# The Analyst's Toolkit

## A Survey of Tools, Techniques and Strategies for Eliciting Requirements

# Welcome!

Meet your facilitator…

- Kris Ashton
- Systems Analyst, Consultant, Course Director/Developer, Technical Instructor, Author, Evangelist
- Senior Consulting Partner and Principal with **The Center for Requirements Excellence** in Denver, CO
- Over 25 years' experience

Kris chillin' on the island of Delos in Greece

Microsoft Certified Professional
Systems Engineer
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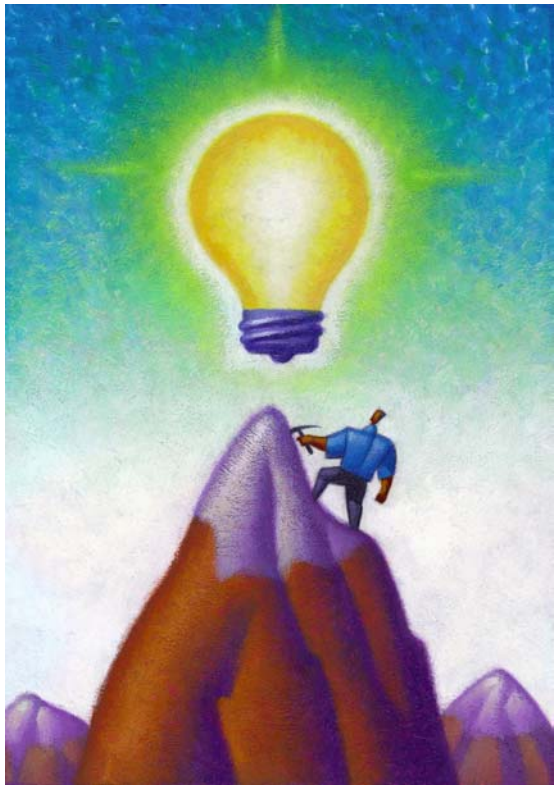
# Overall Strategies

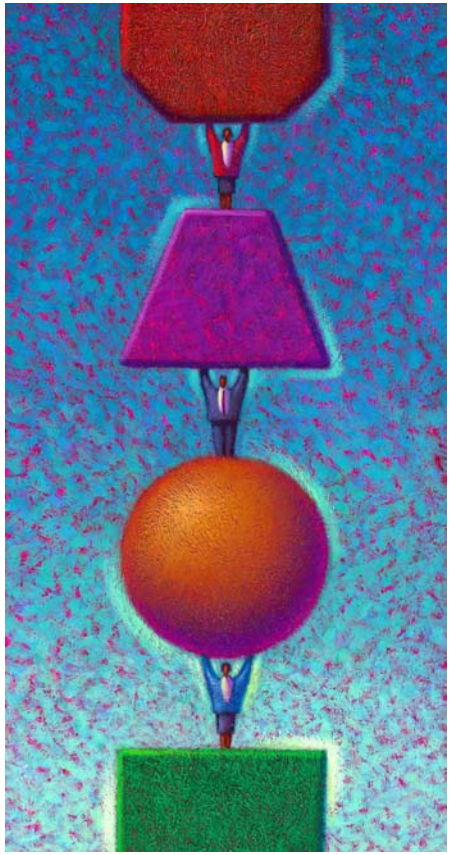


- Use a Methodology
- Use Organic Tools
- Have (or get) Some Domain Knowledge
- Have a Good Set of Tools and Techniques (and know how to use them!)

# Use a Methodology

# Methodology

- Provides a framework
- Identifies specific work to be done in each phase
- Identifies roles and responsibilities
- General types:
  - Systems Development Life Cycle (SDLC)
  - Product Development Life Cycle (PDLC)
  - Project Management (PM)
  - etc.



# Generic SDLC

| | |
|---|---|
| Initiation | Determine and agree scope of project; discover high-level requirements (business objectives) |
| Analysis | Discover detailed business functional requirements |
| Conceptual Design | Re-engineer business process(es) and specify high level technology components of solution |
| Technical Design | Convert business requirements to technical specifications |
| Coding | Develop and test code modules |
| Testing | Integration, system, regression, user acceptance testing |
| Implementation | Roll out to entire organization or pilot group |

# Other Methodologies

| | | |
|---|---|---|
| Feasibility | Initiate | Initiation |
| Definition | Plan | Exploratory Phase |
| Design | Design | Alignment Phase |
| Construction | Construct | Development |
| Rollout | Implement | Testing |
| Close | Operate | Installation |
| | | Post-Implementation Review |

# Use Organic Tools

# Use Your Brain

- Understand the business
- Understand the problem to be solved
- Know how to integrate information
- Know what a requirement sounds like (and how to differentiate it from a solution or statement of design)

# Use Your Mouth

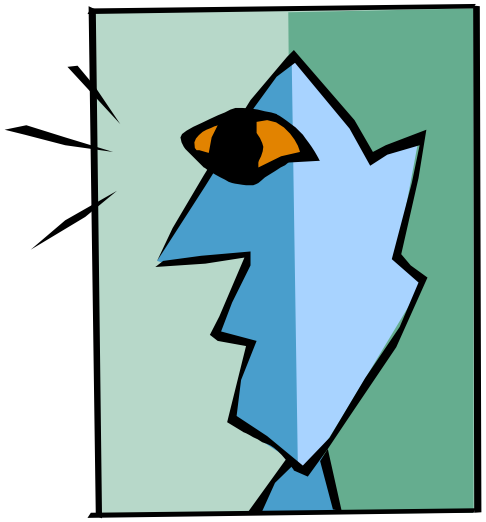
- Ask the right questions
- Talk to the right stakeholders

# Use Your Ears

- Practice effective listening
  - Paraphrasing
  - Questioning
  - Summarizing

# Use Your Eyes

- Look around your stakeholders' space
- Observe business processes
- Examine artifacts
- Watch facial expressions and body language



# Have (or Get) Some Domain Knowledge

# Domain Knowledge

- Expert analysts. . .
  - Have a repertoire of skills, knowledge and meta-knowledge in a specific domain
  - Have a deep structure knowledge of the domain
  - Verbalize more domain-specific issues during analysis

*Differences Between Novice and Expert Systems Analysts: What Do We Know and What Do We Do?* Journal of Management Information Systems; Armonk; Summer 1998; K.D. Schnenk, Nicholas P. Vitalari and K.Shannon Davis.

# Have a Good Set of Tools and Techniques

# Examine Artifacts

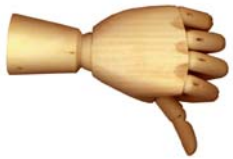
- Forms, reports, listings
- Process descriptions, procedures, workflow diagrams
- Policies
- Job descriptions, organization charts
- Existing information system
- System documentation
- etc.

# Examine Artifacts *(continued)*

- Advantages

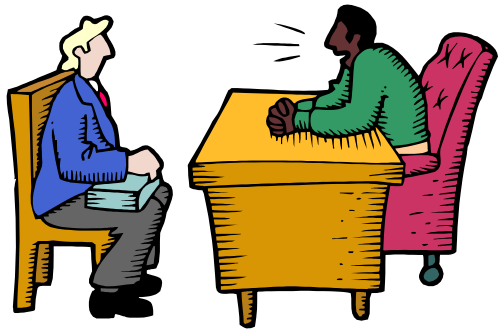
  - Analysts can gain a lot of knowledge about a system prior to interviewing stakeholders
  - Stakeholders are often impressed with the analyst's knowledge of their system (even if it is wrong, as it happens)
  - Gives analysts credibility

- Disadvantages
  - Can be time-consuming
  - Documentation may be non-existent, old or obsolete, or just plain wrong



# Interviews

- Non-judgmental collection of information and requirements
- Uses a variety of questioning techniques
- Requires full stakeholder involvement

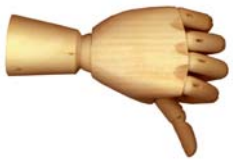


# Interviews *(continued)*

- Advantages

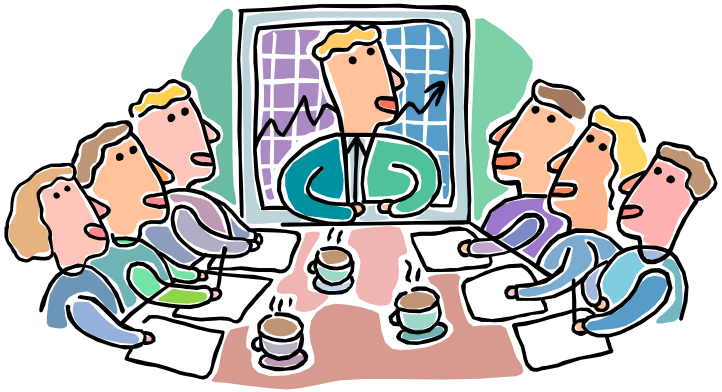
  - Analyst can motivate stakeholder to speak freely
  - Stakeholder has a sense of contribution
  - Analyst can probe more
  - Analyst can observe facial expression, body language and (possibly) stakeholder space

- Disadvantages
  - Time-consuming and resource-intensive
  - Success is highly dependent on communication skills of analyst
  - Analyst and stakeholders may not be co-located



# Focus Groups

- A small collection of stakeholders that are interviewed together
- Usually fewer than 10 participants

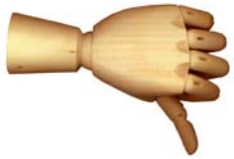


# Focus Groups *(continued)*

- Advantages

  - More effective use of time
  - Stakeholders may discover their inconsistent perspectives and resolve them through group discussion
  - Analyst can see where there is consensus and where there are issues to be resolved

- Disadvantages
  - Difficult to schedule
  - Stakeholders must be actively managed
  - Sessions tend to result in some level of conflict among stakeholders



# Direct Observation

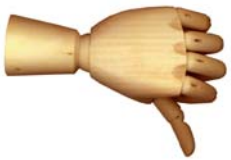
- Watching individuals or groups, processes and events to determine the facts surrounding a particular process and/or culture within a business environment

# Direct Observation *(continued)*

- Advantages

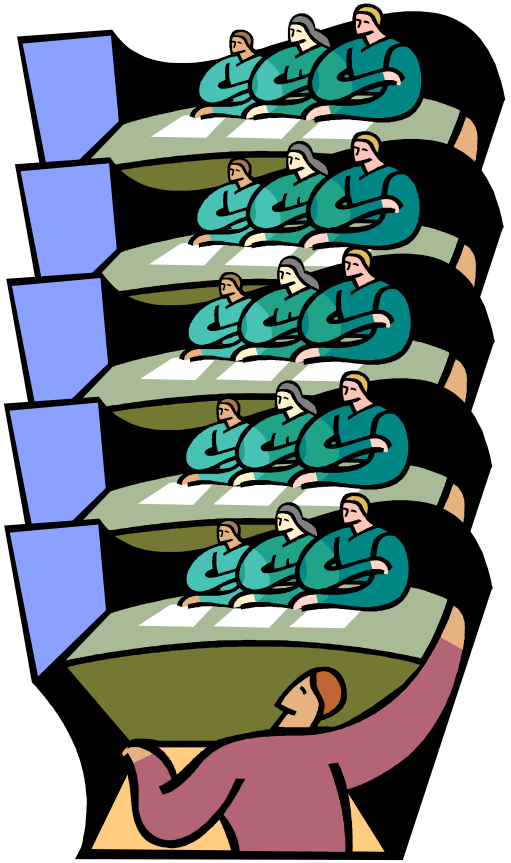
  - Discover what happens and how it happens
  - Confirm information obtained through other means
  - Can give an analyst a more objective view of the true nature of an event or activity
  - Can show things otherwise missed

- Disadvantages
  - Requires a high level of structure and planning
  - Observation can't be continuous; shows only a snapshot
  - Is time-consuming
  - Systems being observed tend to change simply because they are being observed



# Elicitation Workshops (JAD, JRP, etc.)

- Brings together a large number of stakeholders
- Facilitates and expedites the collection of requirements
- More highly structured than a focus group
- Best if professionally facilitated



# Elicitation Workshops *(continued)*

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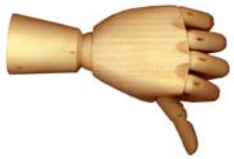


Same as for Focus Groups

# Iterative Prototyping

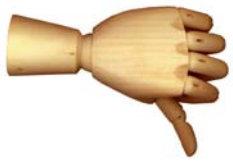
- Where the basic requirements are converted into a limited working model
- Model can be viewed and tested by stakeholders
- Allows for refinement of requirements early in the development life cycle, before any significant construction of the system occurs

# Iterative Prototyping *(continued)*

- Advantages

  - Rapid changes can be made to find and clarify missing requirements
  - Stakeholders are more apt to accept the final system
  - Represents less of an investment than the final system as proof-of-concept

- Disadvantages
  - The prototype is intended to be thrown away
  - Takes development time and developer resources
  - Tendency to adopt the prototype as the completed system (by the stakeholder, the developer, or both)



# Business Modeling

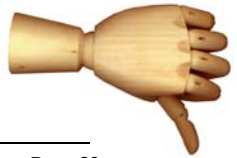
- An analysis technique that uses a variety of models to depict business systems
- Provides a way to think about what is being modeled (a conceptual framework of a system)
- Provides a way to depict what is being modeled (a notation scheme)
- Process model and data model

# Business Modeling *(continued)*

- Advantages

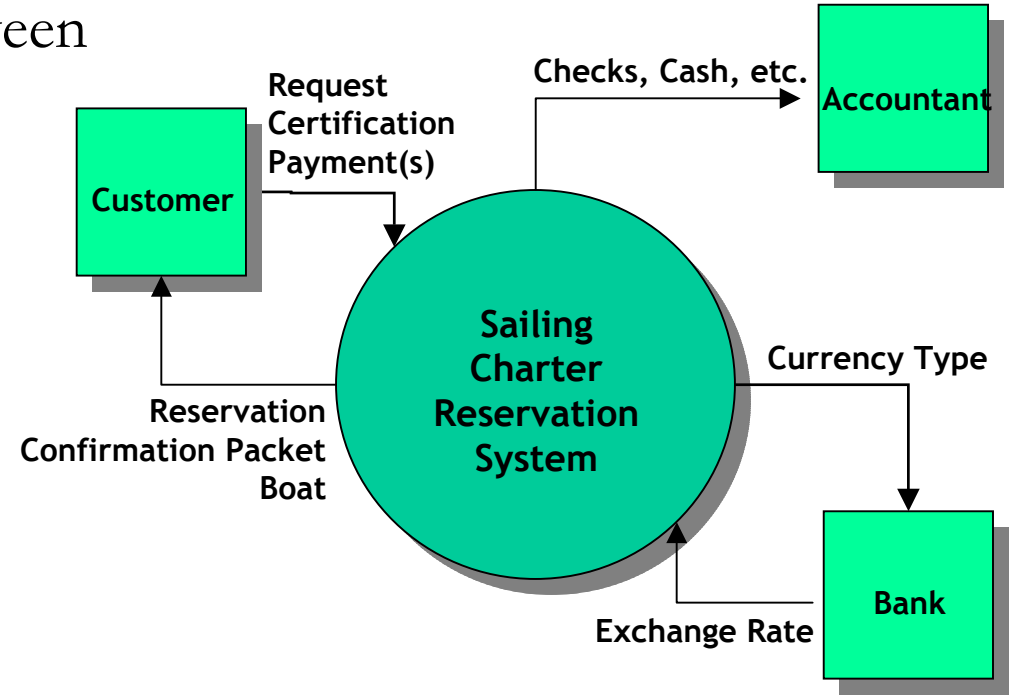
  - Helps analysts understand how the business and/or business process(es) work now
  - Helps analysts understand what the business wants to retain, remove, redesign, or add
  - A very powerful visual tool

- Disadvantages
  - Can be time-consuming
  - Not all projects or systems are complex enough to be modeled
  - With new business processes, only works for the "to be" system
  - Models (and modeling notation) must be understood by business stakeholders and by developers



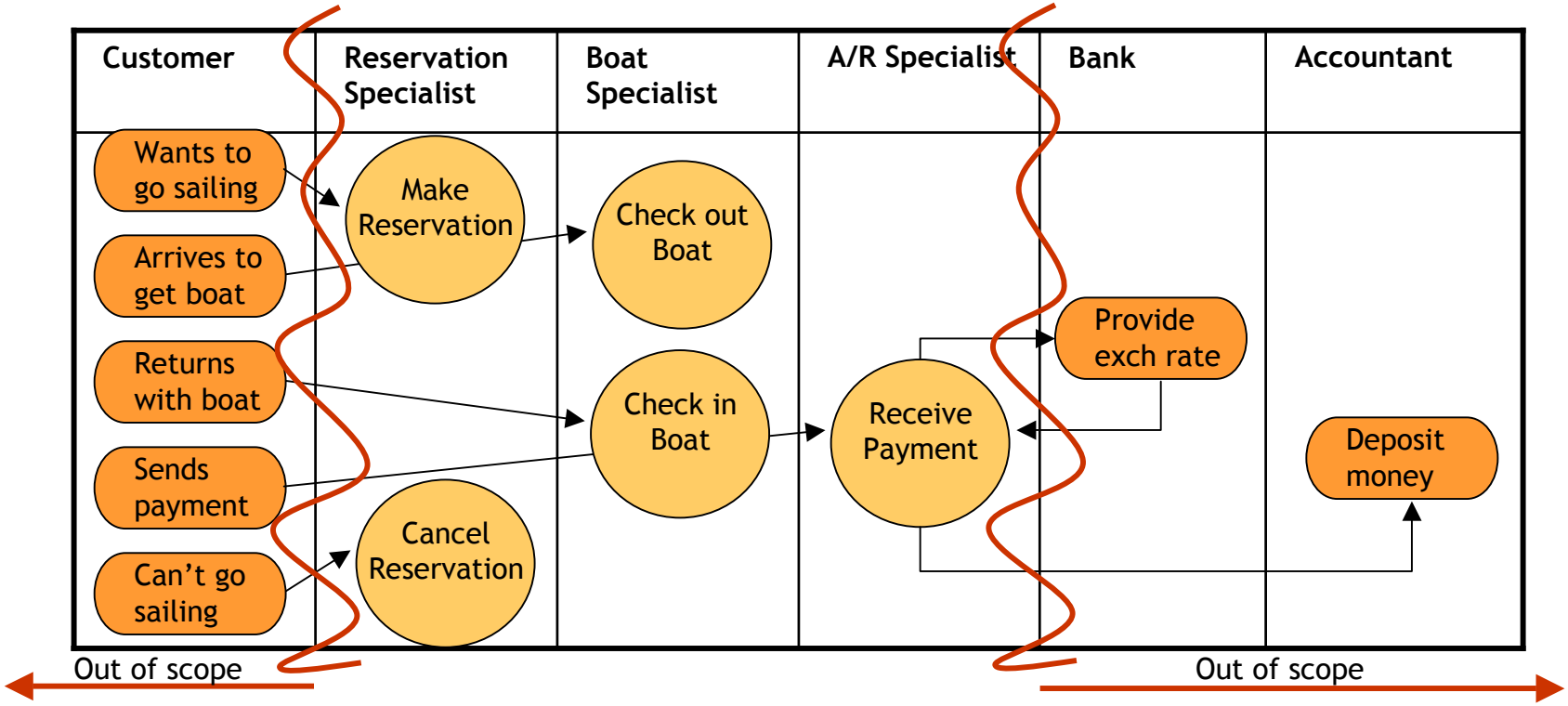
# Model Examples

- Context Diagram
  - Depicts our system in the context of the outside world
  - Shows system under study, external entities, and interactions between them (inputs and outputs)



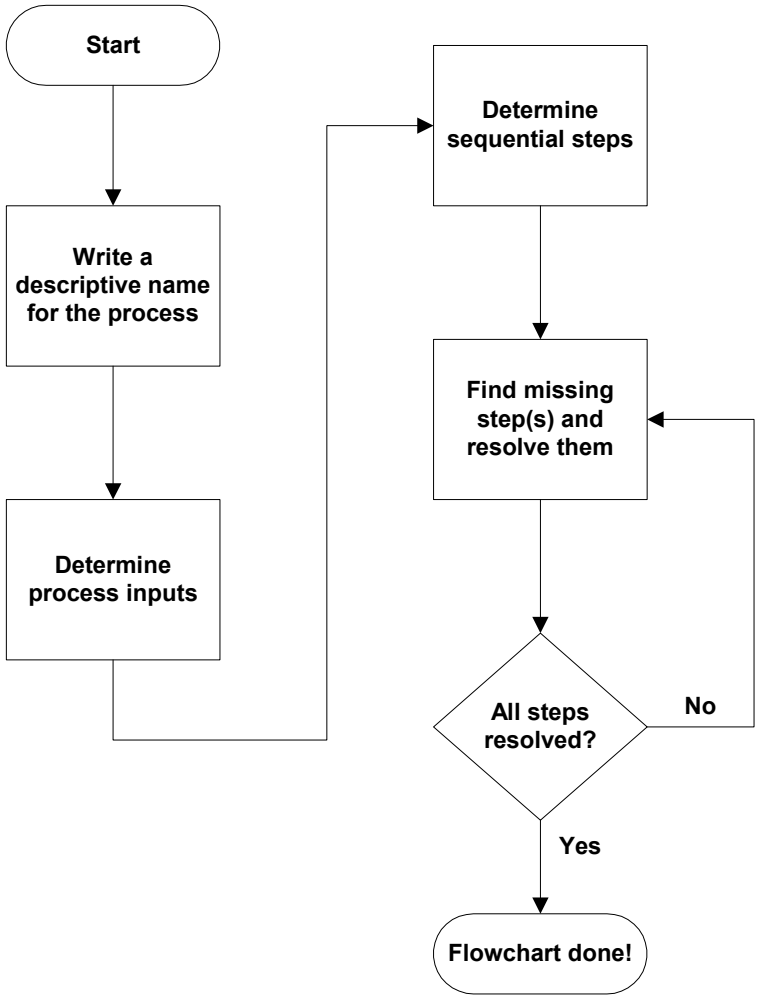
# Model Examples *(continued)*

- Activity Diagram (with Swim Lanes)
  - Depicts actors and the processes they perform



# Model Examples *(continued)*

- Process Flowchart
  - Traditional flowchart
  - Depicts flow of an individual process
  - Only depicts process steps



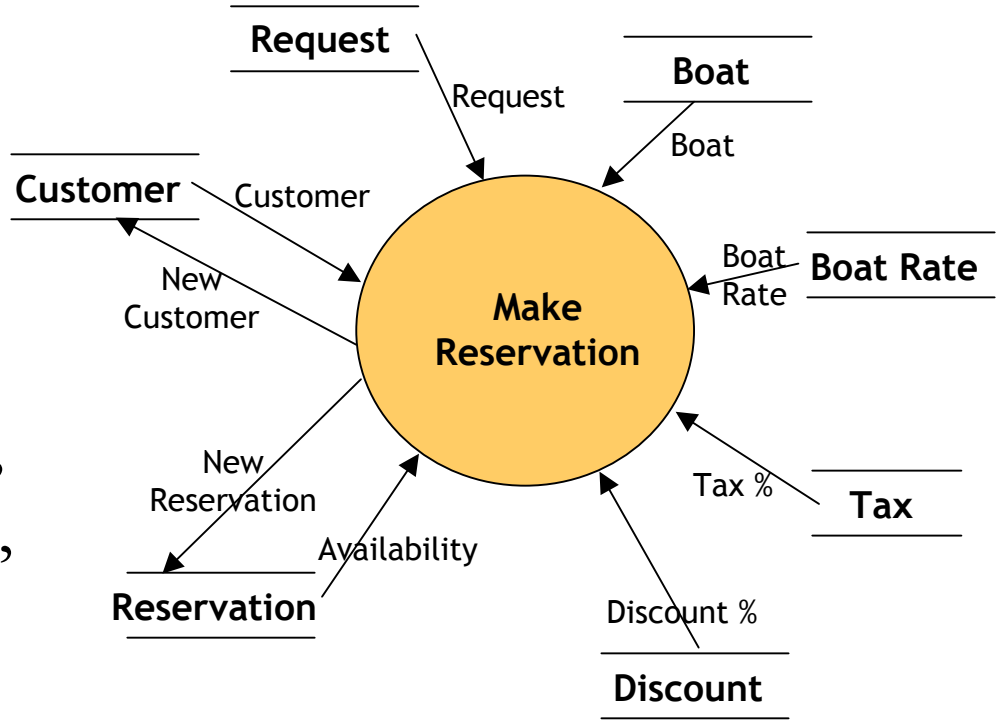
# Model Examples *(continued)*

- Use Case
  - Another way to depict process steps

| Use Case 1: Receive Payment | |
|---|---|
| **Actor:** | **A/R Specialist** |
| **Description:** | **The A/R Specialist verifies that the customer's payment is valid and posts the payment to the customer's account.** |
| **Pre-conditions:** | **1. Customer has sent a payment.**<br>**2. Billing system is online.** |
| **Post-conditions:** | **1. Payment is posted as a credit to the customer's account.**<br>**2. Payment item is ready to be prepared for deposit.** |
| **Normal Course:** | **1. Receive payment**<br>**1. A/R Specialist verifies that customer's payment item is valid.**<br>**2. A/R Specialist enters reservation number into system**<br>**3. System displays customer's open reservations.**<br>**4. A/R Specialist selects open reservation to which payment will be applied.**<br>**5. A/R Specialist enters payment amount, type and date.**<br>**6. System credits the reservation with the amount of the payment.**<br>**7. System adjusts the balance due of the reservation.** |

# Model Examples *(continued)*

- Data Flow Diagram
  - Traditional DFD
  - Depicts how the process uses data
  - Only depicts data use and not process steps, conditional branching, etc.



# To Learn More . . .

- Attend (or send your analysts to) our 2-day workshop **Developing and Confirming Effective Business Requirements**
  - Visit www.aspetech.com for a course description
  - Or contact:
    - Kinzie Wyche, Director of Sales
    - kwyche@aspetech.com
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