MODELING CUSTOMER INTERACTIONS
with an
INTERNET RETAILER

all the challenges you could possibly want

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US e-COMMERCE SALES

4th Quarter 1999 – 4th Quarter 2003
sales in billions of dollars
(unadjusted for seasonality)
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AGENDA

• Motivation
• Focus
• Organizing concept
• The shopping experience
• Needed models
• Challenges
• A framework

MOTIVATION

* Every response to a customer click must be programmed
* Decision rules and models are required
* What data should be collected?
* What rules should be developed?

How can academic knowledge contribute to better outcomes for retailer and customer?
MOTIVATION (cont.)

Smith’s (2000) game theory analysis of internet booksellers concludes:

* major branded booksellers will tacitly collude
* the others will adopt mixed high/low pricing
* these predictions “compare well” to actual pricing behavior

But this type of research doesn’t make detailed price recommendations.

A FOCUS

The adaptive control of the marketing mix over time

* what specific prices (and values of other marketing mix variables) should be set?

* how should these be changed so as to be effective yet learn how to do better
ORGANIZING CONCEPT

Build a WORKBENCH
- follow simulated visitors through shopping process
- base it on a simplified site
- be able to expand detail on an item of interest

Components
- models of customer choice
- models of site pages
- business models of site owners
- feedback control systems

What is the Customer’s Shopping Experience?
A Focus Group

* Think of a specific product you have bought on the web
* What steps did you go through in buying it?
* What was easy/hard?
* What did you like/dislike?
* How could the experience be improved?
STAGES OF CONSUMER DECISION MAKING

Stage 1: Learn product’s attributes
Stage 2: Construct importances for them
Stage 3: Select a few products for detailed consideration
Stage 4: Evaluate products and choose one

Needed: simple models that capture the essence of these activities

Note: discussion session at conference stopped here.
PRODUCT ADVISORS

* Work through the product decision process with the customer

* Example:
  General Motors www.autochoiceadvisor.com
Models of Site Pages

Challenge:

There can be over 100 links to choose from on a home page. Each is a possible click.

How can this be simplified to make the analysis manageable yet be able to add selective detail when needed?
A FRAMEWORK FOR AUTOMATED CONTROL

(as designed for a Circuit City or an Amazon)

Levels of system operation:

1. Data inputs
2. Real time decision rules
3. Updates of the decision rules
4. Feedback to site management
5. Strategy choice
COMPONENTS OF AUTOMATED CONTROL SYSTEM

Level 1: Data inputs
- clickstreams of visitors and customers
- data from comparison engines, spiders

Level 2: Real time decision rules
- price
- promotion
- display
- page design on the fly
- personalization

AUTOMATED CONTROL COMPONENTS (cont.)

Level 3: Updating decision rules
- analysis of historical data
- fine tuning of parameters
- adaptive experimentation

Level 4: Feedback to site management
- quality control, trend monitoring
- early warning on market changes

Level 5: Strategy choice
- positioning: Saks or Walmart?
- target segments