

# 1. Information System & Service Design - Course Overview

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27 August 2008

Bob Glushko

## Plan for ISSD Lecture #1

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Introducing the Teaching Team

If You'd Done Today's Reading...

The One Minute Course

Tour of the Syllabus

Some Foundation Concepts: Models and Methodology

Course Administrivia

Introducing the Students

# Introductions

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The Instructor

The TA -- Elisa Oreglia

## Today's Assigned Readings

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Richard Anderson, "Organizational limits to HCI: Conversations with Don Norman and Janice Rohm," May-June 2000

Robert J. Glushko & Lindsay Tabas, "Designing service systems by bridging the front stage and back stage," April 2008.

# "Organizational Limits to HCI"

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"A company that is proud of its usability labs is a company in trouble"

"If you call yourself a usability person, then you are this resource that gets called on to dig the ditches"

"You can't make a contribution if you're called in after the product is finished"

"Companies are not in the business of making usable products; they're in the business of making money"

"The usability of your e-commerce site is only a fraction of what makes your company succeed or fail"

"If we are to have a bigger impact...the only way we are going to that is to learn the language of business"

# Understanding "User Experience"

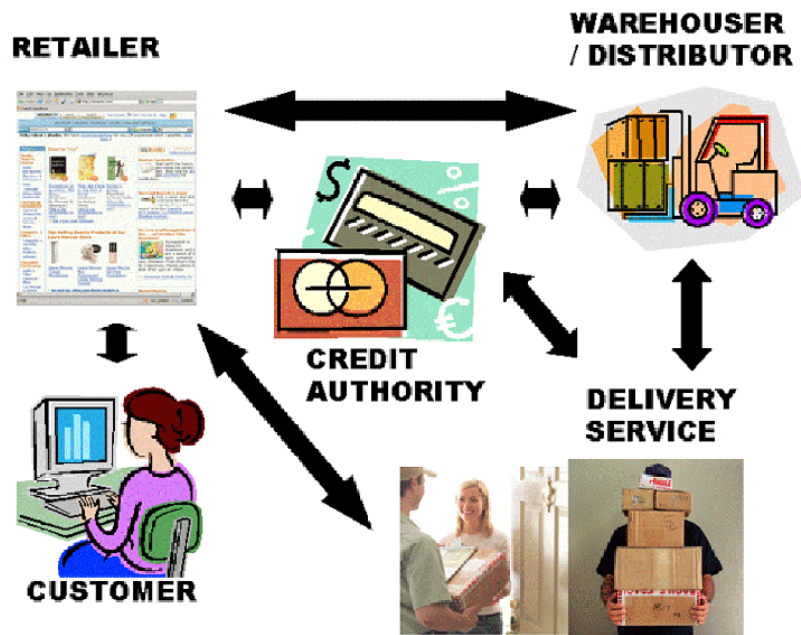
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What determines your "user experience" at Amazon.com?

How does your user experience compare to everyone else's?

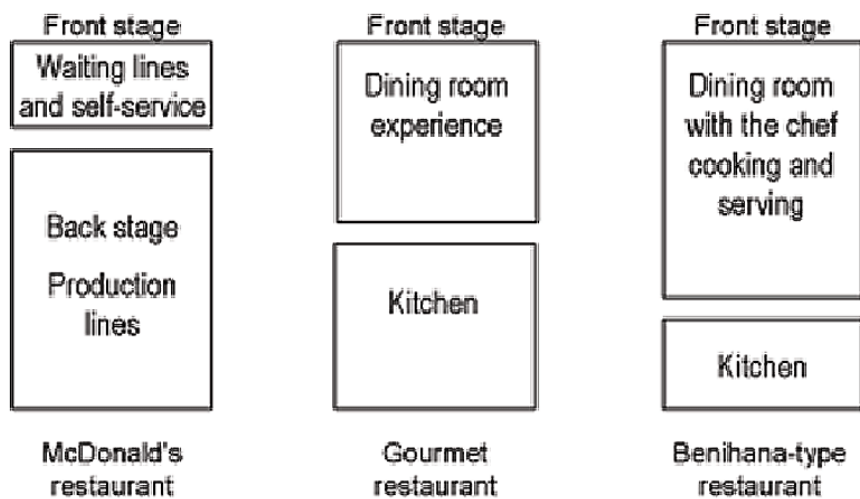
# Drop Shipment

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# The Front / Back Stage Distinction

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# Personalization at Amazon.com

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Hello Robert J. Glushko

We have recommendations for you

You looked at...

Your favorite authors...

Payment methods

Address book

...

## The One Minute Course

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Information-intensive applications and services can be understood as a system that spans the front and back stages

But the typical design goals and methods of front and back stage designers are often in conflict or incompatible

The usual remedy is to create multidisciplinary design teams, but this is insufficient

A good designer needs an end-to-end perspective and familiarity with the concepts and design techniques of "the other" stage

So instead of learning "one true way" methodology, students should learn to "design the design methodology" from a portfolio of techniques

# A Tour of the Syllabus: Topics and Readings

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Roughly follows the design life cycle from end-to-end and covers the most important design methods

Many of the topics come in complementary pairs, like "Personas" and "Customer modeling" - where traditional HCI methods get "mashed up" against business/marketing/backend perspectives

Likewise, there are readings on "Ethnography for experience design" (i.e., follow and observe people as they work) with "Ethnography for information system design" (i.e., follow documents and other information objects as they move between people, organizations, and systems)

Not just "do this, do that" -- we'll discuss "method theory" about why and when methods work, and when they don't

# A Tour of the Syllabus: Textbook

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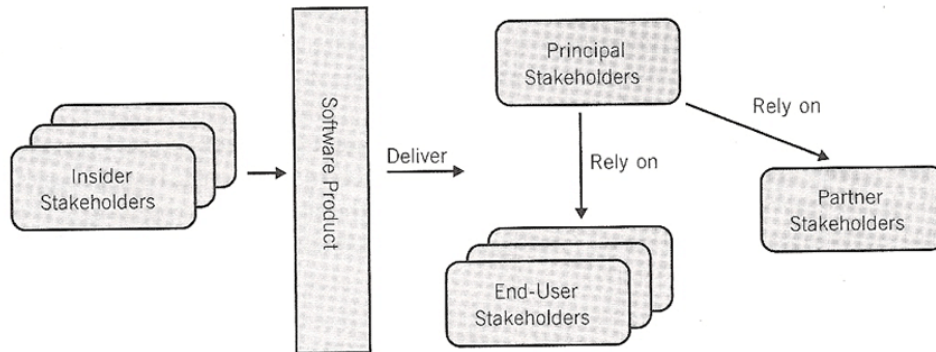
Required Textbook: Carl Kessler & John Sweitzer, *Outside-in Software Development*, IBM Press, 2008

Discusses the organizational context of design and the business, product management and ecosystem considerations that are completely missing from most curricula

Focuses on the idea that there are always multiple stakeholders with different goals and constraints -- and the essence of good design is making tradeoffs to find the compromises among them

# Stakeholders

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## Why Take This Course?

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The course presents a framework for understanding and integrating the variety of design methods taught in more detail in other iSchool and MOT courses, and will provide a "roadmap" to the curriculum

This course will complement whatever design experience you already have by giving you other perspectives on design problems

This course deals with a rich set of "design in the wild" considerations like legacy constraints, integration concerns, and product family roadmaps in which functionality emerges over time over a set of related offerings that have to fit into an environment with existing systems and services

This course will give you more strategy / business / product management skills, readying you for management and consulting careers

# What is Designing?

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This course will focus on the design of "information-intensive" systems and services

This will involve "designing" of information, interactions, experiences, processes, and the "systems" in which these all fit together

We need a broad and abstract notion of "designing" so we can emphasize what these design problems have in common

John Chris Jones says that "Designing is initiating change in man-made things"

... to which we add "to solve problems or meet needs while satisfying the constraints imposed by the design context"

## The Context of Design

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The design of any service -- whether it will be performed by people or by information systems -- takes place in a context of:

- Current and potential customers
- Current and potential technologies
- Current and potential competitors
- Existing services or systems
- Existing user or application interfaces
- Legal, regulatory, cultural systems and constraints

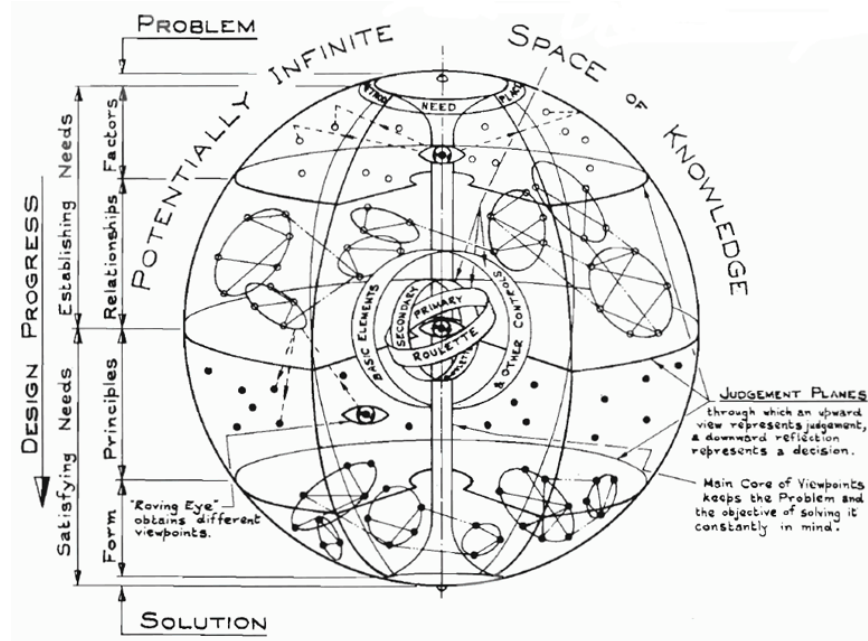
These factors or constraints can never be equally important; how they are weighted determines the appropriate design methodology and the key characteristics of the design

The cost of a design goal or choice depends on the context



# The Challenge of Design

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## Methodologies – Disciplines for Design

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When we design something we follow – implicitly or explicitly – some steps or techniques for analysis, idea generation, and implementation

This is called the design methodology

Methodologies can be formal, prescriptive, step-by-step, documented and auditable or they can be the opposite: informal, ad hoc, "seat of the pants" with no trace other than the design artifact itself

# Sequential, Iterative, and Artifact-Centered Methodologies

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A methodology's process describes the work to be done and the order in which it is to be done

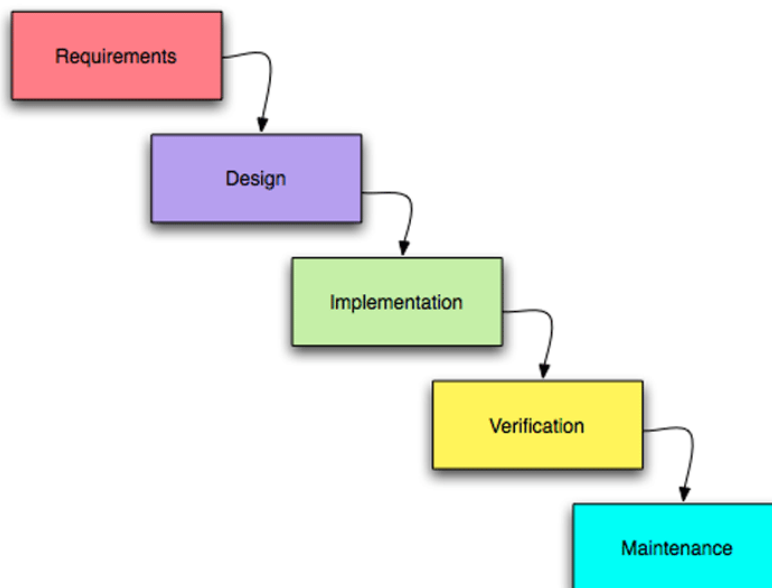
Many methodologies prescribe a Sequential process -- the "waterfall" model

Other methodologies are more iterative or recursive -- like the "spiral" model of progressive refinement or "agile" modeling

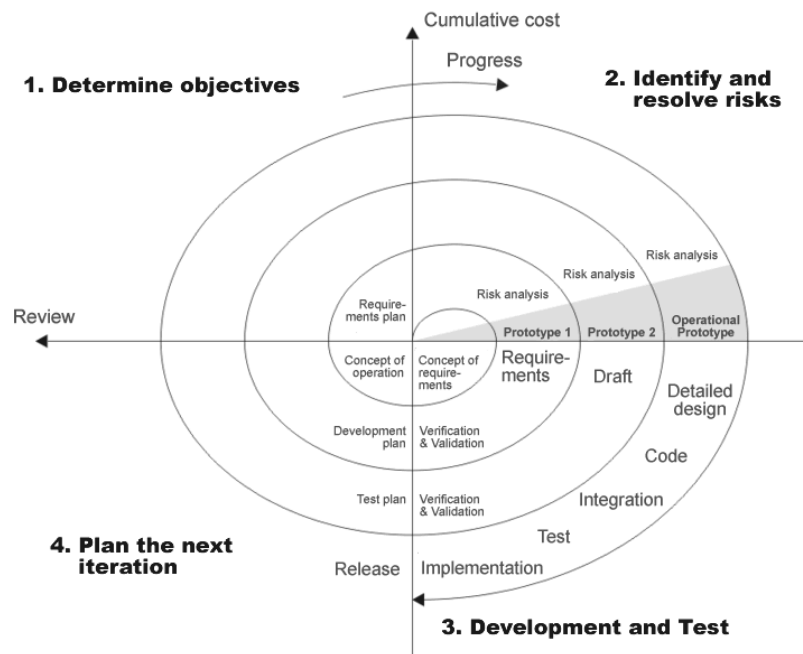
Other methodologies are looser about the modeling activities but emphasize the results that must be obtained at each step or phase

## Waterfall Methodology

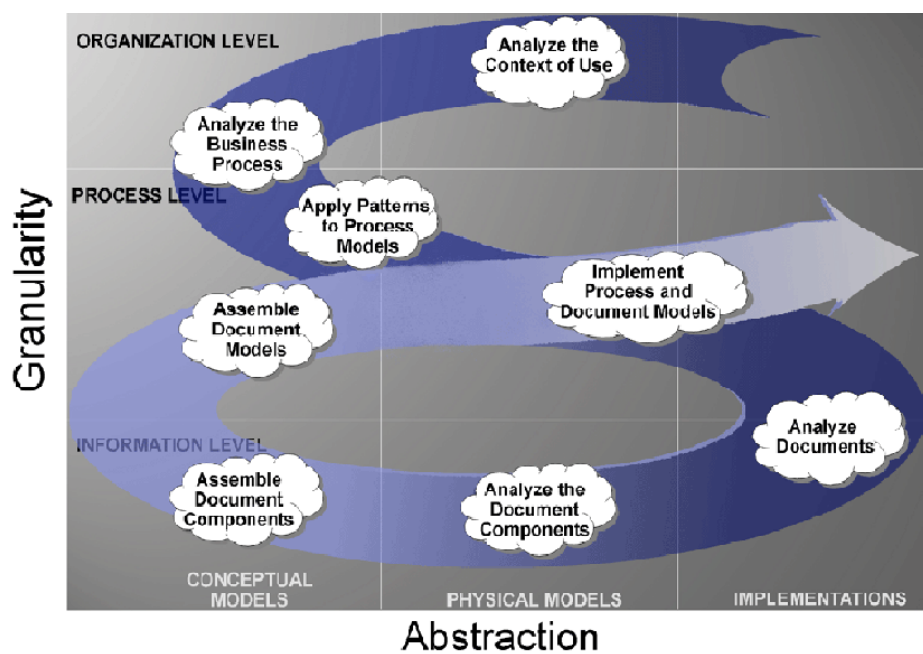
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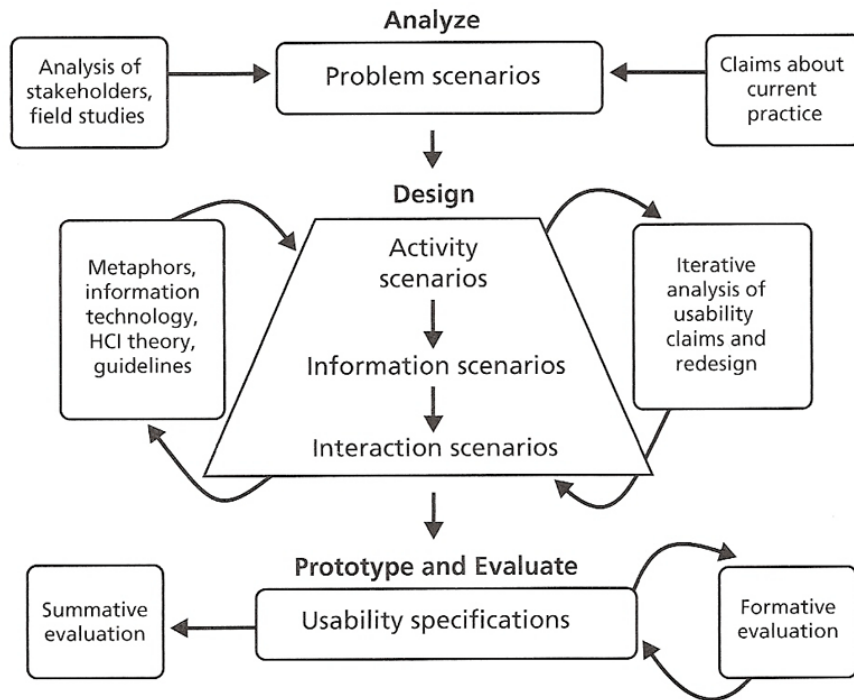
# Spiral Methodology



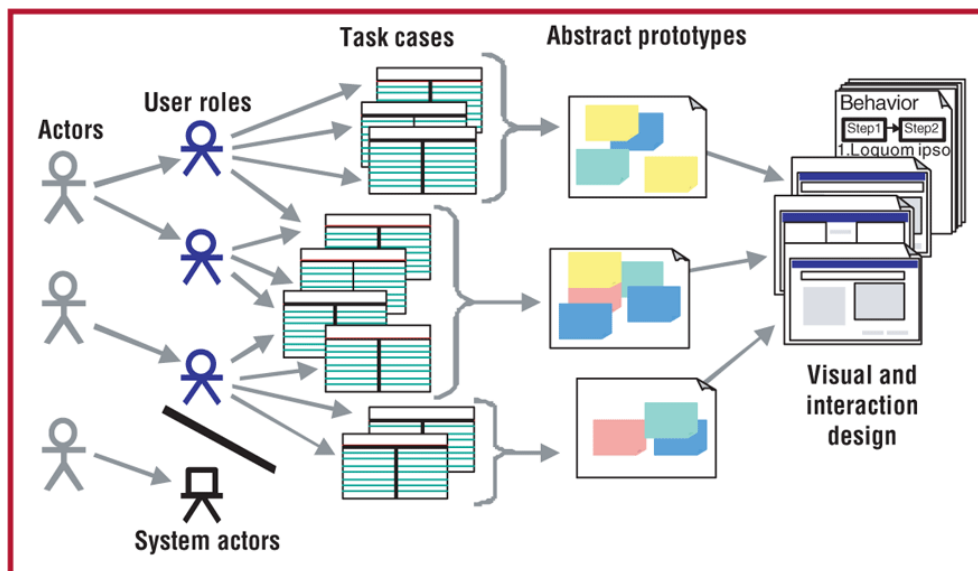
# Document Engineering



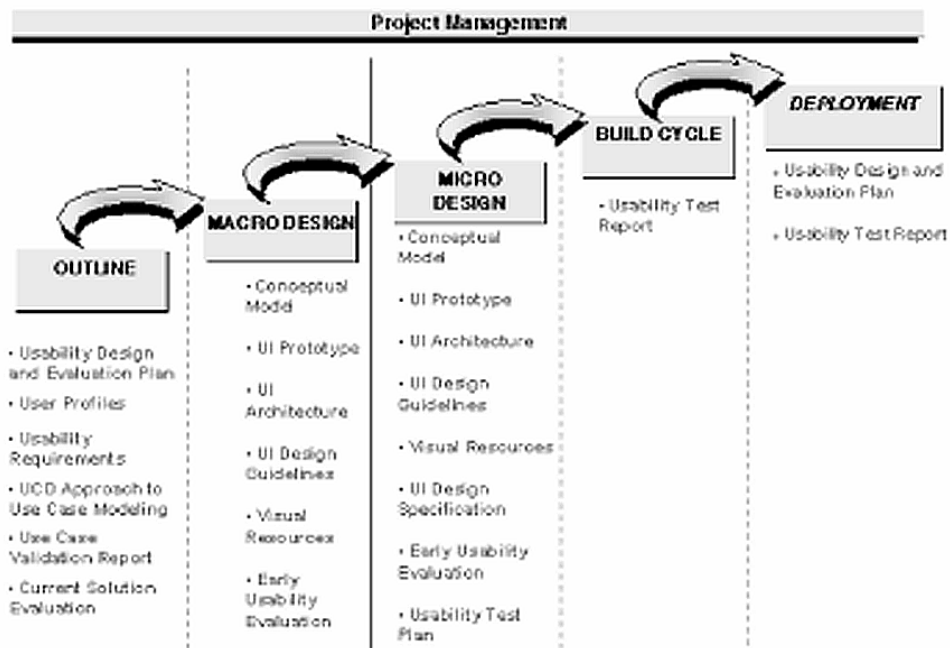
# Usability Engineering



## Process-Centric View of UCD



# Artifact-Centered View of UCD



## Designing A Design Methodology

The "service system" perspective we're taking on design reveals the limitations of narrow methodologies that emphasize either front or back stage goals and techniques

So we'll study and compare how these different techniques attack design problems

We'll learn how to select and adapt analysis and design techniques to the design context

# What is a Model?

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When we study or design a "system" we need a "language" that is meta-disciplinary so we can describe it

Models are simplified descriptions of a subject that abstract from its complexity to emphasize some features or characteristics while intentionally de-emphasizing others

A model can represent a human activity, a natural system, or a designed system

We can model structures – objects, their characteristics, their static relationships with each other like hierarchy, and reference

We can model functions, processes, behaviors – dynamic activities that create and affect structures

We can model the human or computational actors that initiate and perform these functions, processes, and behaviors

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## Modeling and Designing

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The primary purpose of modeling is to better understand some existing system or environment and its entities, and to describe this understanding so it can be communicated

Models of things as they currently exist are *Physical* or *As-Is* models

A basic task of modeling for analysis is capturing the languages and practices of the people who work in the design context

The next purpose of modeling is to assist in the design or re-design of a system or set of artifacts

Models of things as they could be are *Conceptual* or *To-Be* models

Designing abstracts away or generalizes from the technology and implementation details in the physical model to create a conceptual model

# Designing Using Conceptual Models

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Objects can be manipulated as conceptual components without impacting the real world that they describe, or in ways that are impossible in the real world

This encourages the re-use of common components via standardization, patterns and libraries

It facilitates the rationalization of components and the removal of redundancies and inefficiencies

# Modeling using "Service Blueprinting"

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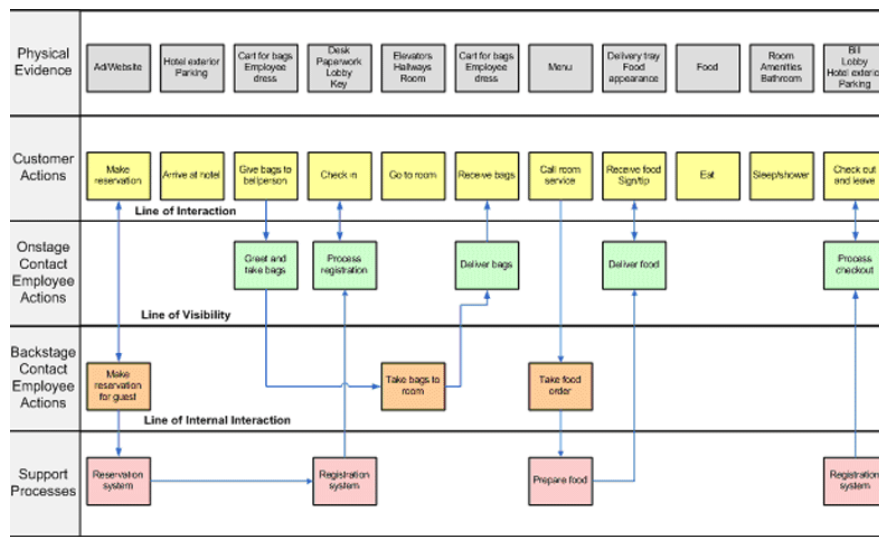
Blueprinting is a service design methodology for "systematically managing the customer experience" and "promotes a conscious decision on what consumers see and which employees should be in contact at each moment of truth"

It is a design methodology for services that have an interface with an actual customer through technology or interpersonal interactions, but doesn't seem appropriate for purely computational services

Appropriate for services that are "dynamic, unfolding over time through a sequence or constellation of events and steps"

Allows firms to visualize their service processes, points of customer contact, and the physical evidence associated with their services from their customers' perspective

# Service Blueprint for Overnight Hotel Stay



## Modeling using "Document Engineering"

For systems and services composed from components or information sources, it is useful to conceptualize the design in terms of patterns of information exchanges

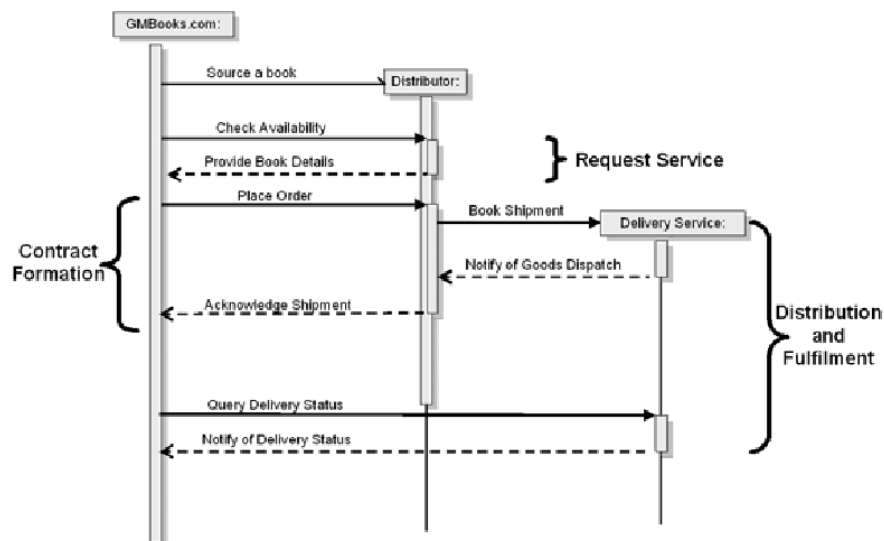
The primitive or atomic exchanges are transactions

Sets of related transactions that have meaningful semantic overlap can be treated as collaborations

Transactions and collaborations follow patterns, and thus can be used as building blocks in process or interaction design



# Collaborations and Transaction Diagrams



## Blueprinting {and,or,vs} Document Engineering

### Agreement:

- Important to depict a service at multiple levels of analysis
- Need an end-to-end process description

### Disagreement:

- DE treats documents and processes as "yin" and "yang" and designs the reusable information components that documents use to "glue" processes together
- Not much focus on customer experience in DE, and no customer segmentation

# Course Project, Assignments and Midterm Exam

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Most important work for the course is your participation on a team project

You'll develop a project idea from one of three emerging design contexts: multichannel designs, composite applications, and "smart" services

Six assignments -- milestones and modeling artifacts in the end-to-end design process

Midterm 27 October (take home, no class meeting)

## Grading

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Project Assignments 60%

Final project deliverables and presentation 10%

Midterm exam 20%

In class/section and online participation 10%

# List Serve

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Sign up for "issd" class list serve

- e-mail to [majordomo@ischool.berkeley.edu](mailto:majordomo@ischool.berkeley.edu)
- Subject: Leave blank
- Body of message: subscribe issd

# Class Policies and Expectations

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My office hours are M 4-5 and W 11-12 or by appt

My lecture notes will be posted by 1:45 pm the day of the lecture

You should do the assigned reading before each class so that you can participate

You and I will monitor and manage your signal/noise and that of others

## Readings for Wednesday 3 September

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John Ward, "Design challenges in multichannel services"

Jill Blue Lin, "An Analysis of Graceful Degradation as a Design Method for Multi-Platform User Interfaces"

Silvana Trimi & Hong Sheng, "Emerging trends in M-government"

Sean McGrath & Connor O'Reilly, "A service-oriented approach to e-government architecture"

Glen Allmendinger & Ralph Lombreglia, "Four strategies for the age of smart services"

Jesus Bisbal, Deirdre Lawless, Bing Wu, & Jane Grimson, "Legacy information systems: Issues and directions"

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## Student Introductions

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Front stage or back stage experience?

Brand new vs legacy/product family experience

For profit vs nonprofit, commercial vs public sector experience

# Assignment 0 - Self Assessment

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Using the three "design context" dimensions in the previous slide, briefly describe your experience in information system and service design

If you have particular expertise or interest in any of the lecture topics in the syllabus, tell us

If there are any topics missing from the syllabus that you consider essential to this course, tell us

Send this information in an email message to "glushko@ischool" and "elisa@ischool"

## Summary: Things to Do This Week

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Course Reader(s) at Copy Central, 2560 Bancroft

Sign up for course list serve

Turn in "Assignment 0" Self-assessment