CO457 Business Modelling

Week Two

A Business Is a Multidimensional System

- Because a business is a complex system we have to **break it down into its constituent parts**
- Many models are required to completely describe a business
  - Each model captures:
  - **One or more primary dimensions**
  - One or more types of **relationships between the primary dimensions**

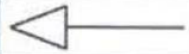
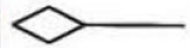
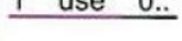
A Business Is a Multidimensional System

- Business Modelling Dimensions include:

Dimension	5 Ws & H	Includes
Functions	How (What is done)	Processes, activities, actions, tasks, jobs, behaviors, steps, work, methods, operations, interactions, procedures
Things	What	Objects, documents, tools, data, software, computers, products, supplies, materials, files, reports, forms
People	Who	Titles, roles, partners, contractors, suppliers, customers, users, employees, positions, ranks, departments, organization units
Time	When	Time of day, week, month, year, events, frequency, duration, schedules, cycles, availability, sequence
Locations	Where	Buildings, floor plans, geographical aspects, maps
Motivation	Why	Goals, strategies, risks, problems, objectives, constraints (legal & financial), limitations, standards

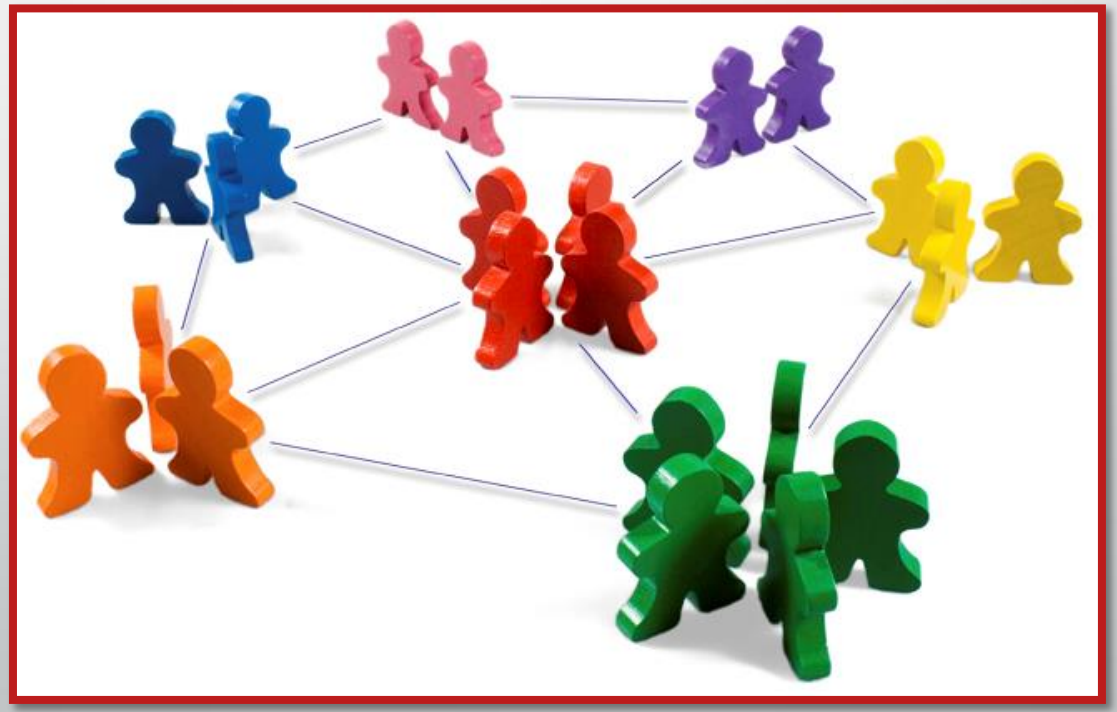
Business Modelling Relationships

- Frequently occurring relationships:

Relationship	Between	Example	UML - BPMN
Generalization	Things and their types	A sous chef *is a kind of* chef.	
Aggregation/ Composition	Things and their parts	A meal *is made up of* several dishes. A dish *is part of* a meal.	
Sequence	Order of functions or events	The chef prepares the dishes *after* the meal order is printed.	
Reports to	People to people	Line chefs *report to* the executive chef.	
Does/uses/ makes/etc.	People and things	The cleaning staff *use* the dishwashing machine. The chef *prepares* the dishes.	

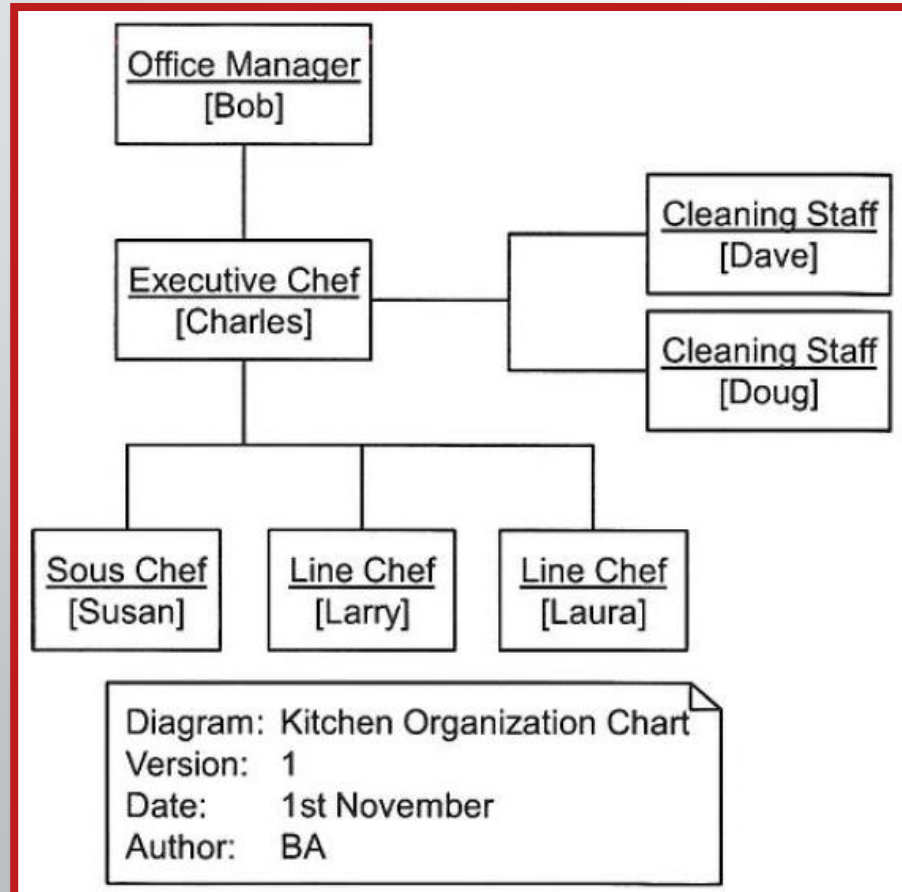
Business Modelling Relationships

- **Relationships** usually appear as:
  - **Verbs** in a sentence
  - **Lines on a diagram**
  - Entries in a **matrix or table**



What Primary Dimension Is Involved?

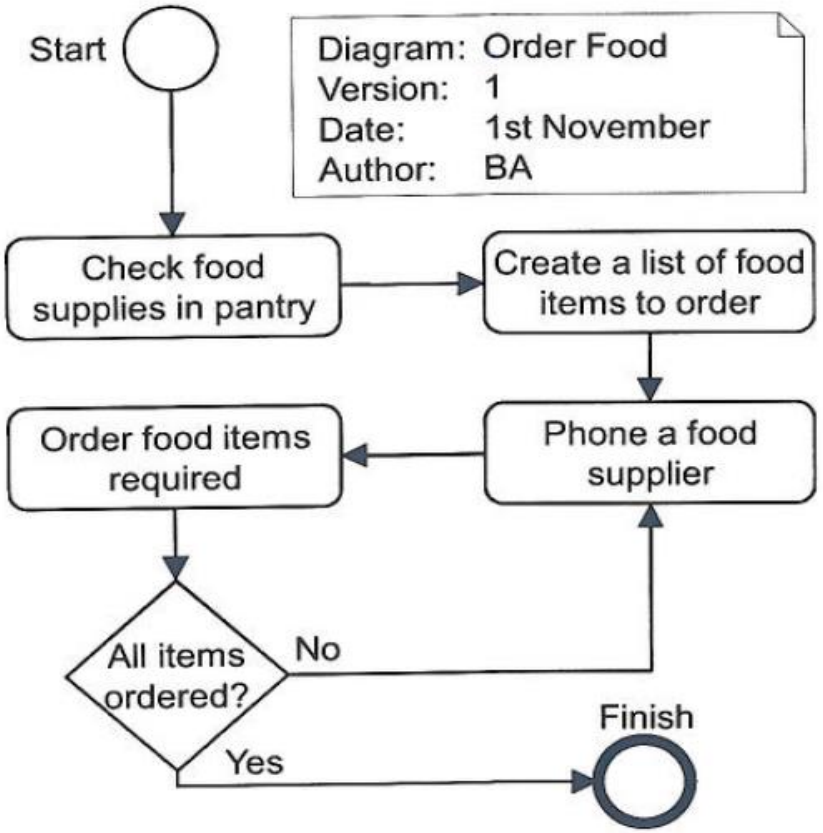
- What kind of relationship is shown?



Primary dimension	Yes	No
Functions		
Things		
People		
Time		
Locations		
Motivation		

What Primary Dimension Is Involved?

- What kind of relationship is shown?



Primary dimension	Yes	No
Functions		
Things		
People		
Time		
Locations		
Motivation		

What Primary Dimensions Are Involved?

- What kind of relationship is shown?

Matrix: Kitchen Work
Version: 1
Date: 1st November
Author: BA

Tasks	Exec. Chef	Sous Chef	Line Chef	Exped-iter	Dish-washer
Order Food	X				
Receive Food	X	X			
Prepare Dish	X	X	X		
Bake Rolls		X			
Coordinate Meals			X	X	
Food Preparation	X	X	X	X	X
Modify Menu	X				
Wash Dishes					X

Primary dimensions	Yes	No
Functions		
Things		
People		
Time		
Locations		
Motivation		

Business Scope and Level of Detail

Business Scope and Level of Detail

- Model the **scope of the business first**
  - The **highest-level** view
  - Get the breadth correct (**Provides the context**)

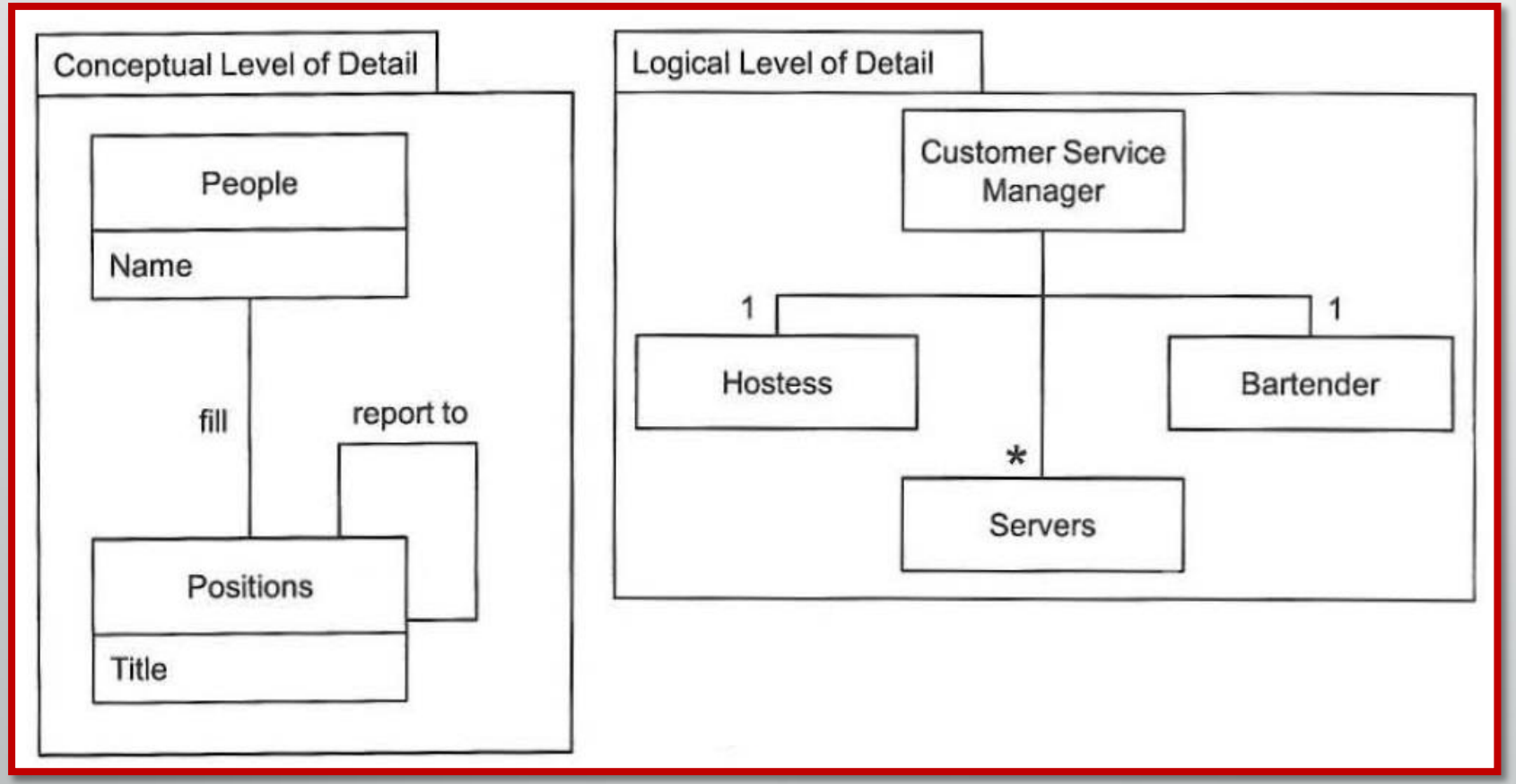
Levels of abstraction		
High	Conceptual	Analysis
Medium	Logical	Architecture
		Detailed design
Low	Physical	Implementation

Business Scope and Level of Detail

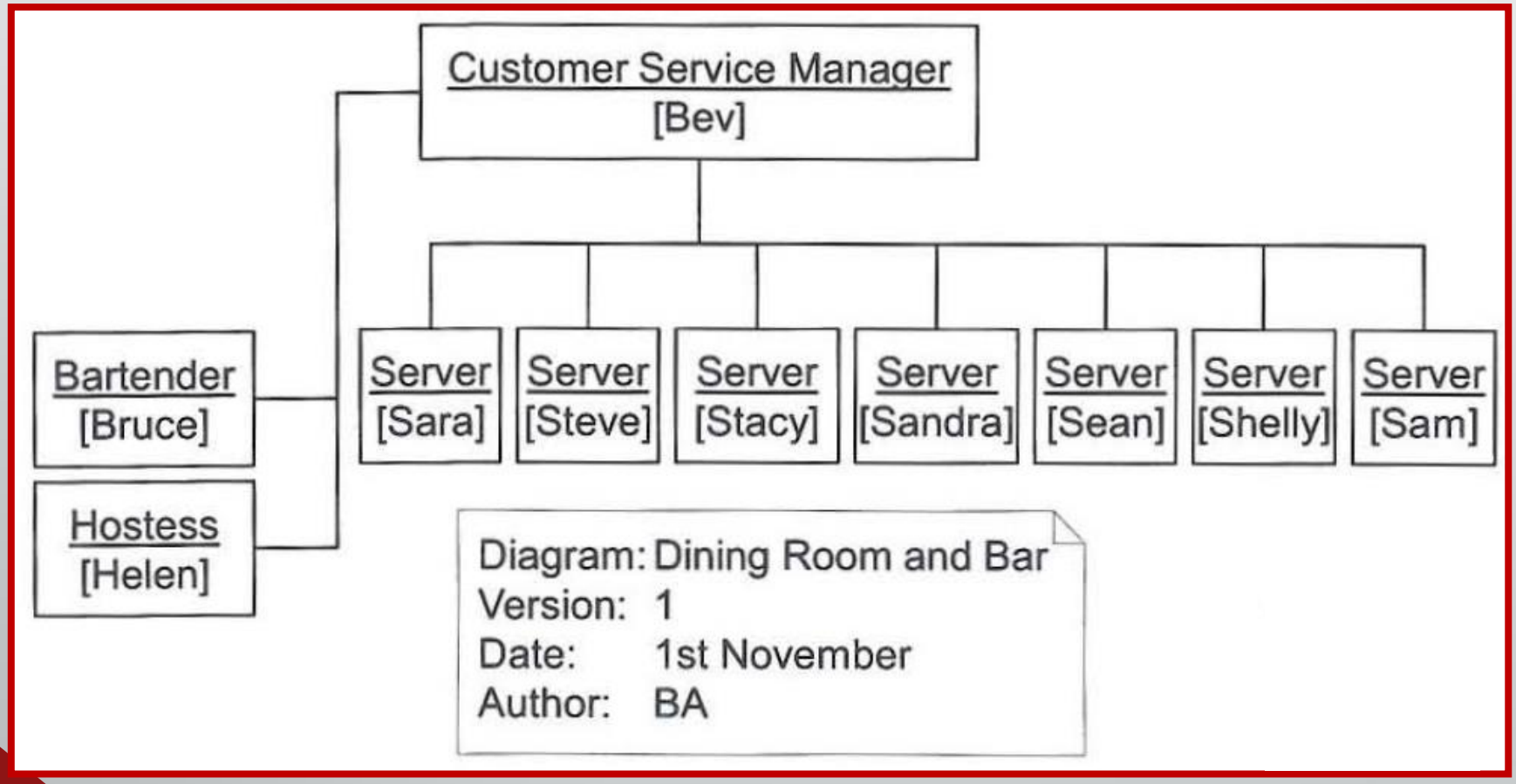
- Add levels of detail afterward:
  - **Takes longer to do**
  - Depending on the project and the models, the **levels may differ**
  - **Analyse** (What is needed)
  - Architecture and design (**How it will work, how it will be structured**)

Levels of abstraction		
High	Conceptual	Analysis
Medium	Logical	Architecture
		Detailed design
Low	Physical	Implementation

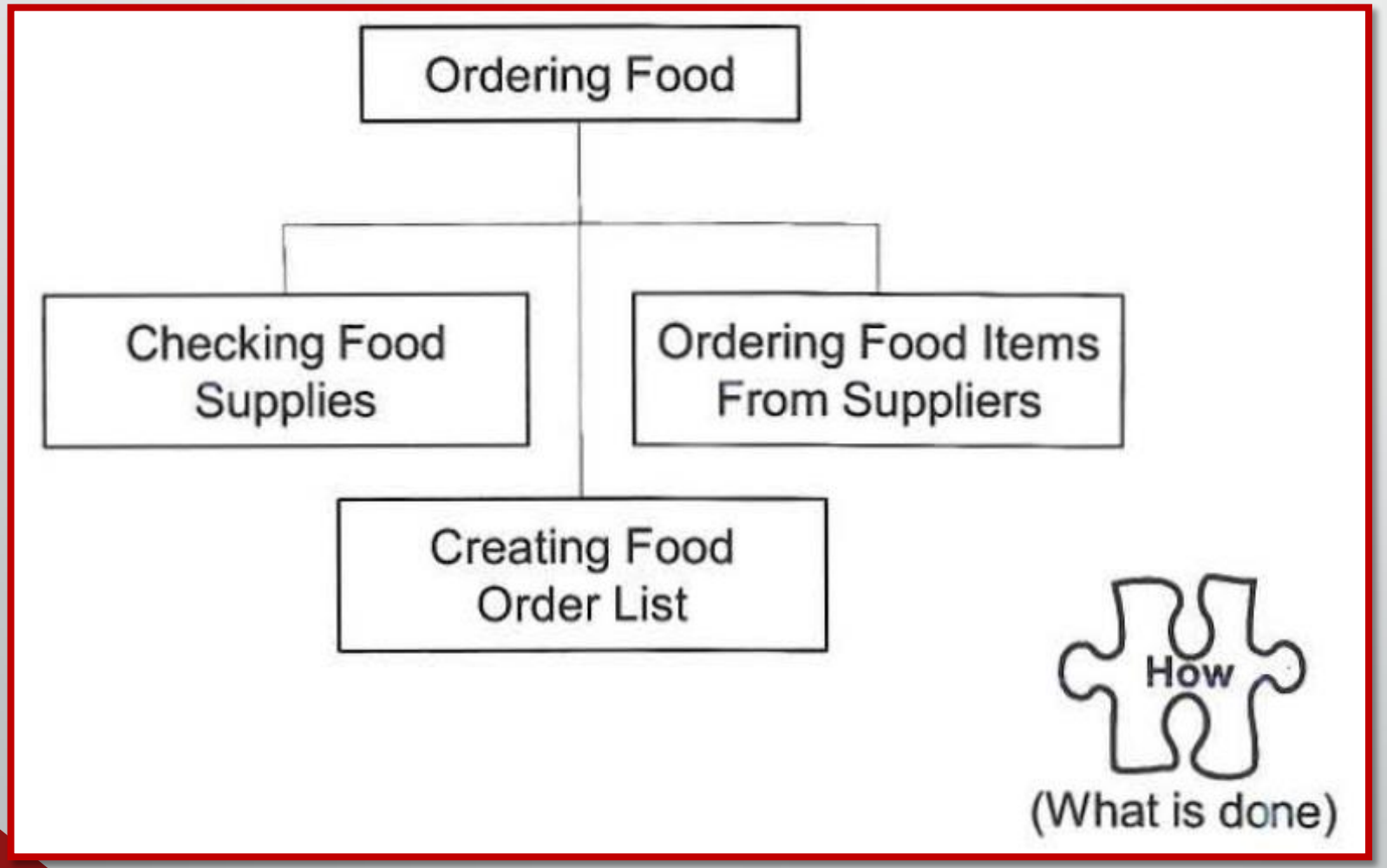
Conceptual and Logical Levels of Detail



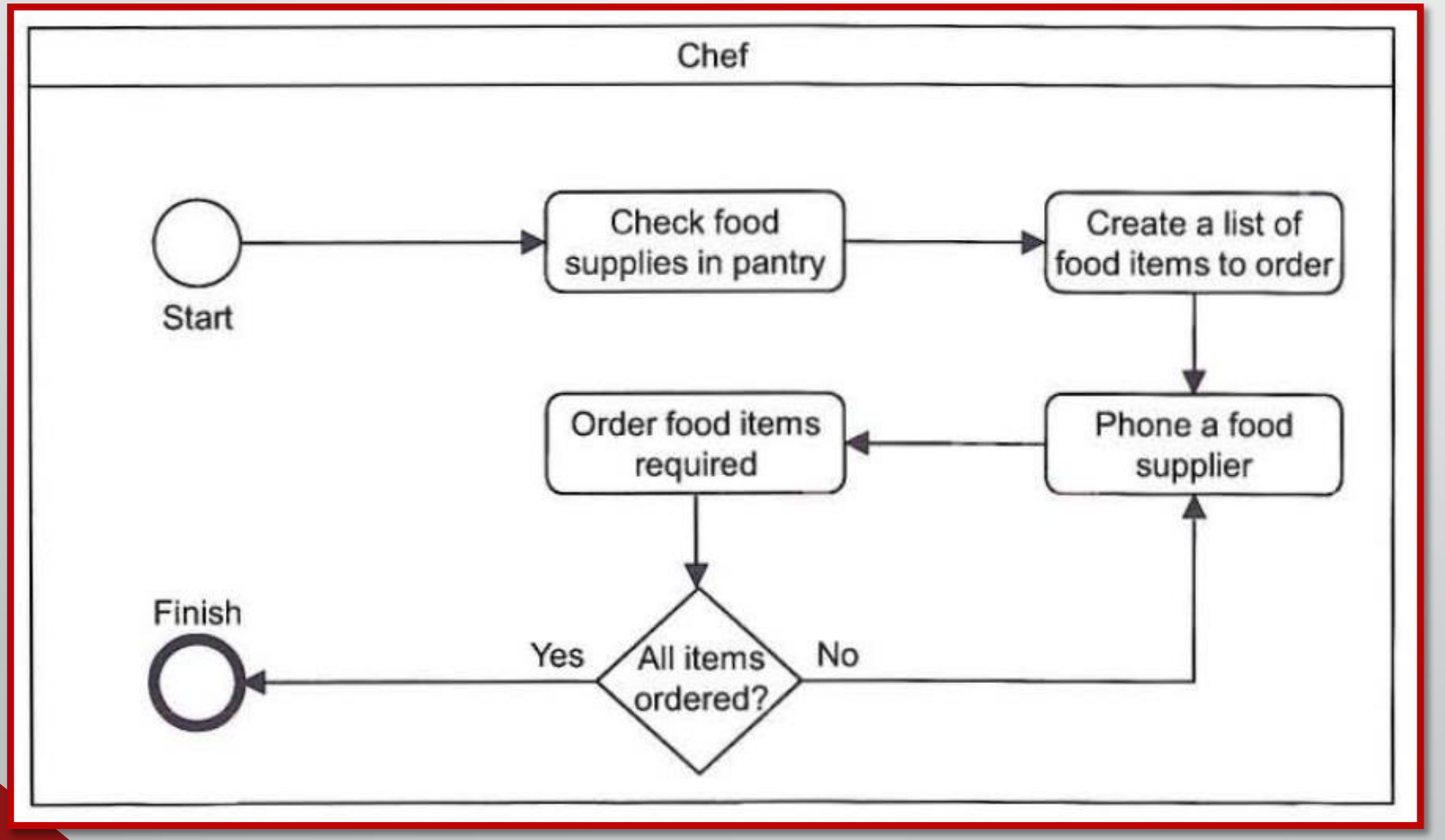
Physical Level of Detail



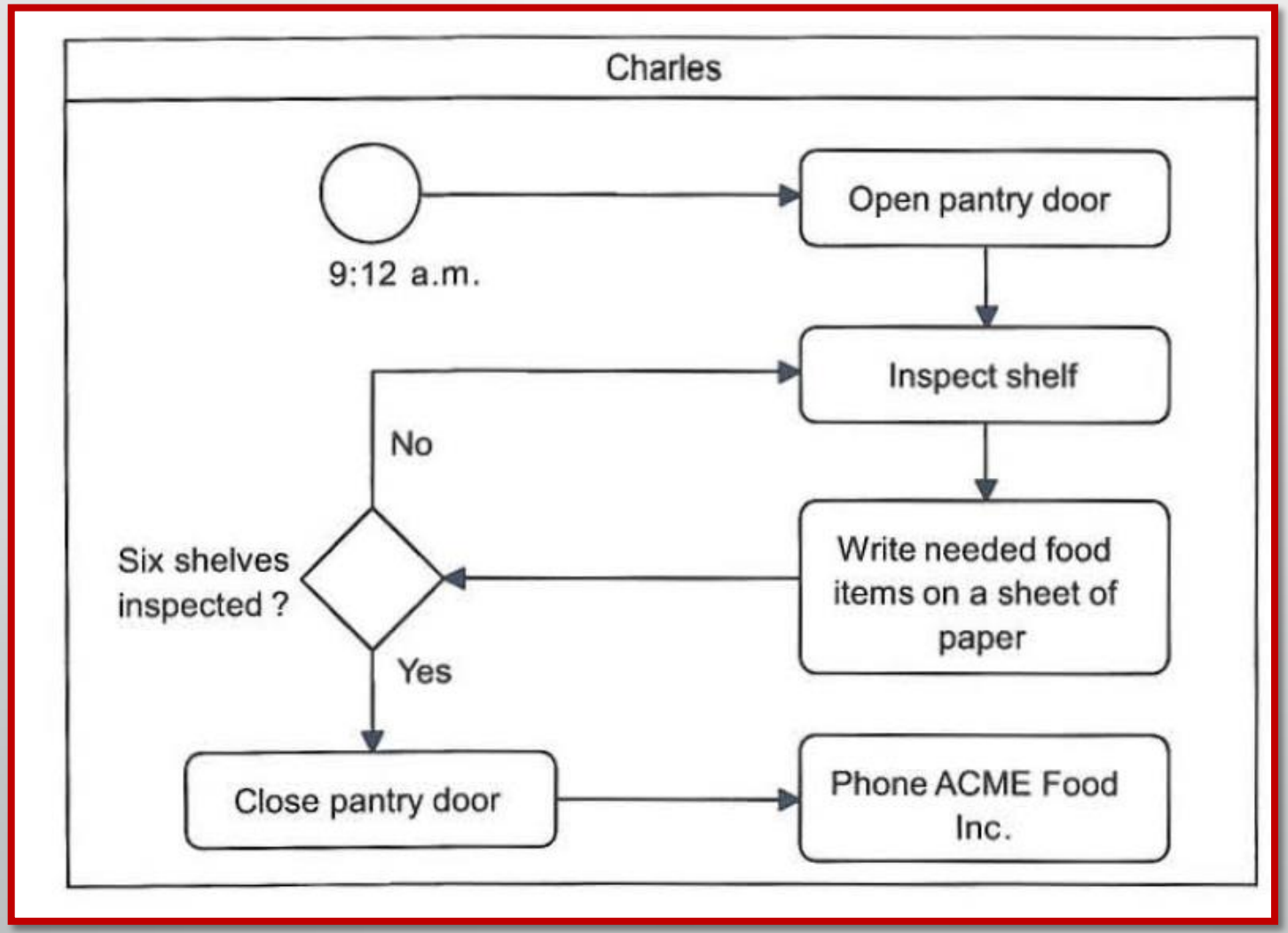
Conceptual Level of Detail



Logical Level of Detail

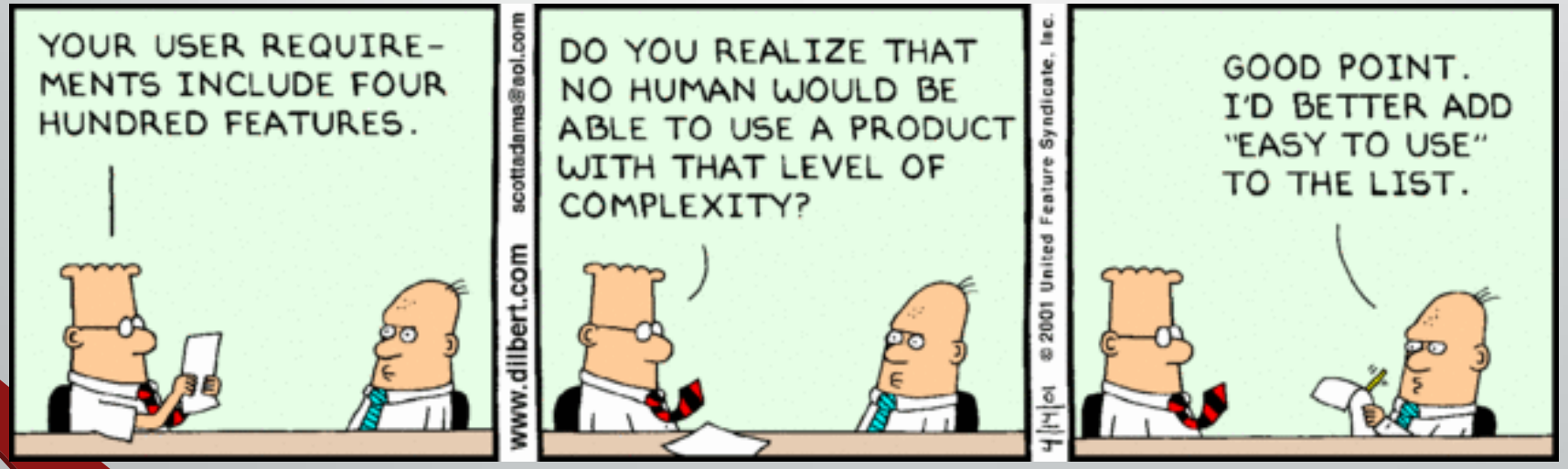


Physical Level of Detail



Requirements Are Captured at Different Levels of Detail

- Business models **capture requirements**
  - The level of detail depends on the project
- "A requirement is: **a condition or capability needed by a user to solve a problem or achieve an objective**"



Requirements Are Captured at Different Levels of Detail

- Requirements consist of:
  - **Goals**
  - **Interests**
  - **Capabilities**
  - **Constraints**
  - **Conditions**
  - **Rules**
  - **Features**

Business Requirements vs. Detailed Requirements

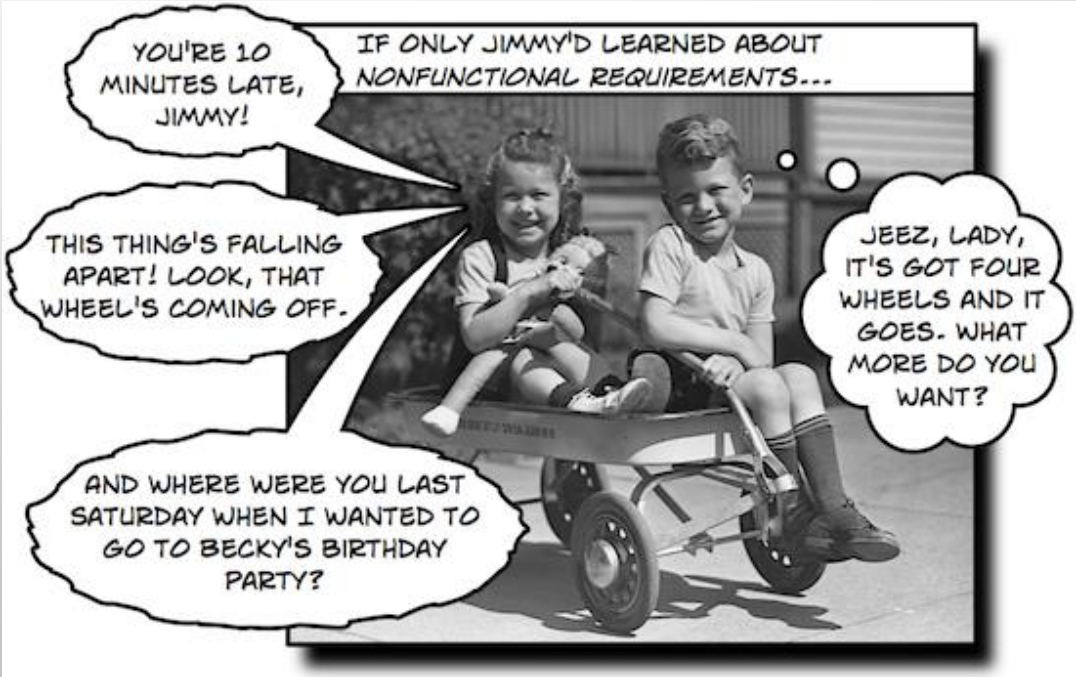
- **Types of requirements differ in level of detail:**
- Business Requirements are:
  - **Higher-level statements of the goals, objectives, or needs of the enterprise**
  - They describe the **reasons why a project has been initiated**, the **objectives** that the project will achieve, and the **metrics** that will be used to measure its success

Business Requirements vs. Detailed Requirements

- Types of requirements differ in level of detail:
- Stakeholder Requirements are:
  - Statements of **the needs of a particular stakeholder** or class of stakeholders
  - They describe the needs that a given stakeholder has and **how that stakeholder will interact with a solution**
  - Stakeholder requirements serve as a **bridge between business requirements and the various classes of solution requirements**

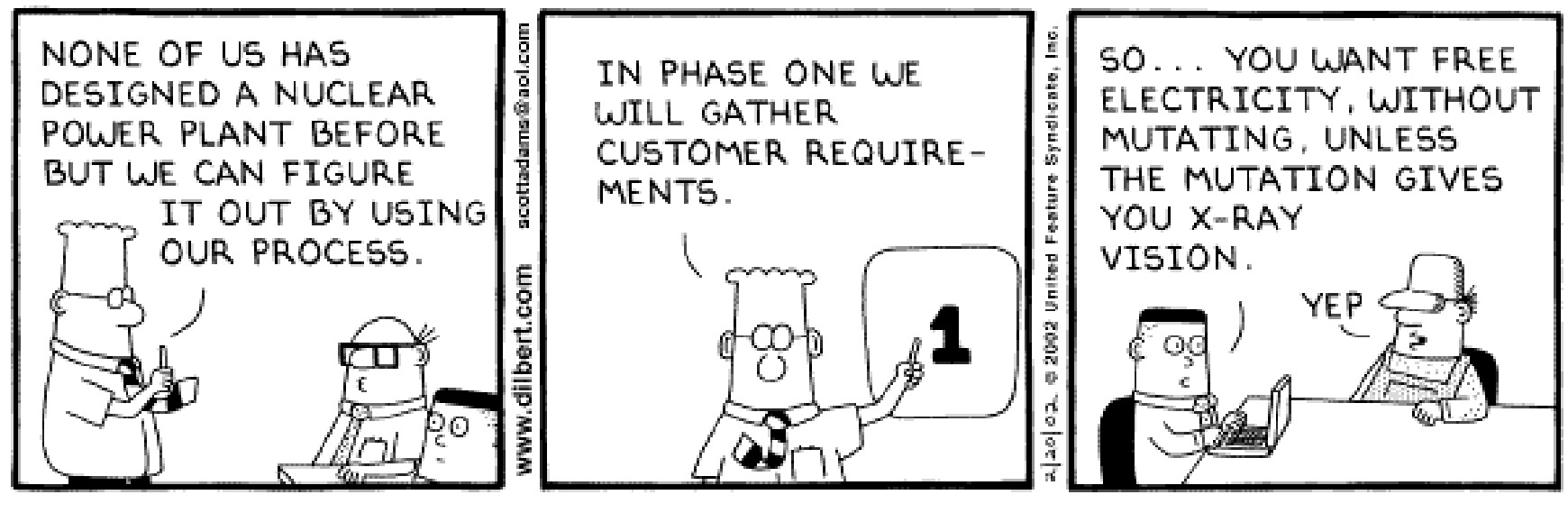
Business Requirements vs. Detailed Requirements

- Solution Requirements address Business and Stakeholder requirements
  - Divided into sub-categories:
  - **Functional Requirements**
  - **Non-Functional Requirements**



Business Requirements vs. Detailed Requirements

- **Functional Requirements** describe
  - **Behaviour and information** managed by the solution
  - **Capabilities and feature**s of the business
  - **Actions and responses** of an IT application



Business Requirements vs. Detailed Requirements

- **Non-Functional Requirements** describe
  - **Conditions under which the solution must operate**
  - **Qualities** that the business must have
  - Also known as **supplementary requirements**
  - For example: **capacity, speed, security, and availability**

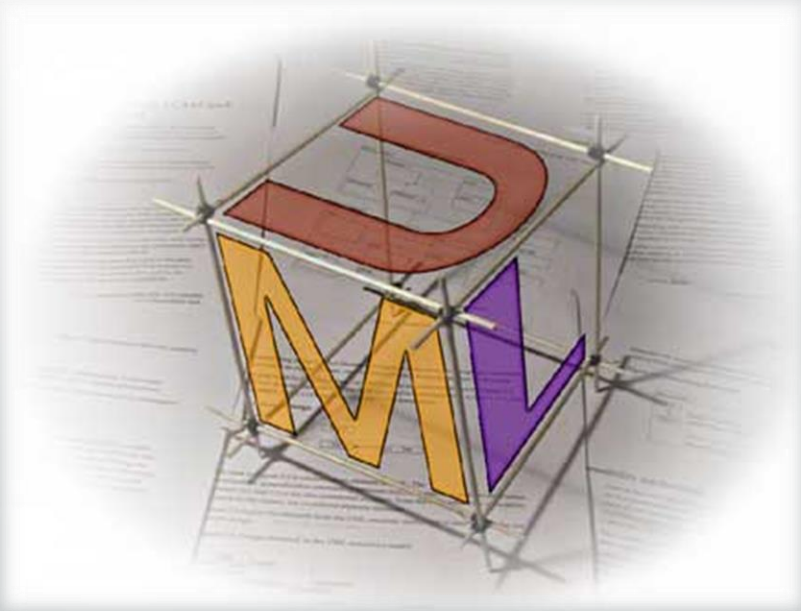
Modelling Resources

Business Modelling Standards

- Models from the **Object Management Group** (OMG)
  - An international standards consortium
  - **Develops enterprise integration standards**
  - http://www.omg.org

Business Modelling Standards

- OMG standards:
  - **Unified Modelling Language (UML)**
    - **Use Case Diagram** for modelling Business Use Cases
    - **Class Diagram** for modelling Business Objects
    - UML business modelling profile



Business Modelling Standards

- OMG standards:
  - **Business Process Modelling Notation (BPMN)**
    - For process/workflow modelling
  - **Semantics of Business Vocabulary and Business Rules (SBVR)**
    - For business glossaries and business rules
  - Business Motivation Model
  - **UML Profile for Modelling Quality of Service (QoS) and Fault Tolerant**
  - Characteristics and Mechanisms Specification

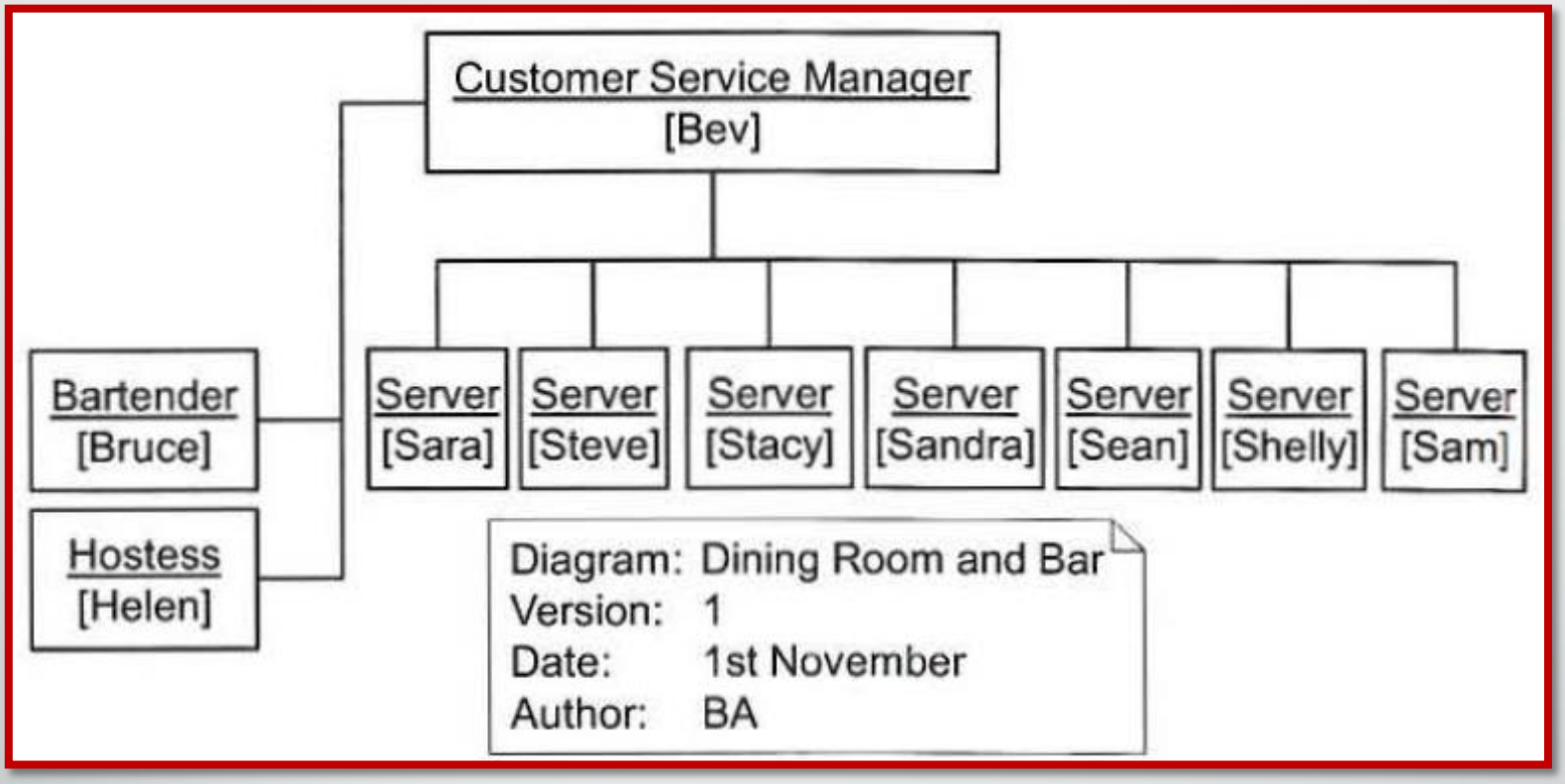
Additional Modelling Techniques

- Organisation chart
- Floor plan/blueprint
- Enterprise Architecture diagrams
- Decision tables
- Functional decomposition
- Matrices
- Prioritization
- Supplementary requirements
  - Also known as non-functional requirements
  - Include quality-of-service requirements

Internet References

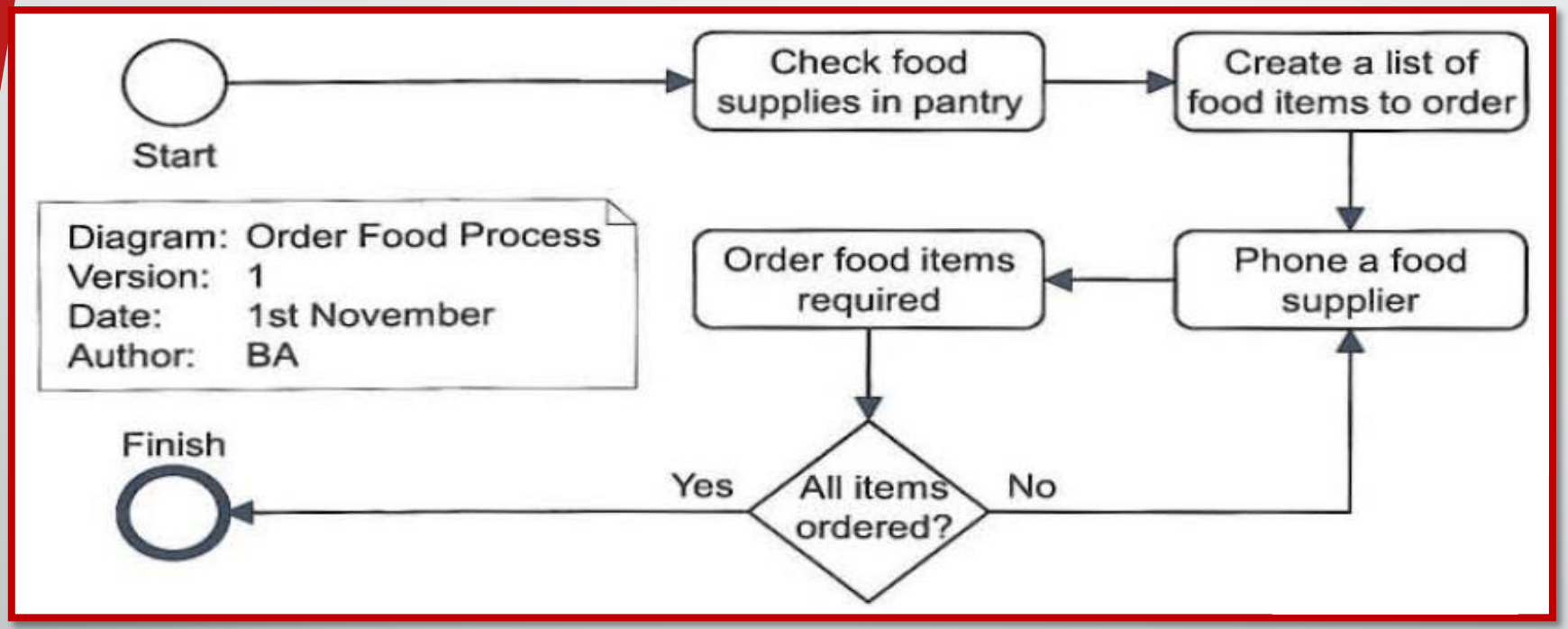
- Websites from which you can get more detailed modelling reference material:
  - International Institute of Business Analysis http://www.theiiba.org
  - The Object Management Group http://www.omg.org
  - Unified Modelling Language http://www.uml.org
  - Business Process Modelling and Notation http://www.bpmn.org
  - Business Process Trends http://www.bptrends.com
  - Business Rules Group http://www.businessrulesgroup.org

- What is the primary dimension modelled in this diagram?



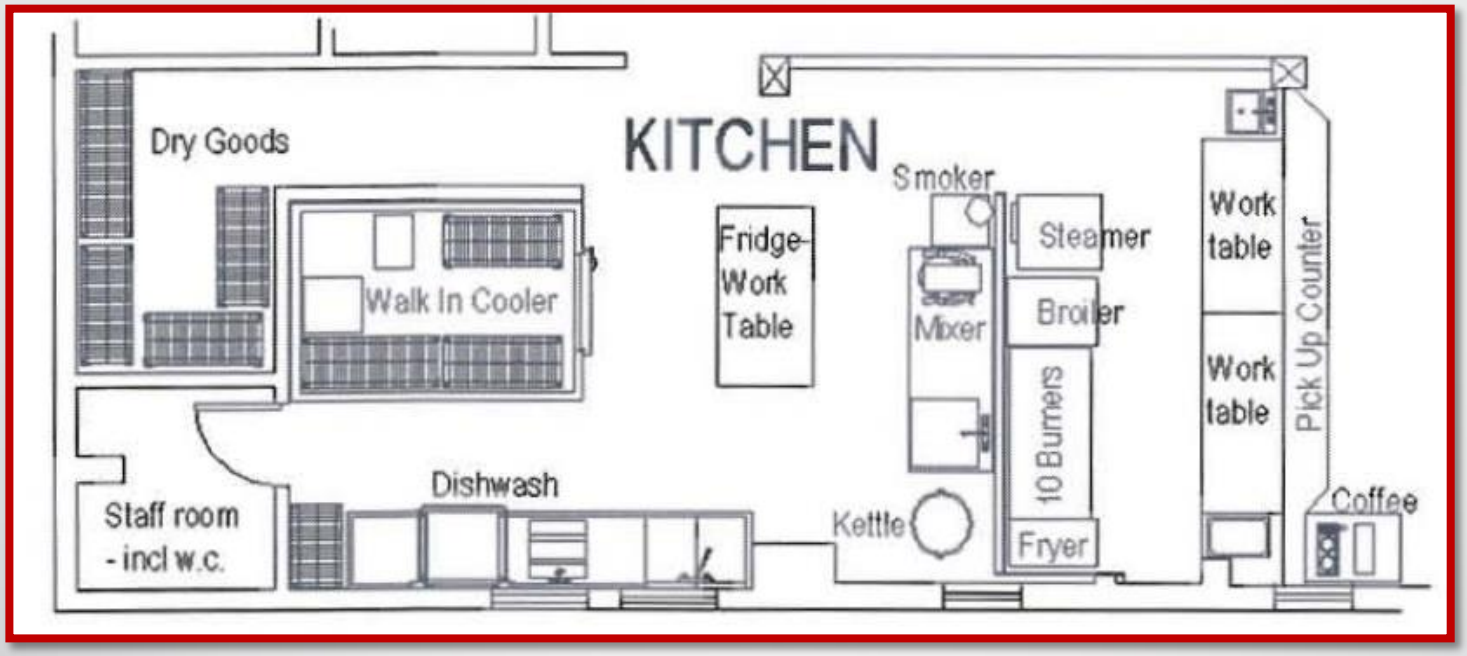
- Locations
- Motivation
- People
- Time

- What kind of relationship is shown in this diagram?



- Conceptual
- Sequence
- Reporting
- Aggregation

- What level of detail is shown in this diagram?



- Conceptual
- Logical
- Physical
- Aggregated