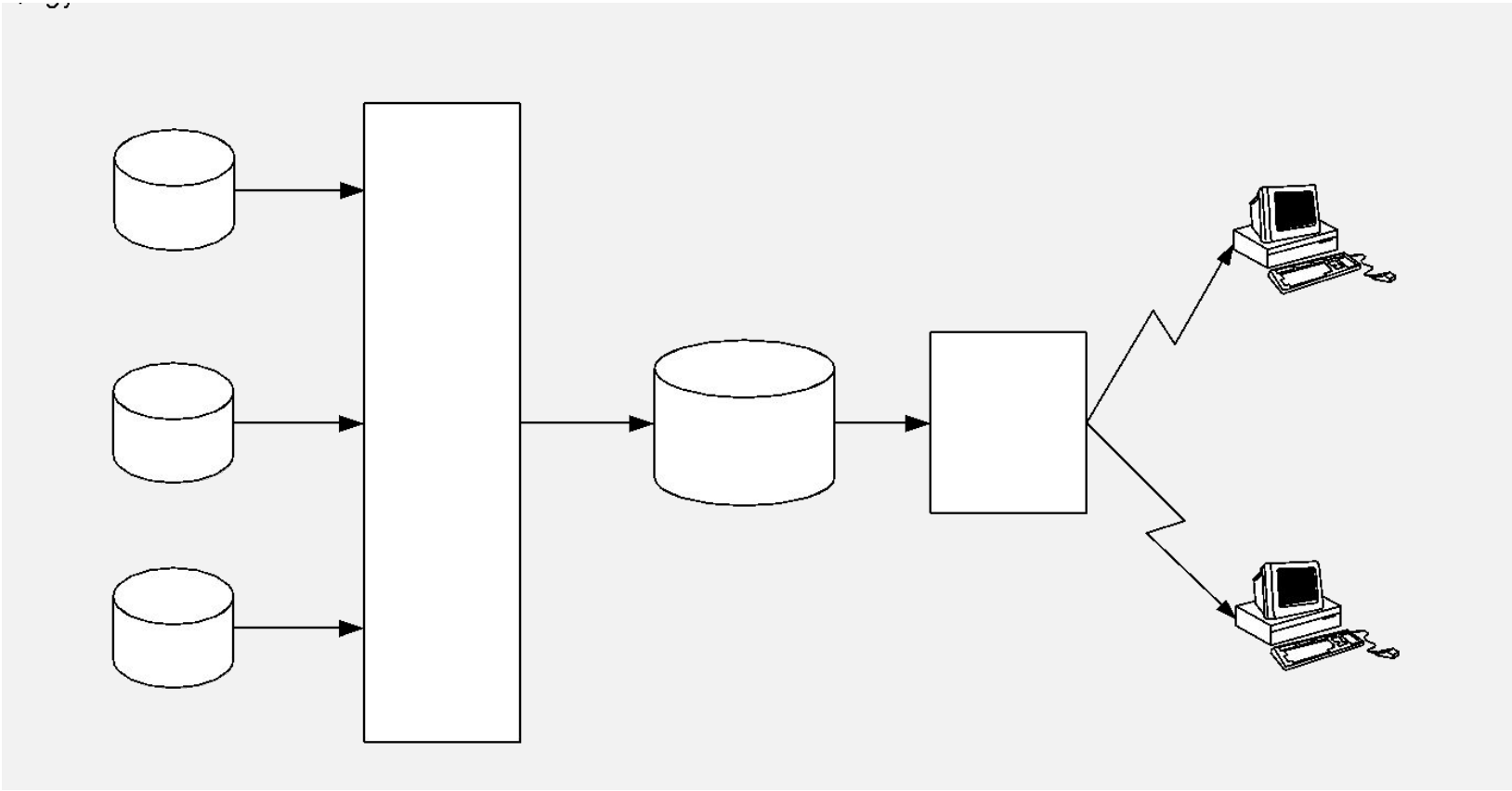
Top-Down Architecture



Bottom-up Architecture



Federated Architecture



Architecture Selection Factors

- Learning effects
  - Project risk
  - Intangible business value
- Strategic view of information technology
  - Level of sponsorship
  - Information independence
  - Task routineness

Maturity Model Stages

Stage	Scope	Architecture	Management Usage
Prenatal	System	Management reporting	Control costs
Infant	Individual business analysts	Operational reports and spreadsheets (known as spreadmarts)	Management insight
Child	Departments	Data marts	Support business analysis
Teenager	Divisions	Data warehouses	Track business processes
Adult	Enterprise	Enterprise data warehouse	Drive organization
Sage	Inter-enterprise	BI services	Drive market and industry

Maturity Model Insights

- Stages provide a framework to view an organization's progress
- Guidance for investment decisions
- Difficulty moving between stages
  - Infant to child stages because of investment level
  - Teenager to adult because of strategic importance of data warehouse

Summary

- Characteristics of business architectures
- Maturity model to guide investment decisions and data warehouse development over time