Chapter 2
Requirements Determination
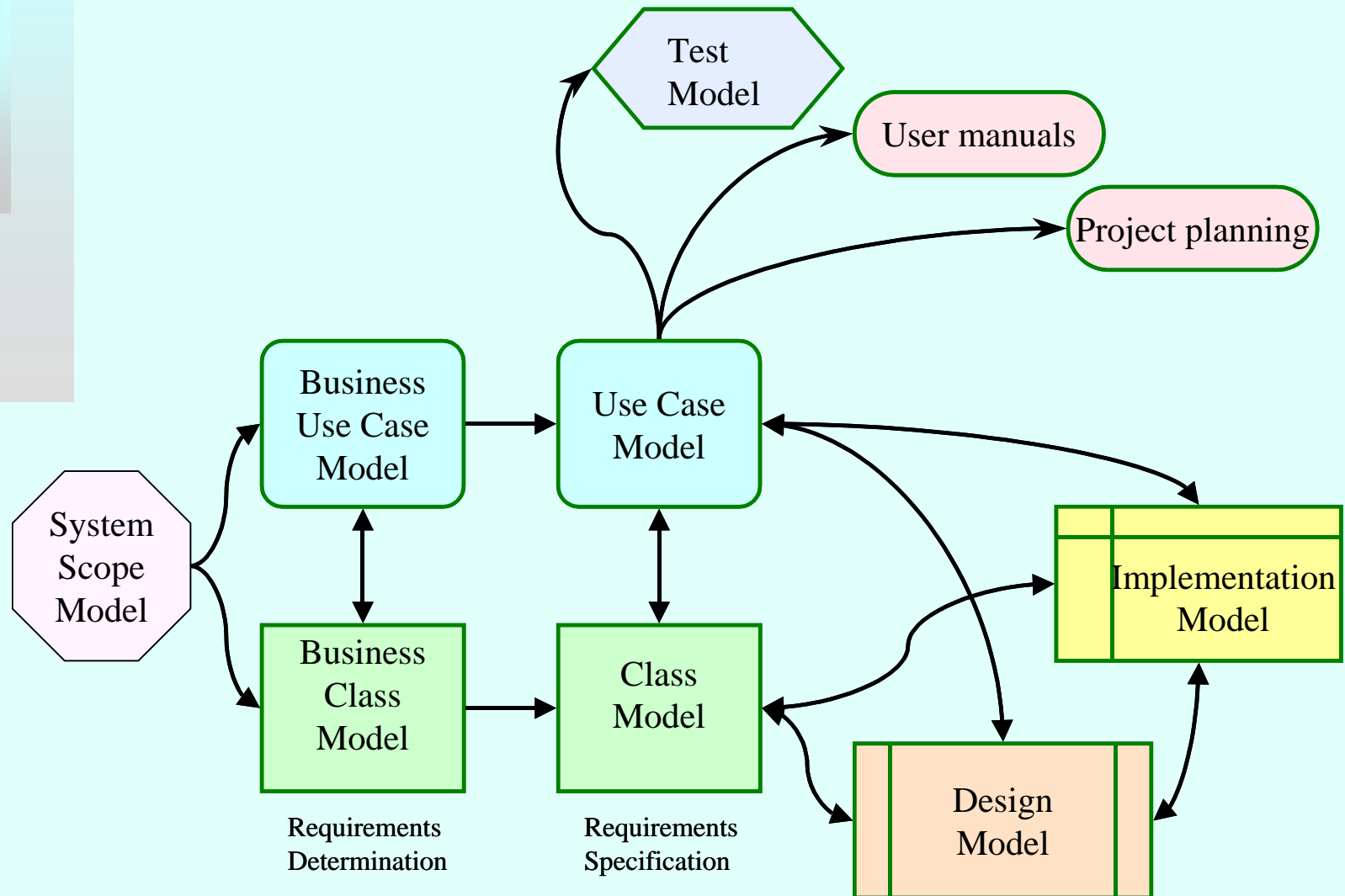
Topics

- From business processes to solution envisioning

- Functional and nonfunctional requirements

- Requirements elicitation

  - traditional methods and modern methods

- Requirements negotiation and validation

- Requirements management

- Requirements business model

  - system scope, business use case model, business glossary, business class model

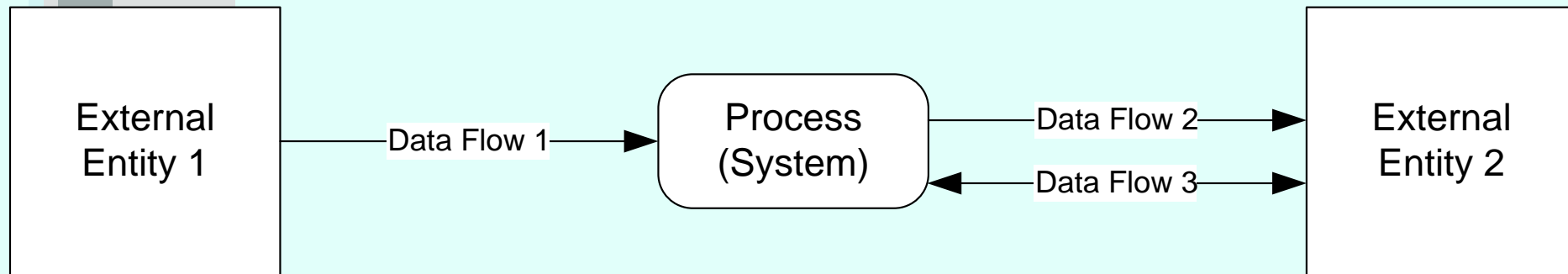- Requirements document

5. Requirements business model

- a high-level visual representation of elicited, negotiated and validated requirements

Requirements business model

Test Model

User manuals

Project planning

Business Use Case Model

Use Case Model

System Scope Model

Business Class Model

Class Model

Implementation Model

Design Model

Requirements Determination

Requirements Specification

4

Context diagram - notation

External
Entity 1 —————Data Flow 1—————▶ Process
(System) —————Data Flow 2—————▶ External
Entity 2

◀—————Data Flow 3—————▶

Telemarketing – problem statement

A charitable society sells lottery tickets to raise funds. The fundraising is done in **campaigns** to support currently important charitable causes. The society keeps a list of past contributors (**supporters**). For each new campaign, a subset of these supporters is pre-selected for telemarketing and/or direct mail contact.

The society uses some innovative schemes to gain new supporters. The schemes include special **bonus campaigns** to reward supporters for bulk buying, for attracting new contributors, etc. The society does not randomly target potential supporters by using telephone directories or similar means. To support its work, the society decided to contract out the development of a new telemarketing application. The new system is required to support up to fifty telemarketers working simultaneously. The system must be able to **schedule the phone calls** according to pre-specified priorities and other known constraints.
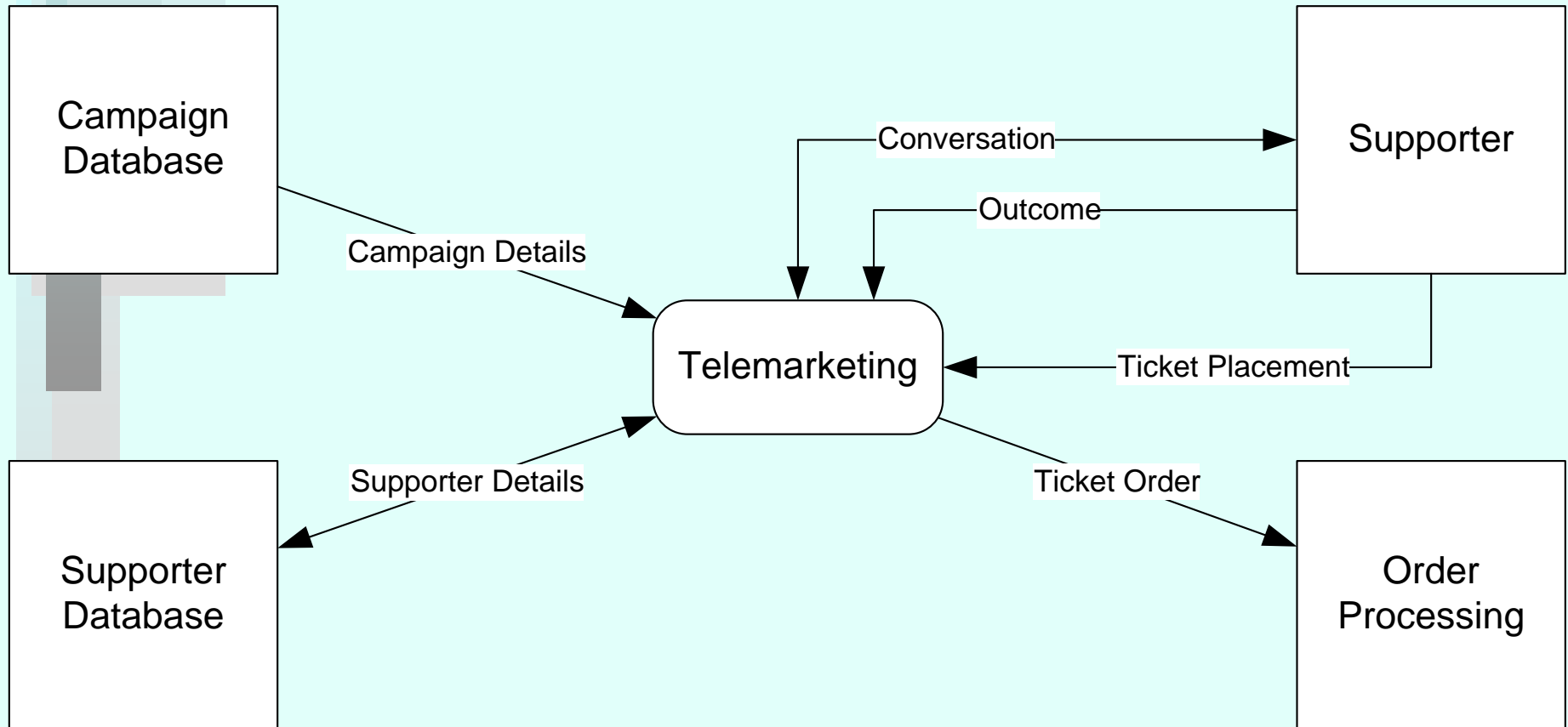
The system is required to **dial up** the scheduled phone calls. Unsuccessful connections must be **re-scheduled** and tried again later. Telephone **callbacks** to supporters must also be arranged. The **conversation outcomes**, including ticket orders and any changes to supporter records, ought to be maintained.

Telemarketing example
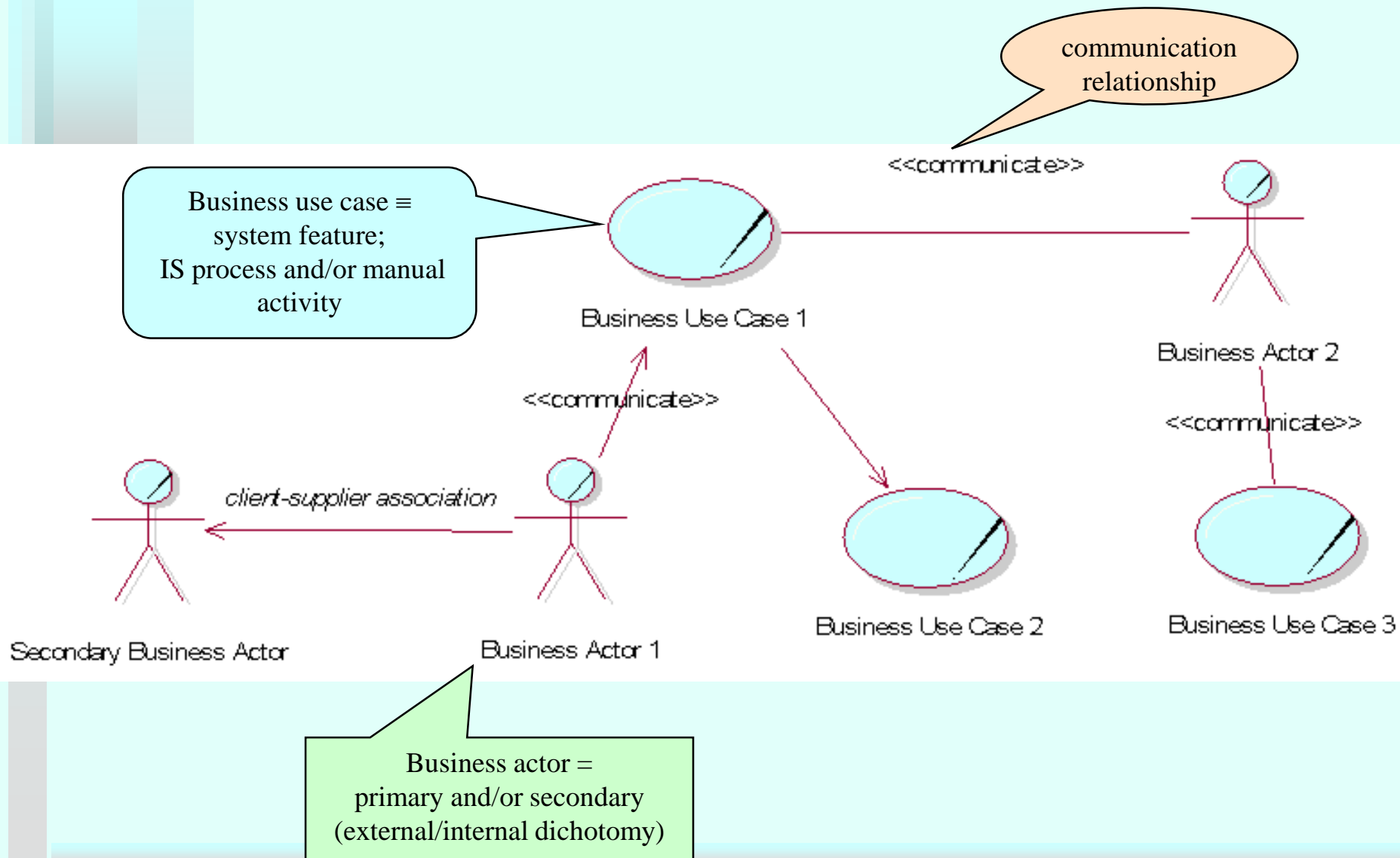
- **Telemarketing**
  - *The campaigns are planned on recommendation from the society trustees*
  - *The campaigns have to be approved by the local government*
  - *The design and planning of campaigns is supported by a separate Campaign Database application system*
  - *There is also a separate Supporter Database that stores and maintains information about all past and present supporters – used to select supporters to be contacted in a particular campaign*
  - *Orders from supporters for lottery tickets are recorded during telemarketing for perusal by the Order Processing system*
  - *Order Processing System maintains status of orders in the Supporter Database*

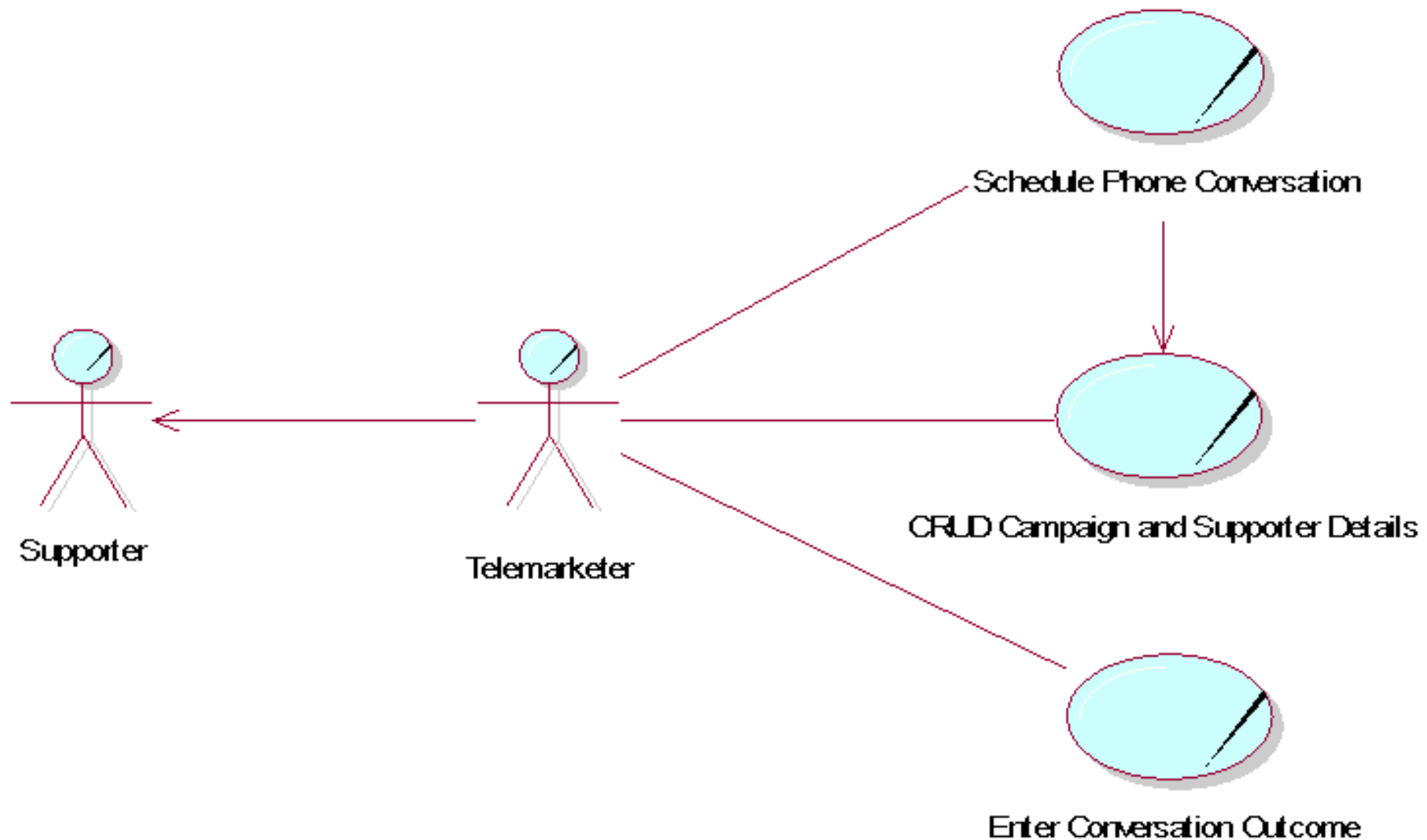# *System scope model – context diagram*

Business use case diagram - notation

communication relationship

Business use case ≡ system feature; IS process and/or manual activity

<<communicate>>

Business Use Case 1

Business Actor 2

<<communicate>>

<<communicate>>

client-supplier association

Secondary Business Actor

Business Actor 1

Business Use Case 2

Business Use Case 3

Business actor = primary and/or secondary (external/internal dichotomy)

Business use case diagram - telemarketing

Supporter

Telemarketer

Schedule Phone Conversation

CRUD Campaign and Supporter Details

Enter Conversation Outcome

Business glossary

Term	definition
bonus campaign	*A special serious of activities, conducted within a* campaign, *to additionally entice* supporters *to buy the campaign* tickets. *Typical examples are giving free tickets for bulk or early buying or for attracting new supporters. A particular kind of bonus campaign can be used in many campaigns.*
campaign	*A government approved and carefully planned series of activities which are intended to achieve a* lottery *objective.*
draw	*An act of randomly choosing a particular* lottery ticket *as a winning ticket.*
lottery	*A funds raising game of chance, organized by the charity in order to make money, in which people (*supporters*) buy numbered* tickets *to have a chance of winning a* prize *if their number is chosen in a* draw.
placement	*Acquisition of one or more* lottery tickets *by a* supporter *during* telemarketing. *The placement is paid by a supporter with a credit card.*

Business class diagram - notation

Business Class 1
1

0..1

Business Actor 1

(from Use Case View)

generalization

n

aggregation

0..n

0..1

Business Class 2
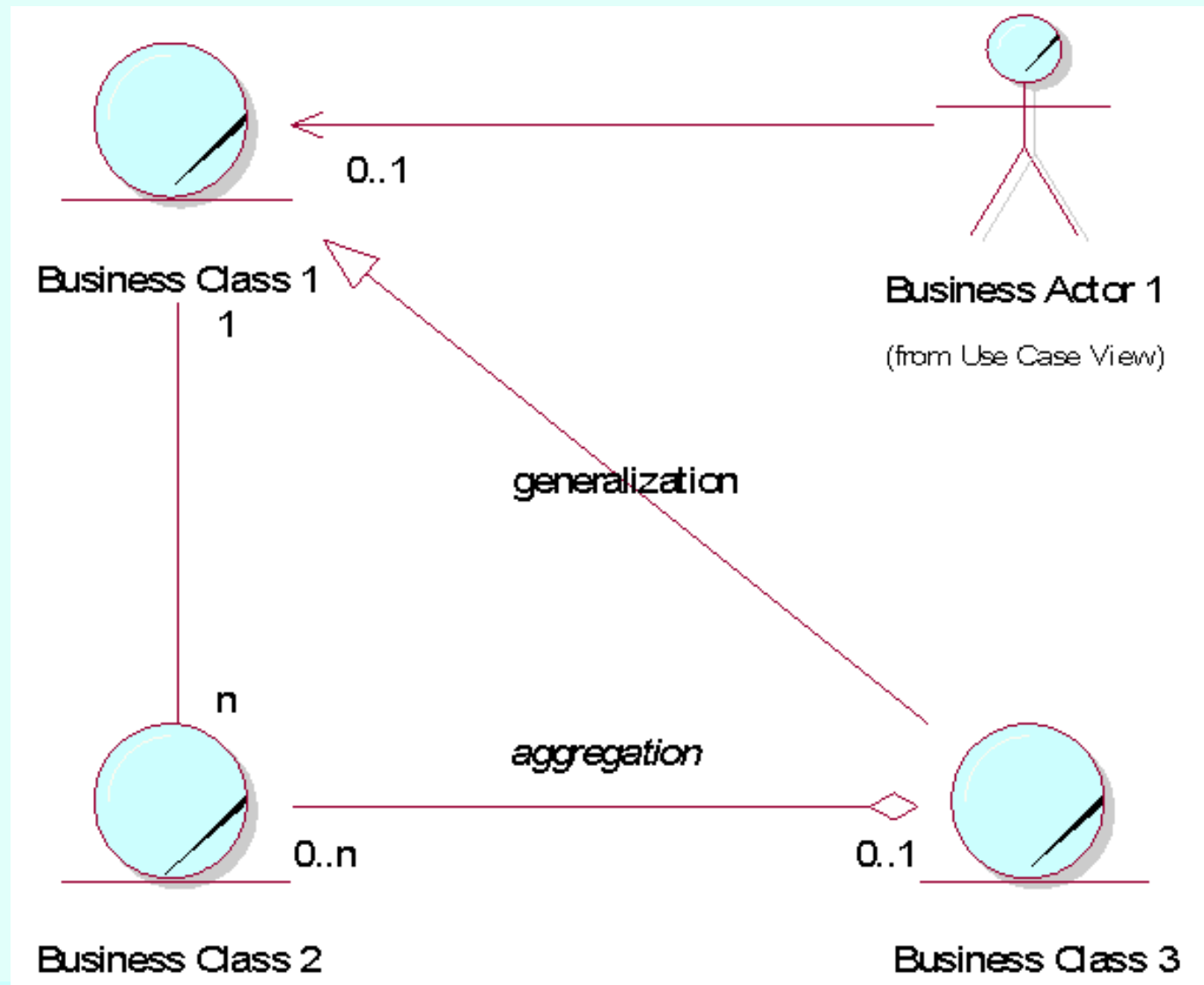
Business Class 3

Business class diagram - telemarketing
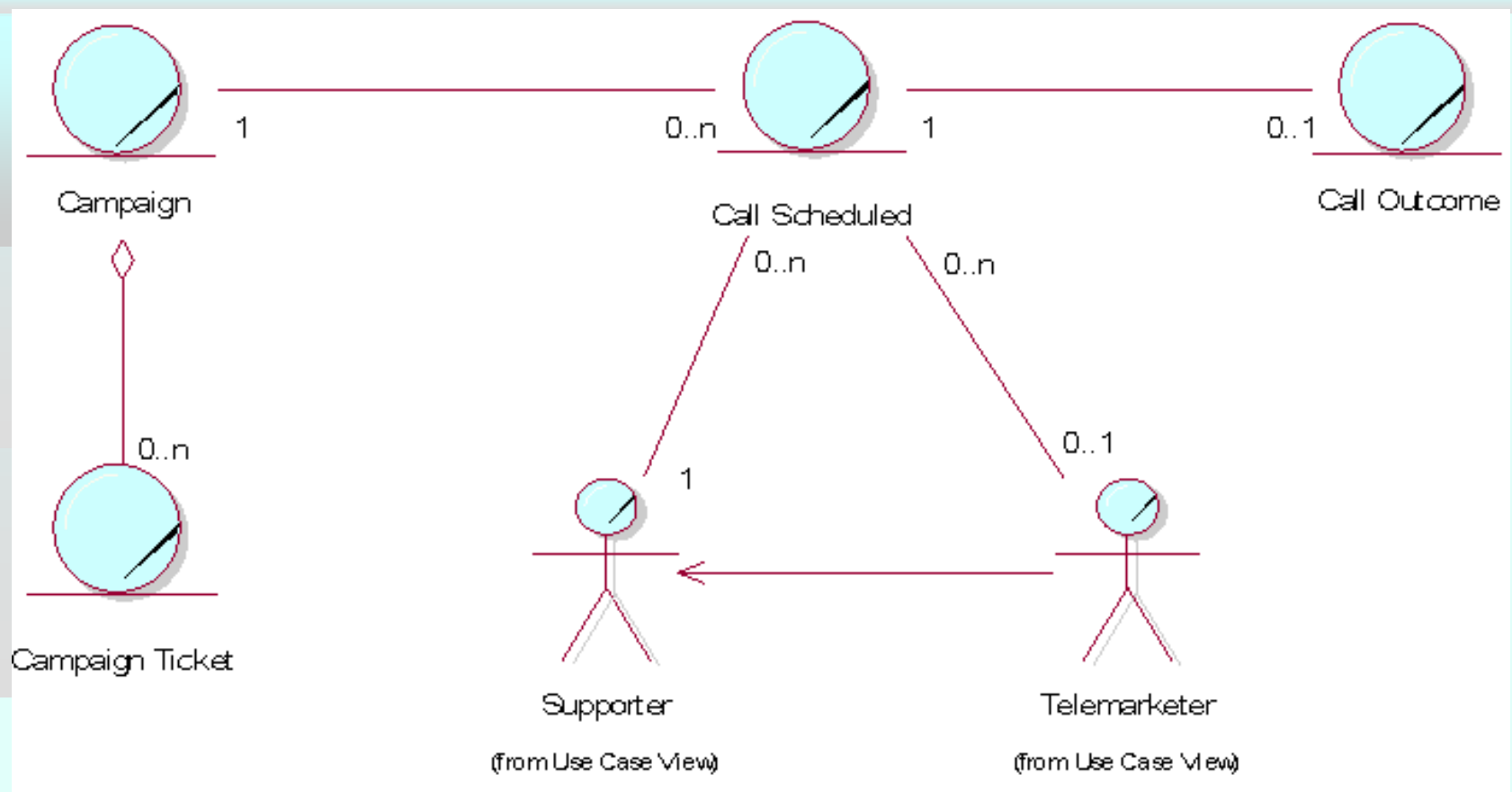
1. The emphasis in the system is on call scheduling. The call scheduling itself is a procedural computation, i.e. the solution to it is algorithmic and computational. Nevertheless, the scheduled call queues and the outcomes of calls must be stored in some data structure.
2. Information about actors is stored in classes.

Review Quiz 2.5

1. What is another name for a business use case?

2. What is the name of a relationship representing the flow of events between actors and use cases?

3. What are the three main categories of relationships between business classes?

4. How is the optional participation between business classes visualized in UML?