



OCD: OPERATIONAL CONCEPT DEFINITION I

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CS 577a Lecture

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MBASE Guidelines

- **CS577a Home Page ->**
- **Project Guidelines and Examples:
MBASE Guidelines**



Document Templates

- **CS577a Home Page->**
- **Electronic Process Guide**

- **...But, electronic process guide is not necessarily helpful to many students, so we will provide direct links to templates**



Sample LCO OCD

- Last year's 577a Home Page ->
- Project Deliverables: Project 3
Multimedia Equipment Scheduling ->
- Life Cycle Objective: Operational
Concept Description (DOC, PDF)



OCD Section 1: Introduction

- 1. Introduction**
 - 1.1 Purpose of the Operational
Concept Description Document**
 - 1.2 References**



1. Introduction

**The operational concept description
of Multimedia Equipment Scheduling
will be introduced**

1.1 Purpose of the Operational Concept Description Document

This is the LCO version of OCD. The purpose of the Operational Concept Description (OCD) for the Multimedia Equipment Scheduling is to describe to the stakeholders of the system how the system will function in practice. The OCD documents shared vision of the major stakeholders about the product to be developed, description of the current system' domain, proposed system to be designed, results of prototyping, definition of commonly used words (keywords) and the results of Easy Win-Win negotiations.

The stakeholders include the customer, privileged users, users, developer team, maintainers and professors of the CS577 course. The customer is the Multimedia department of the Information Services Division (ISD) of University of Southern California represented by Adrian Rodriguez. The privileged users are the workers of the ISD Multimedia: Adrian Rodriguez and his staff (part-time student workers). The users are USC faculty and students.

1.1 Purpose of the Operational Concept Description Document (continued)

The OCD would provide clear and concise reference and guidance for stakeholders, to ensure that the correct system is being developed and the system is being developed correctly. A clear understanding of how stakeholders will interact with the system and how they interact with each other with regards to the system is a crucial function of the OCD. Specifically, the main goals of the OCD are to enable the operational stakeholders to evolve knowledgeably from their current and inadequate operational concept to the new operational concept, and to enable stakeholders to collaboratively adapt the operational concept as new developments arise. Therefore, the operational concept description is written in the common language of all interested parties.



1.2 References

- **Meetings with the client (Adrian Rodriguez) – 21 September 2001 (first meeting)**
- **ISD Multimedia website –**
<http://www.usc.edu/isd/locations/computing/taper/>
- **MBASE Guidelines -**
http://sunset.usc.edu/classes/cs577a_2001/guidelines/MBASE_Guidelines_v2.3.2.pdf
- **MBASE Electronic Process Guide -**
<http://sunset.usc.edu/research/MBASE/EPG/>
- **Easy Win-Win negotiations – 28 September 2001**



OCD Section 2: Shared Vision

2. Shared Vision (*about the system to be built*)

2.1 System Capability Description

2.1.1 Benefits Realized

2.1.2 Results Chain

2.2 Key Stakeholders

- Roles, responsibilities, contributions to Results Chain

2.3 System Boundary and Environment

- Context Diagram

2.4 Major Project Constraints

Add for Scaling Up

2.5 Top-level business case

2.6 Inception phase plan, resources required

2.7 Initial Spiral objectives, constraints, alternatives, risks



2. Shared Vision

The ISD Multimedia department in Taper Hall needs a multimedia equipment scheduling system to automate equipment reservations by professors for their class lectures. Our proposed Web-Based Reservation System would provide an automated equipment reservation system that would track equipment inventory to allow the department to schedule its resources and prevent overbooking. Unlike the current system of email reservation requests then manually checking the inventory from an Excel spreadsheet, our product will automate the entire process, saving valuable ISD employee's time.

2.1 System Capability Description

- **Concise description of why system should be built**
 - **For (target customer)**
 - **Who (statement of the need or opportunity)**
 - **The (product name) is a (product category)**
 - **That (statement of key benefit-that is, compelling reason to buy)**
 - **Unlike (primary competitive alternative)**
 - **Our product (statement of primary differentiation)**
- **Should be able to pass “elevator test”**
 - **Convince executive while riding up/down elevator**



2.1 System Capability Description

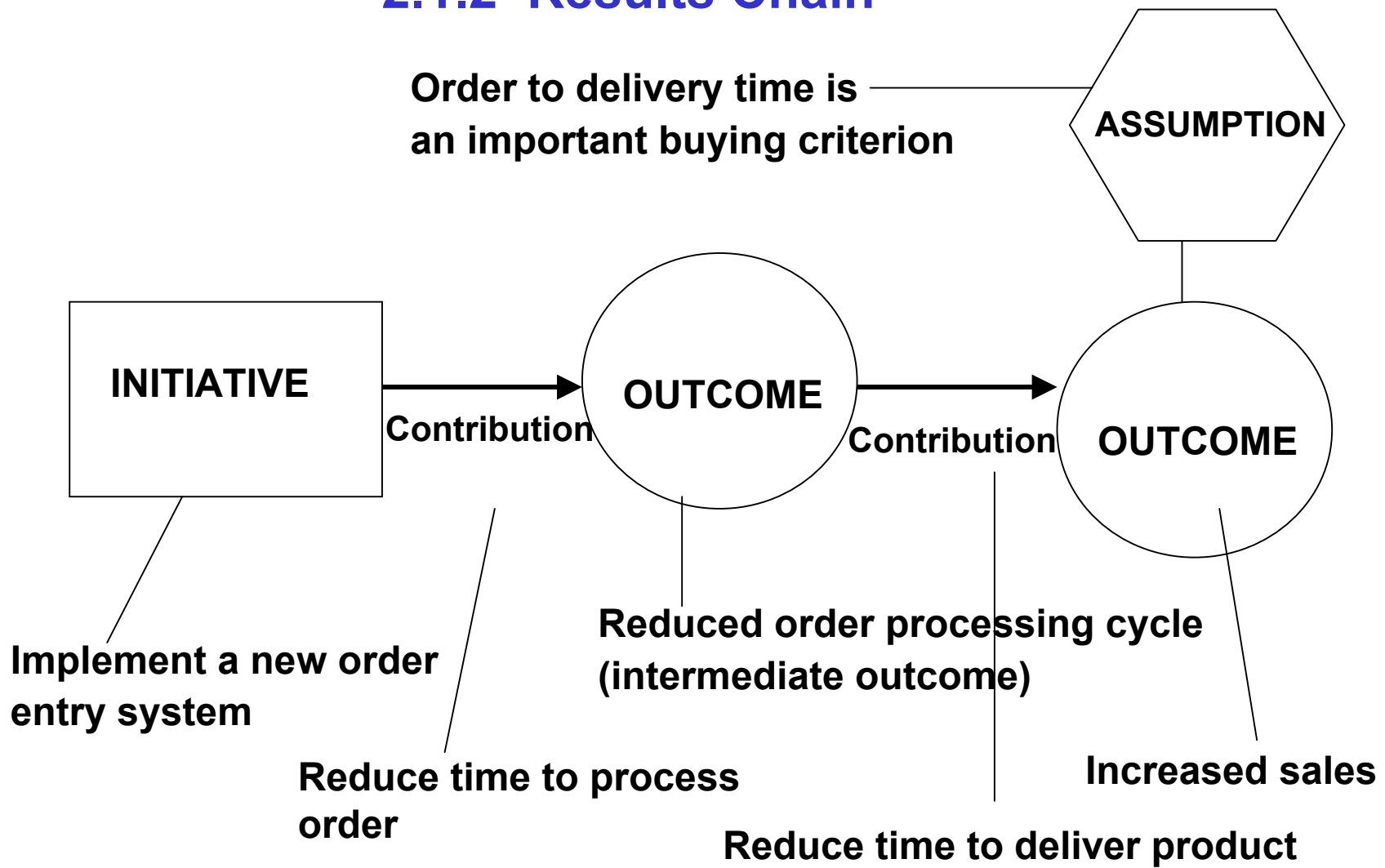
example for a corporate order-entry system:

“Our sales people need a faster, more integrated order entry system to increase sales. Our proposed Web Order system would give us an e-commerce order entry system similar to Amazon.com’s that will fit the special needs of ordering mobile homes and their aftermarket components. Unlike the template-based system our main competitor bought, ours would be faster, more user friendly, and better integrated with our order fulfillment system.”

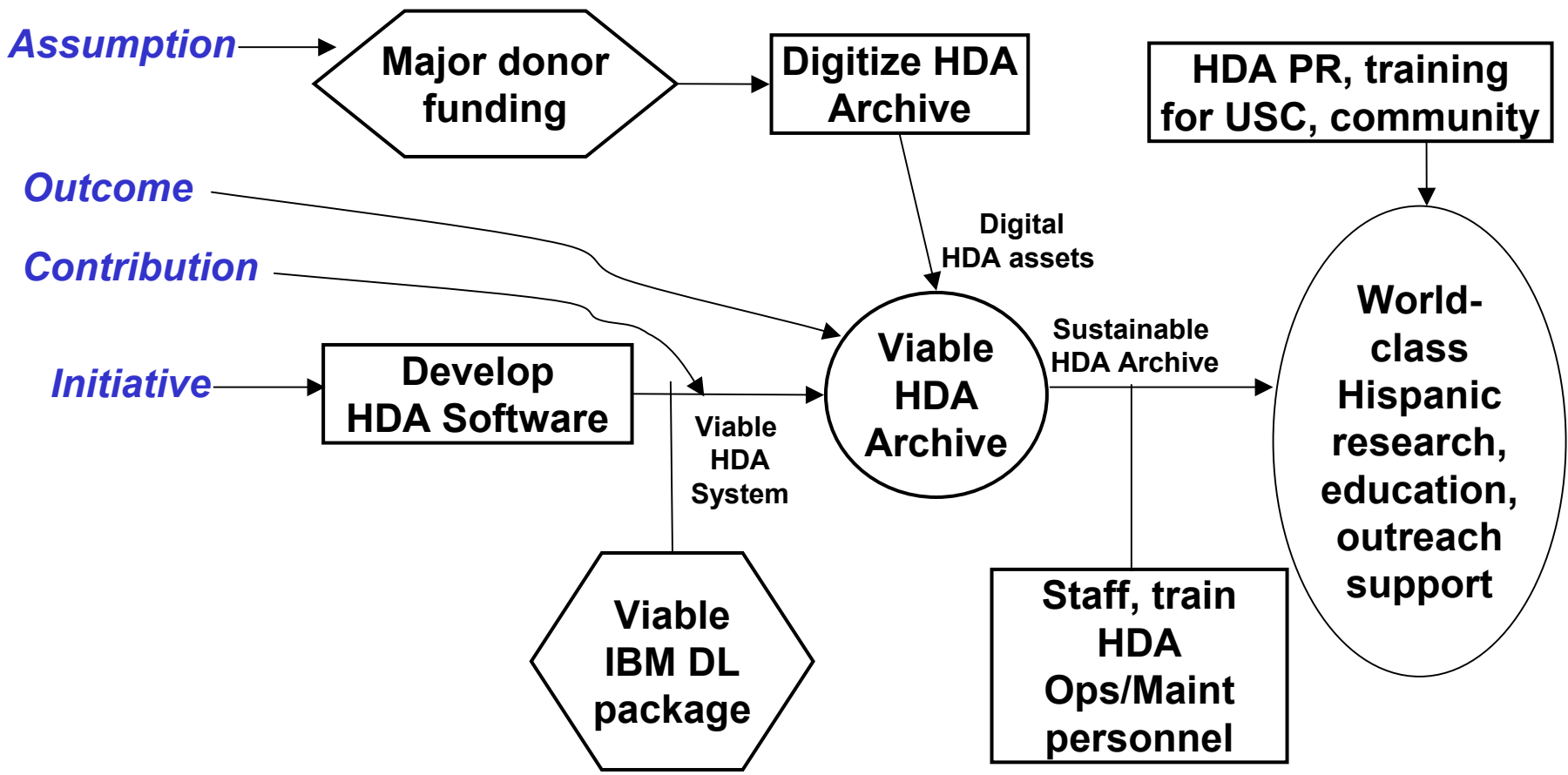
2.1.1 Benefits Realized

- **Easier and faster reservation process for users; from time spent reviewing requests to scheduling the day's equipment requests.**
- **Standardize the reservation process**
- **Reduced human errors by eliminating tedious procedures that could lead to inconspicuous inconsistencies (i.e. over and/or under booked equipment).**
- **Higher quality of service; increased preparation time and customer service**
- **Web-based interface leads to higher accessibility to our system**
- **More frequent and efficient utilization of ISD resources**
- **Reduced client-side interaction. The system handles a majority of the current workload freeing up ISD Multimedia staff resources, enabling them to be more productive**
- **Limited site maintenance and training leads to saving time and budget on this web-based system.**
- **Infrastructure for additional Web-based services in the future is present.**

2.1.2 Results Chain



Results Chain: Hispanic Digital Archive (HDA)



2.2 Key Stakeholders

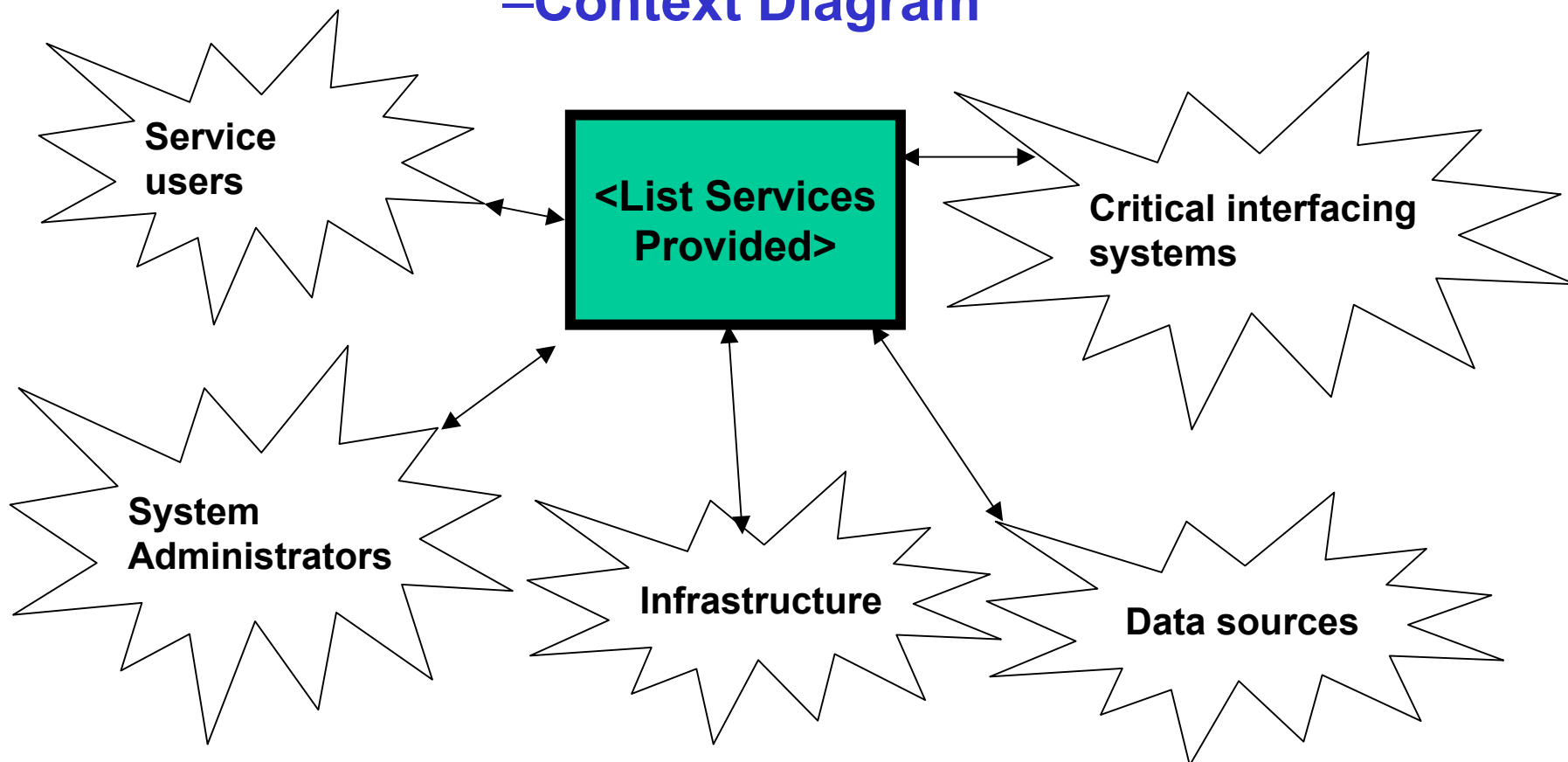
- **Frequently users, Customers, Developers, Maintainers**
- **Sometimes Interfacers, Subcontractors, Supplier's, Venture Capitalists, Testers, General Public**
- **Identify each stakeholder by**
 - **Home organization**
 - **Authorized project representative**
 - **Relation to Results Chain**



2.2 Key Stakeholders

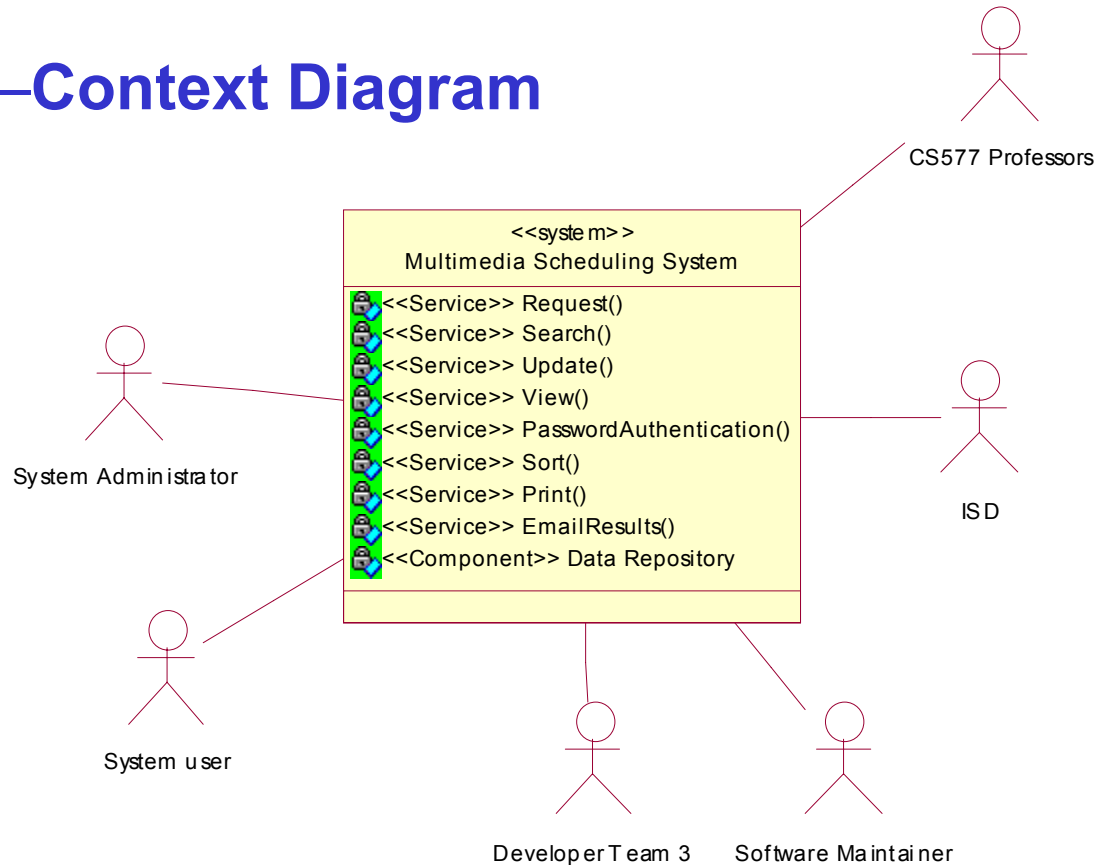
The key stakeholders include ISD Multimedia staff users, USC faculty users, CS577 student developers, software maintainers, and the ISD infrastructure. The ISD multimedia staff users, our client -- Adrian Rodriguez -- and his student helpers, will view the Web reservation requests and, via a Web browser, accept or deny the request based on equipment availability, which is automatically reported with the request. The USC faculty users make the requests from the website for equipment reservations.

2.3 System Boundary and Environment –Context Diagram



2.3 System Boundary and Environment

–Context Diagram



2.4 Major Project Constraints

Example From MBASE Process Guide:

- **The project must be completed rapidly to sustain the company's competitive edge.**
- **The user interface must be compatible with other company systems.**
- **The system must be able to adapt to changes in Internet sales tax laws.**

2.4 Major Project Constraints

Several factors constrain our project and introduce risks for failures. By recognizing major project constraints, we acknowledge the risks and reduce the probability of failure. The following list describes such constraints taken under consideration:

- Project must be completed within 24 weeks
- Database must be implemented with MySQL or Oracle
- Web applications (server-side) must run on UNIX operating systems
- CGI not preferred, and JSP remains unsupported



-For Larger Projects:

2.5 Top-level business case

**2.6 Inception phase plan,
resources required**

**2.7 Initial Spiral objectives,
constraints, alternatives,
risks**



3 Domain Description

3.1 Organization Background

3.2 Organization Goals

3.3 Current Organization Activity Model

3.4 Description of Current System

3.5 Current Entity Model

3.6 Interaction Model

3.7 Current System Shortfalls



3.0 Domain Description

Organization's background description. Talks about existing organization, not in context of proposed system. It should give organization description in a large context, not too specific



3.1 Organization Background

The Information Service Division (ISD) Multimedia department is located at the Mark Taper Hall for the Humanities. Its objective is to provide computer, video, and audio-visual technical support to USC faculty for classroom instruction. ISD Multimedia operates five multimedia-ready auditoria and provides additional support to 31 classrooms through Computer Carts, TV/VCR Carts, Projector-Only Carts, and traditional presentation tools such as overhead and slide projectors. An average of 35 classes are serviced daily, although this number will grow due to extended service hours starting Fall 2001. The types of equipment used vary from semester to semester; but the common thread has been a rapid shift from traditional presentation tools towards the use of computers, the Internet, and video projection. All of these services take up important roles in ISD's mission to provide easier, faster, and more reliable ways to access information.

Organization



3.2 Organization Goals

The objective of ISD Multimedia is to satisfy the various needs of the USC community in reserving multimedia equipment.

Specifically, the goals of ISD Multimedia in relation to Multimedia Equipment Scheduling are listed below in decreasing order of their relative importance:

1.1. Automate the equipment scheduling process.

***Relevance:* The Multimedia Equipment Scheduling system allows for automation of equipment reservations.**

***Measure:* ISD staff workload should decrease and their quality of service will increase.**



3.2 Organization Goals (continued)

2. 2. Ensure no equipment is over and/or under booked.

Relevance: Storing the data in a database that continually checks equipment availability, and having search functionality will provide a better method of inventory control.

Measure: Human errors from reading from an Excel spreadsheet should decrease.

3.3. Faster and easier access for making reservations.

Relevance: The Multimedia Equipment Scheduling system provides a faster, simpler, and more efficient way of handling equipment reservations. This web-based system can be accessed via any platforms with an Internet connection.

Measure: The time spent making reservations should decrease and customer service levels should increase.



3.3 Current Organization Activity Model

The process begins when one of stakeholders makes a reservation request either through email or website, another stakeholder go ahead to approve the reservation request. If the request is denied, the stakeholder must go back to the start to make another request. The process iterates until requests are approved.

I. User Request Session

- 1a. Users use User Agent Interface to request Equipment for a Location**
- 1b. Staff receives notifications via Staff Tools**



3.3 Current Organization Activity Model (continued)

II. Staff reviews requests via Staff Tools

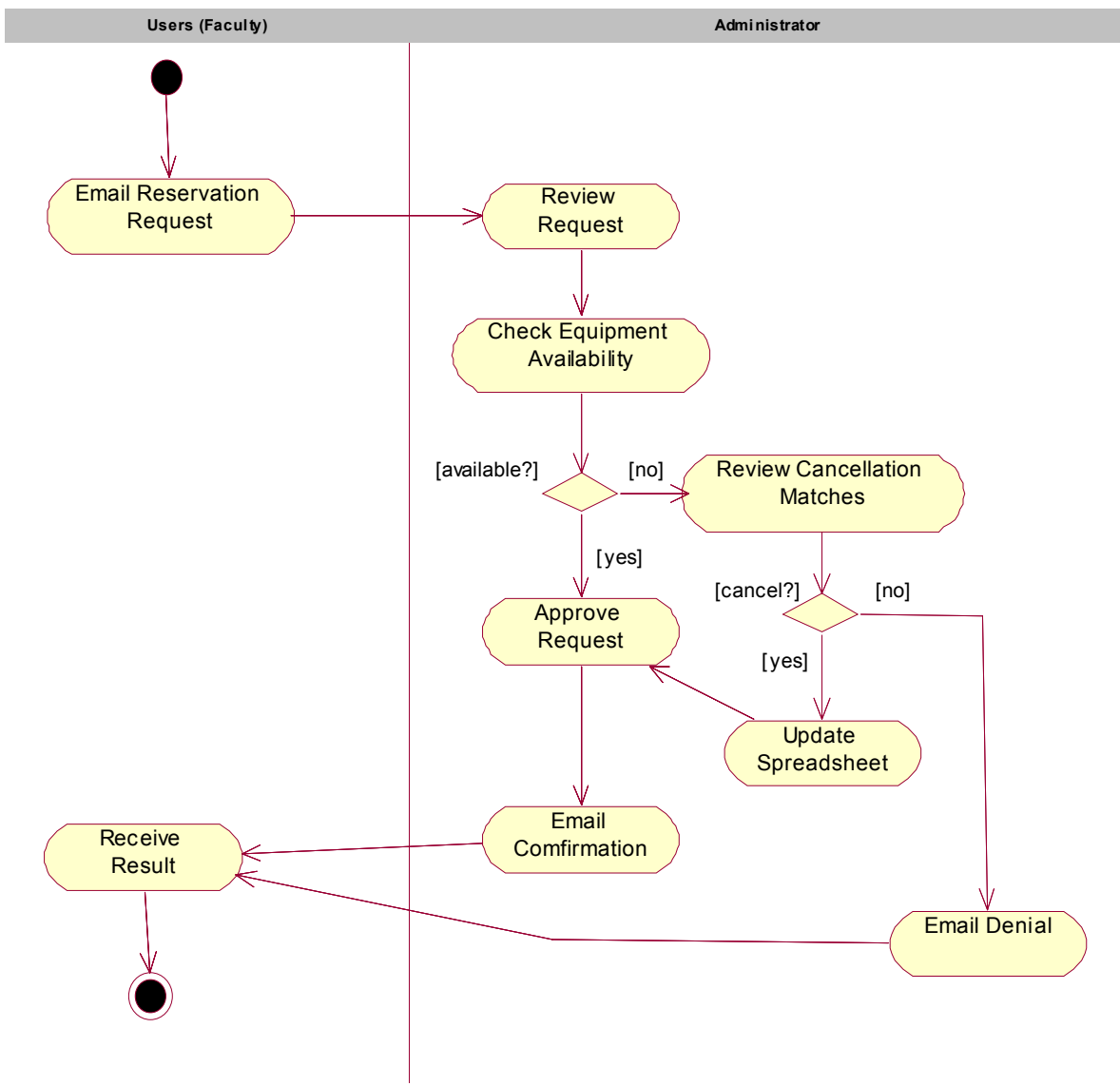
2a. There might be a Conflict observed

2b. Users make a new request or Staff resolves Conflict

2c. Request is approved and put in a Schedule

2d. According to the Schedule, right Equipments will be put in the right Location

III. Staff places Equipment into Location based upon schedule



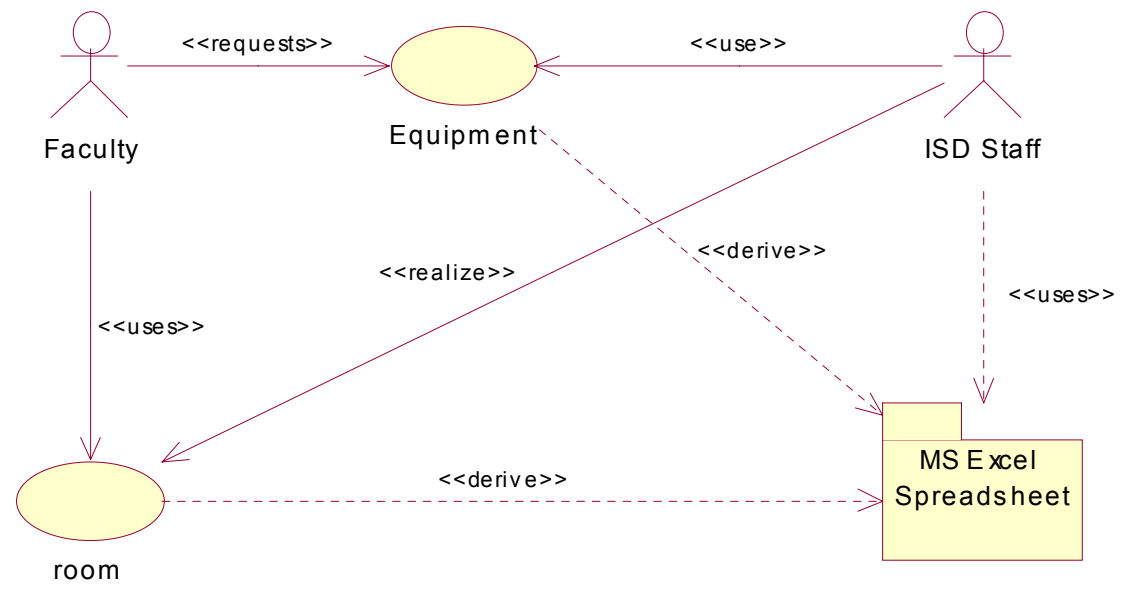


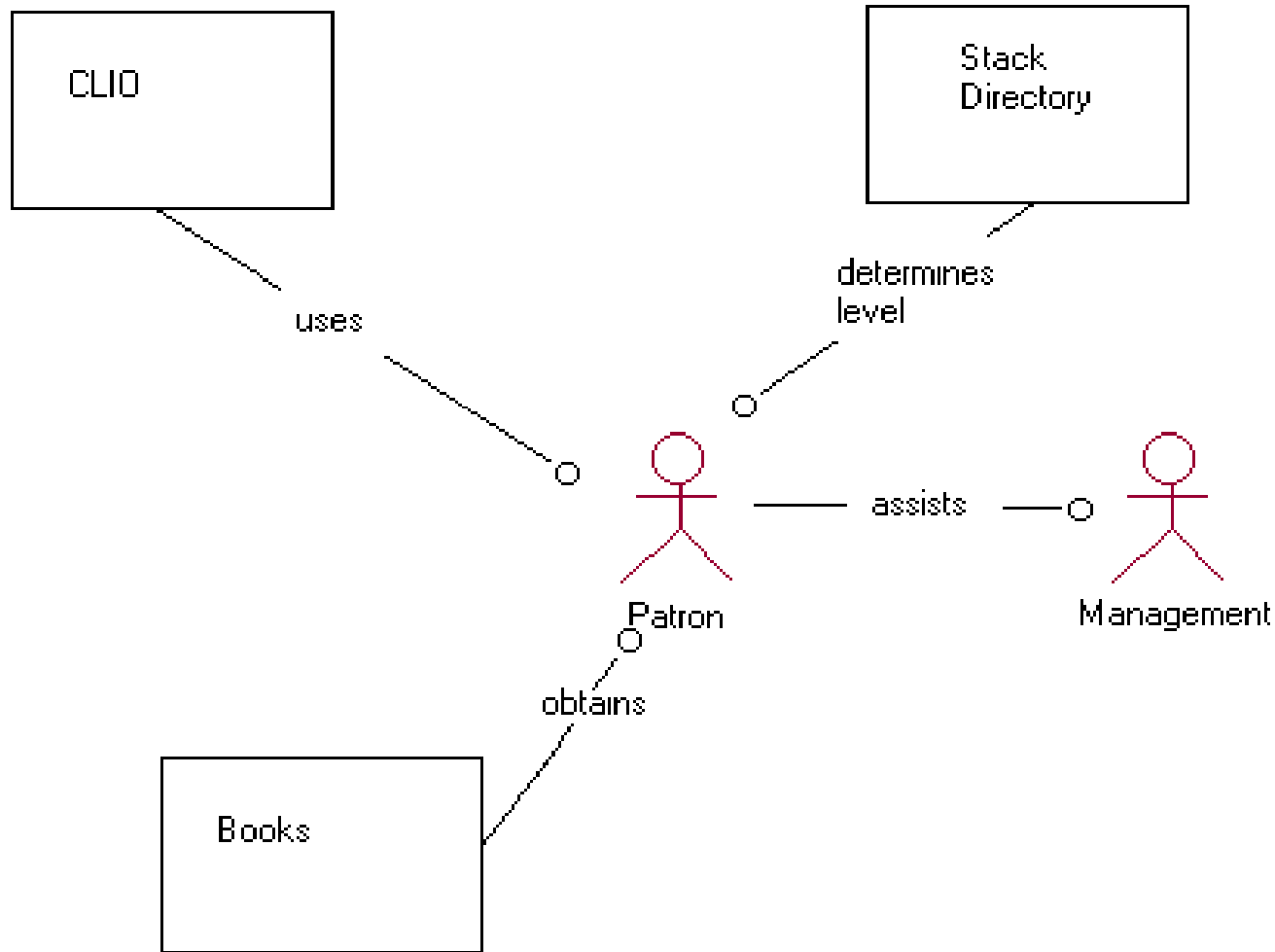
3.4 Description of Current System

Currently the department receives e-mail requests or requests for equipment through its website. They have to "manually" check an Excel spread sheet to see how many reservations there are on that day and if the equipments are available. Those daily schedules are usually printed out a day or 2 days before. Although same day reservations or walk-in reservations can also be made, the availability of the requested rooms and equipments might not be guaranteed.

3.4 Description of Current System (continued)

OCD 3.4 Current System







3.5 Current Entity Model

ID	Name	Description
E-01	Schedule	A sheet of approved reservation requests
E-02	Users	A person who is involved in the system
E-03	User Agent Interface	A layer of representation of which tools used by the users
E-04	Equipment	A piece of hardware requested and placed at a location
E-05	Location	A place where equipments are used
E-06	Staff Tool	An equipment used by staffs
E-07	Staff	A person who is responsible of approving request

- Entities of the proposed system:
 - Patron
 - Management
 - CLIO
 - Books
 - Butler Library
 - Stack Level

E-01

Identifier - E-01

Description - a user affiliated with Columbia University who utilizes the resources of Butler Library

Name - Patron

Properties - Student, Staff, Employee, or any affiliated person of Columbia University.

Activities

- Uses CLIO
- seeks assistance and checks out books from Management
- uses books as resources
- affiliated with Columbia University

Connections – ENT-01



Identifier

E-01

Description

People who utilize the library system and the services that the Butler Stacks provide. This includes faculty, students, researchers and the general public.

Name

User

Properties

1. Name
2. Level of Priority (Student or Faculty)

Activities

1. Inquires about stack materials
2. Requests stack materials
3. Views stack materials
4. Borrows stack materials

Connections

1. Users receive information about stack materials from Staff
2. Users borrow stack materials from the Library



3.6 Interaction Model

	<i>Patron</i>	<i>Management</i>	<i>Stack Level</i>	<i>Book</i>	<i>CLIO</i>	<i>Stack Directory</i>
<i>Uses CLIO</i>	X	X			X	
<i>Seeks Assistance</i>	X					
<i>Uses Stack Directory</i>	X	X				X
<i>Gets Stack Directory</i>	X					X
<i>Gives Stack Directory</i>		X				X
<i>Goes to Stack Level</i>	X	X	X			
<i>Finds Book</i>	X	X		X		
<i>Relocates Book</i>		X		X		
<i>Searches for Book</i>	X	X				

3.7 Current System Shortfalls

- **Supervisor spends an enormous amount of time to read email requests and manually input them into the excel sheet which is very inefficient**
- **Manual creation of separate Excel sheets for each day in semester becomes very monotonous and time consuming**
- **It is tedious to make changes to the schedules, especially with recurring schedules, which makes this process more error prone**
- **No search functionality, which forces the administrators to manually look through all requests in Excel sheets before canceling a particular request**