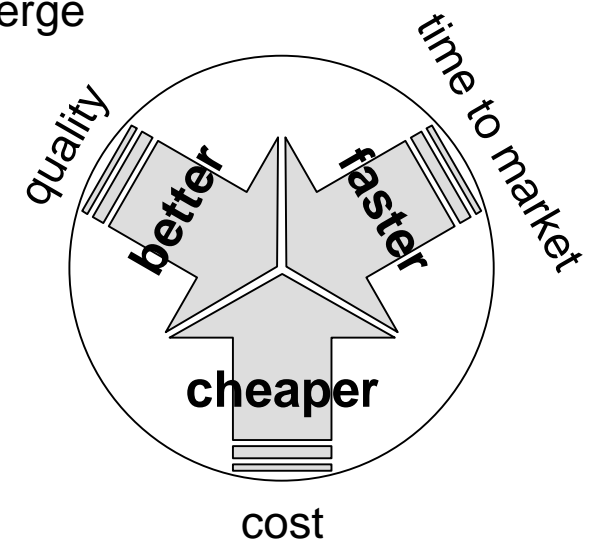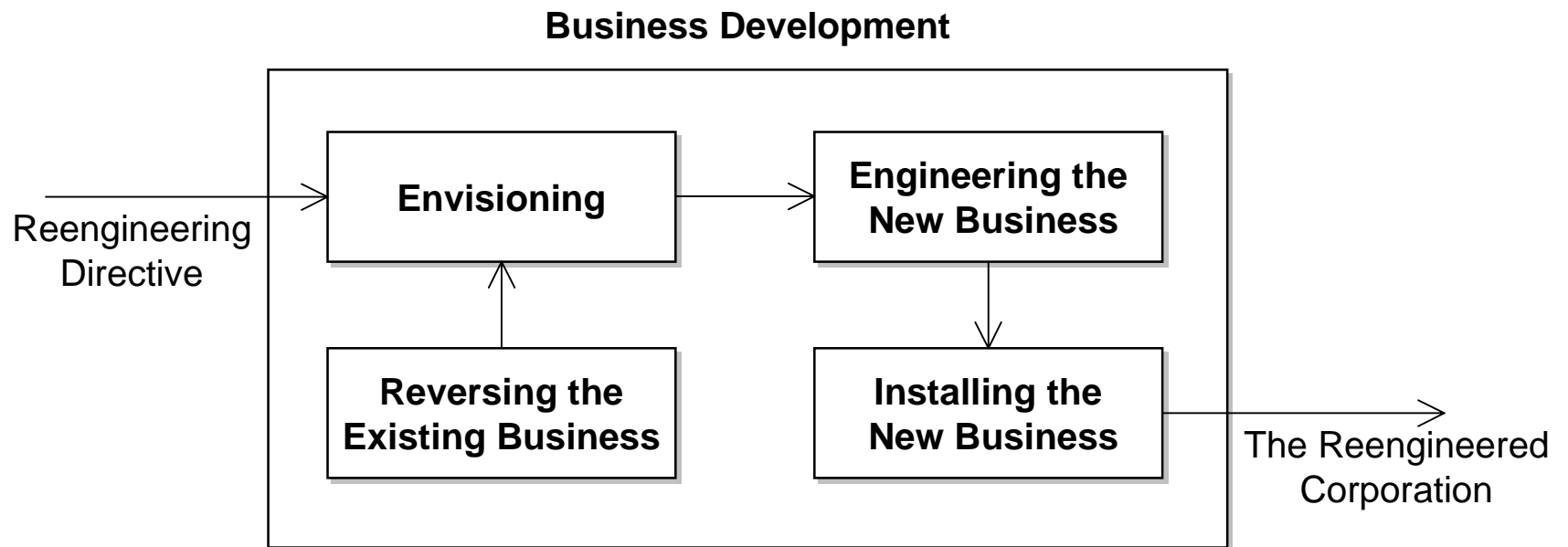# WHITESTEIN
Technologies
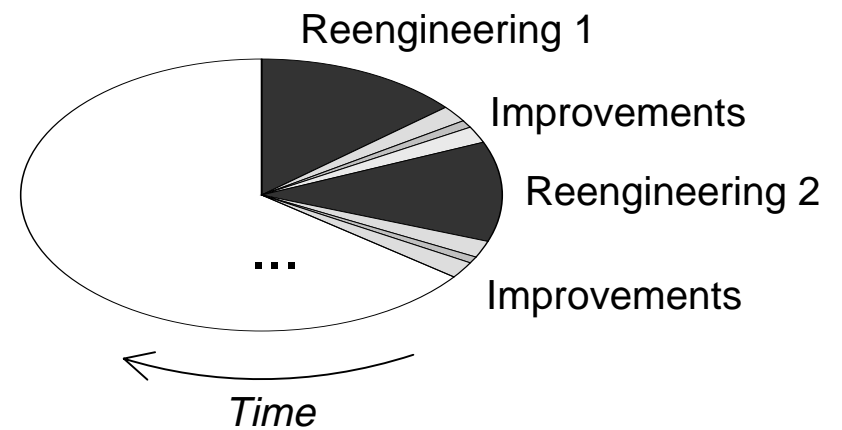
Business Engineering

Business Engineering Overview
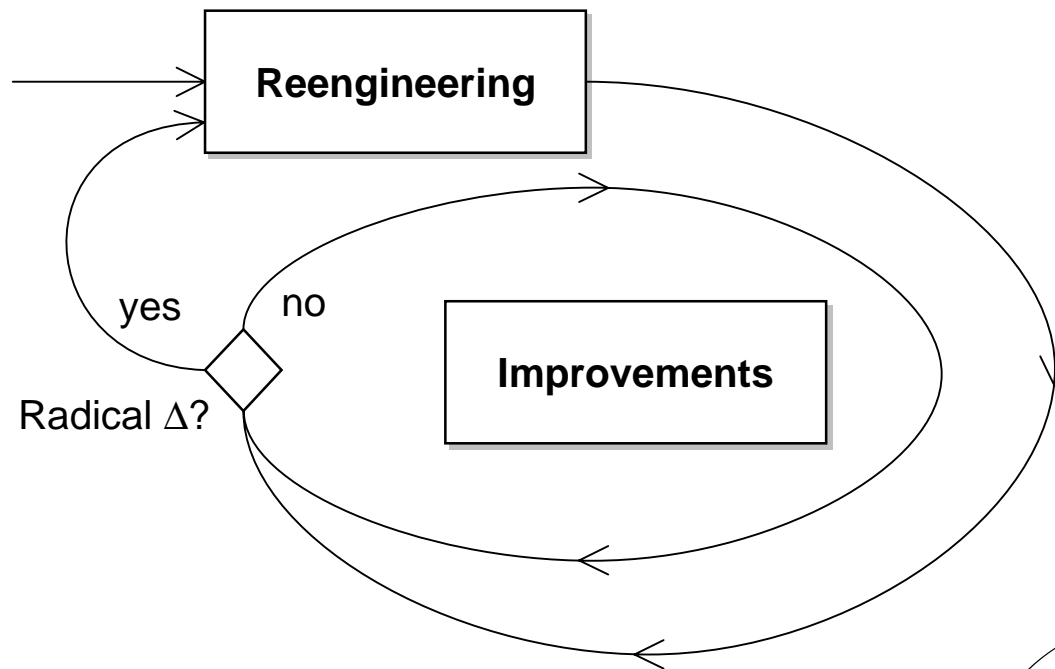
❑   Requirements for market success are changing

❑   Survive in a increasingly competitive market

❑   Business engineering = business reengineering + business improvements

❑   Using of the business modeling

❑   Information systems are part of the solution

❑   Development of business and supporting IS converge

❑   Migration from legacy system must
   be taken into account

Business Engineering Process

Business Development

Reengineering
Directive

Envisioning

Engineering the
New Business

Reversing the
Existing Business

Installing the
New Business

The Reengineered
Corporation

Continuous Improvement

Reengineering

yes   no

Radical Δ?

Improvements

Reengineering 1

Improvements

Reengineering 2

...

Improvements

Time

Business & SW Development

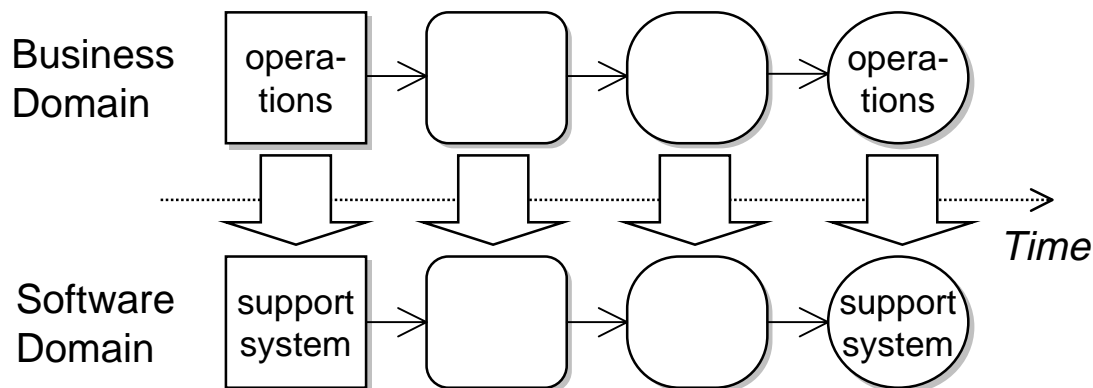## Conventional SW Development
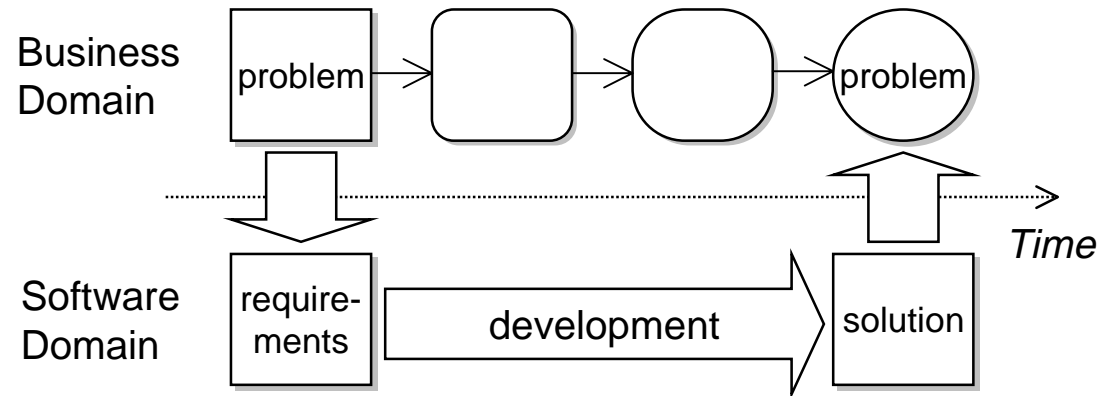
Adaptive SW Development

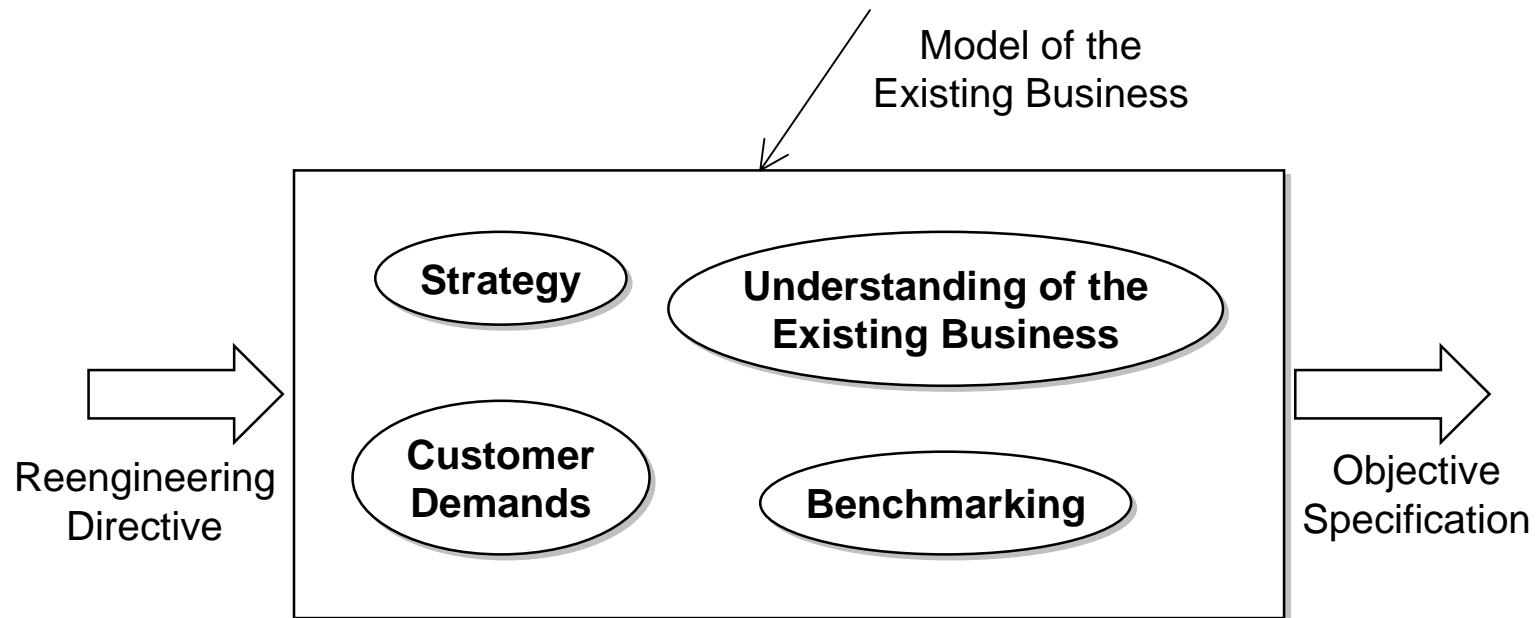# Business & SW Model

Divergent Models

Convergent Model

Business Perspective

Business
System

Software
System

Software Perspective

Envisioning

Model of the
Existing Business

Strategy

**Understanding of the
Existing Business**

**Customer
Demands**

Benchmarking

Reengineering
Directive

Objective
Specification
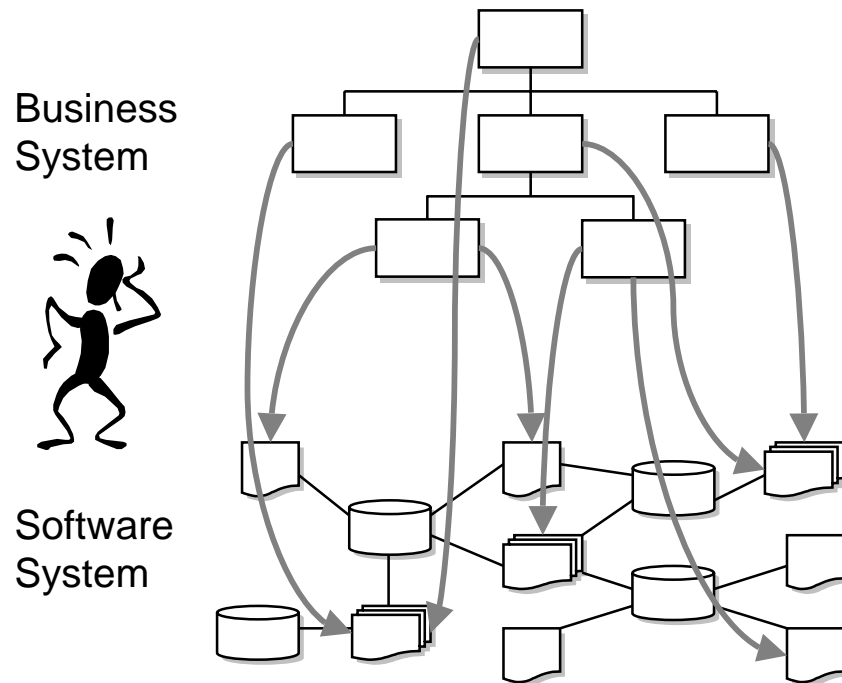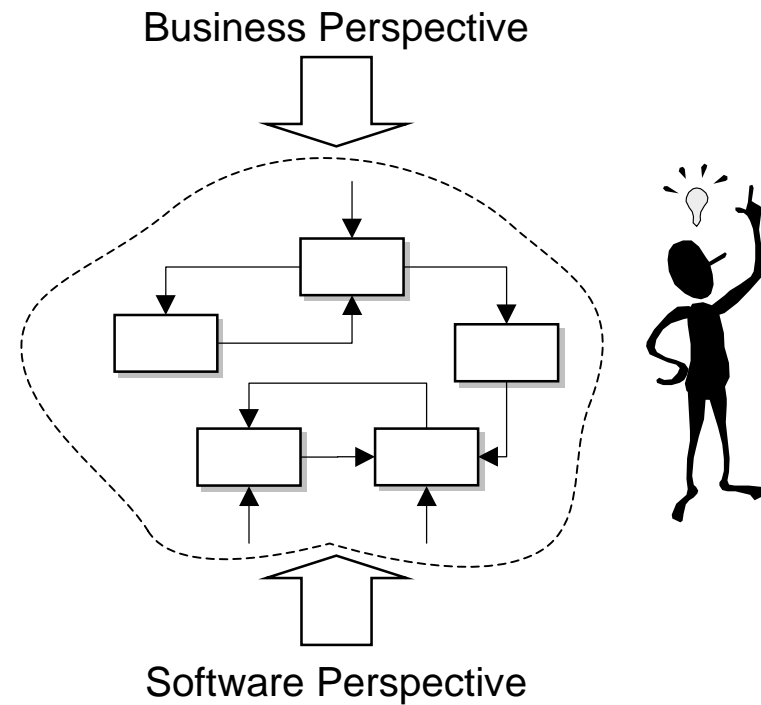
Reverse Business Engineering

```
           ┌─────────────────────────────────────────────────┐
           │                                                 │
           │   ┌──────────────┐        ┌──────────────┐      │
    ══════▷│──▷│   Build a    │───────▷│   Build an   │──────│──▷══════▷
           │   │ Use Case Model│◁───────│ Object Model │      │
           │   └──────────────┘        └──────────────┘      │   Model of the
           │                                                 │   Existing Business
           └─────────────────────────────────────────────────┘
```
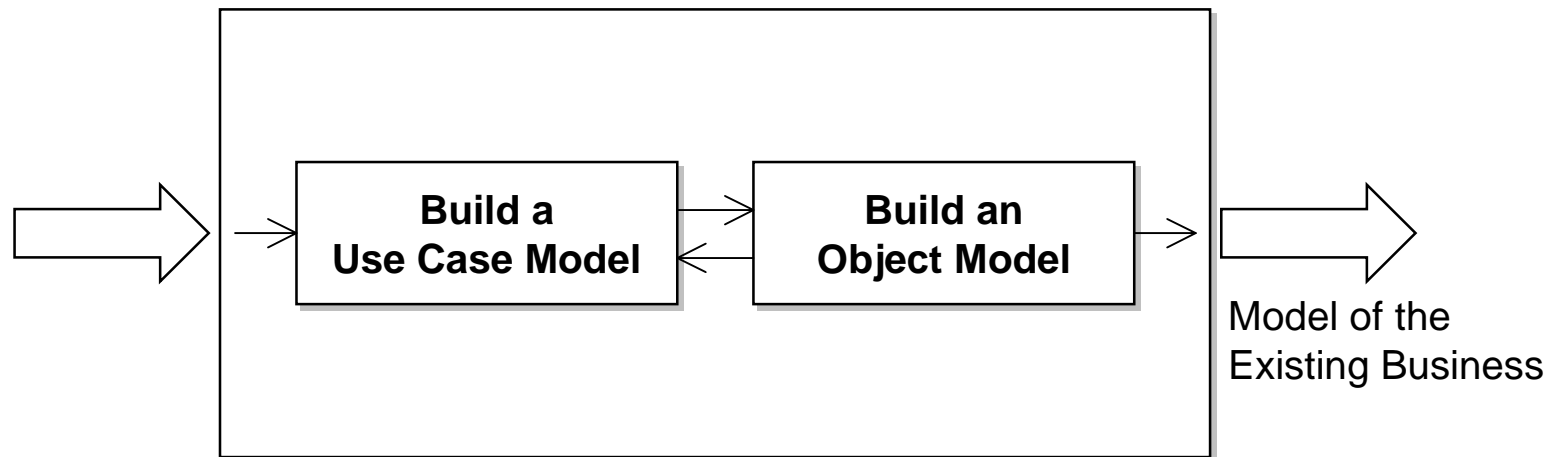
Forward Business Engineering

```
Objective          →    ┌─────────────────────────────────────────────────┐
Specification  ═══►      │                                                 │
                         │      ┌──────────┐      ┌──────────┐             │
                         │   ┌─►│ Build an │◄───► │ Build a  │──┐          │
                         │   │  │  Ideal   │      │  Real    │  │          │
                         │   │  │  Model   │      │  Model   │  │          │
                         │   │  └────┬─────┘      └────┬─────┘  ▼          │
                         │   │  ┌──────────┐           │    ┌──────────┐   │
                         │   │  │ Build a  │           │    │ Verify   │   │
                    ──►  │   └──│ Use Case │           │    │   the    │─► │  ═══►  The Reengineered
                         │      │  Model   │           │    │   New    │   │        Business
                         │      └────┬─────┘           │    │ Business │   │
                         │           │   ┌─────────────┴──┐ └────┬─────┘   │
                         │           └──►│   Develop IS   │──────┘         │
                         │           ◄───└────────────────┘               │
                         └─────────────────────────────────────────────────┘
```

Build an Ideal Model ◄───► **Build a Real Model**

Build a Use Case Model

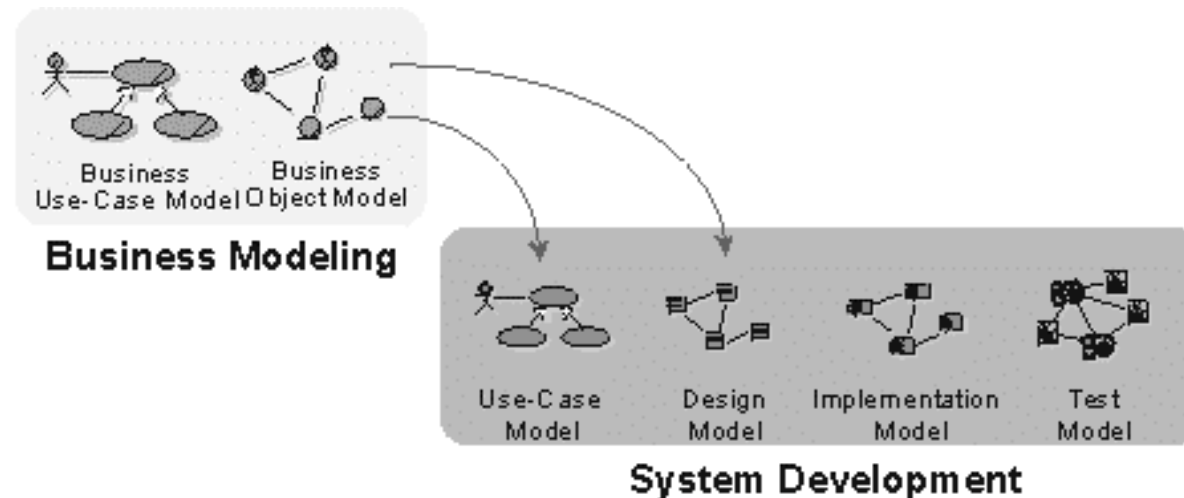**Verify the New Business**
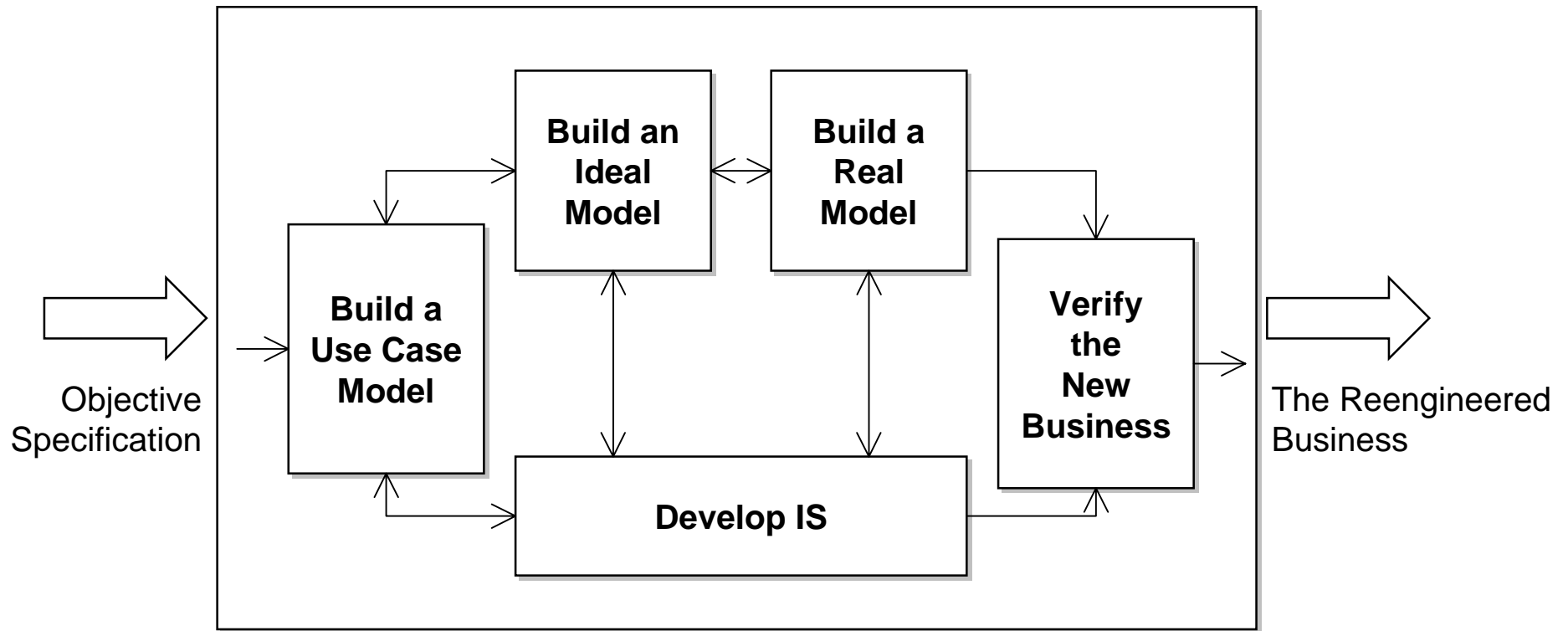
Develop IS

RUP: Business Modeling

Goals:

❑ Understand the structure and dynamics of the organization

❑ Ensure that customers, end users, and developers have a common understanding of the organization

❑ Derive requirements on systems to support the organization

Business Use-Case Model   Business Object Model

Business Modeling

Use-Case Model   Design Model   Implementation Model   Test Model

System Development

Business Use Case Model

→ a model that describes the processes of a business and their interactions (i.e. within business services) with external parties like customers and partner
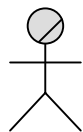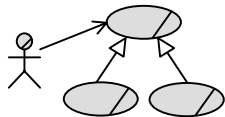
❑ Business Actor

→ a role played in relation to the business by someone or something in the business environment
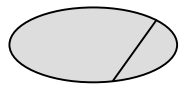
❑ Business Use Case

→ a sequence of actions performed in a business that produces a result of observable value to an individual actor of the business

❑ Use Case Relationships

• Actor generalization, include, extend and use case generalization
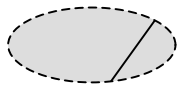
∗ as in "normal" use case model

❑ Business Use Case Package

∗ as in "normal" use case model

Business Object Model

→ an object model describing the realization of business use cases. It serves as an abstraction of how business workers and business entities need to be related and how they need to collaborate in order to perform the business

❑ **Business Use Case Realization**

→ describes how a particular business use case is realized within the business object model, in terms of collaborating objects
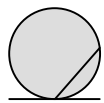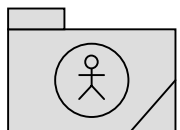
❑ **Business Entity**

→ a "thing" handled or used by business workers

❑ **Business Worker**

→ a role or set of roles in the business, interacting with other workers and manipulates business entities

❑ **Organization Unit**

→ encloses business workers, business entities, and other organization units that, according to some criterion, belong together

❑ **Relations**

• Association, aggregation, generalization, ...
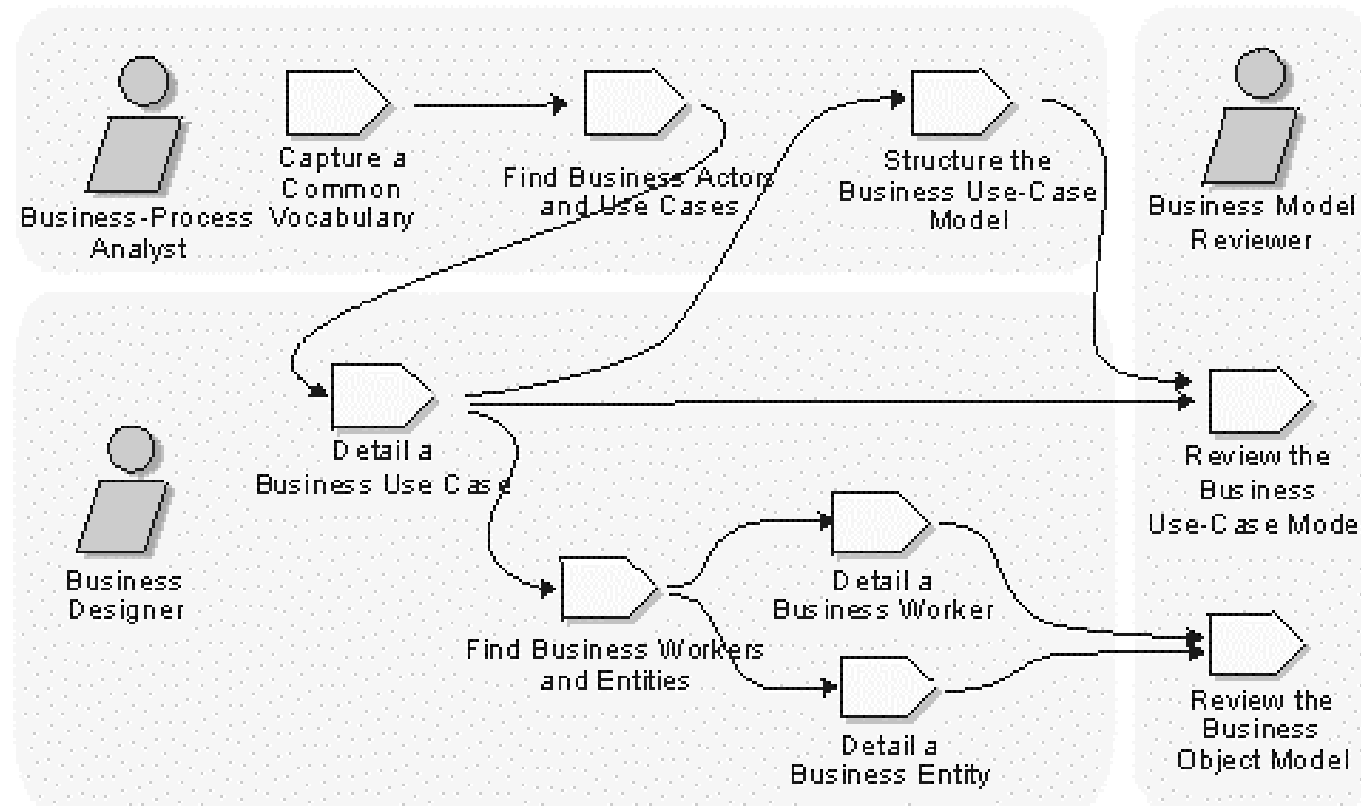
Business Object Model (cont.)

❑ **Activity Diagram**
  - illustrates the workflow of a business use case

❑ **Sequence diagram**
  - depicts the details of the interaction among business workers, business actors, and how business entities are accessed, during the performance of a business use case

❑ **Collaboration Diagram**
  - Team-Collaboration Diagram
    – shows which business workers must interact, and which business entities must be accessed to perform the workflow of a business use case; messages, and message sequence numbers are excluded
  - Work-Collaboration Diagram
    – semantically identical to a sequence diagram but focuses on the objects, while the latter focuses on the interactions

❑ **State Diagram**
  - illustrates which states a business worker or a business entity can have

Business Model → System Model

Business Model	System Model
Business use case	Subsystem (package)
"Cluster" of business entities	Subsystem
Business worker's responsibility (operation) supported by system	Use case(s)
Business worker supported by system	Actor
Business actor supported by system	Actor
Business entity	Entity class
Business entity attributes	Entity class
Relationships between business entities	Relationships between entity classes

Business Modeling Workflow

Business Modeling Artifacts