Driving Real Innovation
With Customer Data

Learn to build revolutionary new products that will delight customers

CHI 2003 Tutorial

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Human practice drives invention

Designers use technology to redesign daily life

- Light bulb
- Spreadsheet

Proximity to practice hones technology

- The WordPerfect secretary pool
- But caution against the technical secretary

Ignoring practice accounts for product failure

- Picture phone

Field data creates a repeatable accident
Levels of invention affect impact

Business strategy takes a market change view
Balances business impact across the market, customer value, and capacity to deliver

Practice takes a human system view
Integrates the person’s role and task into work group and overall customer work intent

System work model integrates work within the product
Structures and identifies the function and flow within the system to support direct achievement of individual and group work intent

Interaction paradigm synthesizes predictable and easy access to function
Presents system function and flow in a user interface that reveals the system model to the users

Implementation makes the function possible within a high performing, evolvable system
Invents and uses middle-ware, hardware, algorithms, efficient ways of processing and structuring the system
Product design is practice design.

Work is a system.
Fundamental innovation takes a wide view

- New technical elements drive piecemeal practice
  
  Integrated elements invent new coherent practices

- Coherent practice drives whole new businesses

- Full adoption means commodity products

Plan across the full spectrum of impact
Invention can be a plan

Implicational reasoning drives design

- If this is what is going on (with people); What could we do (to support intent with technology)

- If we support people this new way (with technology); What will that do to the nature of business and the market

- If we deliver this kind of product; What does it mean for us as a company (cost, skill, delivery mechanisms, business models)

Use tunes, twists, and reveal new possibilities
Design is recombination

Recombination of known “materials”
- Material — color — technical — practice — business — organizational

Recombination across contexts
- Separate the whole into parts, and recombine the parts
- Invent new elements to mix with existing
- Steal from one context and mix with the presenting context

Recombination to achieve a customer intent
- Driven by a vision
- Implying a new future of practice

Innovative design is the recombination of parts
Tricks of the trade of invention

Focus:
- Shifting and staying focused

Story Thinking:
- Design for the story not the part

Metaphor:
- See through the complexity to a simpler solution
- Steal a good practice

Software Genres:
- Common interaction patterns build on and invent them

Analogous Data:
- Collect data that challenges thinking
A problem focus finds problems

Traditional usability is a problem focus

- A problem focus drives small changes and fixes
- Small changes out of context can have a large negative impact on practice
- Small changes will fix workflow within a tool but not challenge the overall product structure
  - You can’t beat the market leader with simple function changes
  - Commodity products are especially resistant
  - …Unless you fix everything all at once — this is usually the second product on the market

Innovative design takes a wider focus
Technology drives what you see to invent

Different platforms suggest different solutions

- The computing machine --> computation
- Character cell display and menus --> looking and telling
- WYSIWYG --> direct manipulation and movement of parts
- Windows --> creation tools
- The web --> information access and display
- Mobile devices --> connection, self organization, and commerce

You see what you know how to fix or design
Software genres structure solutions

We repeat known ways of working within technology

- Platforms create genres
- Product structure has genres
  - Finding
  - Spreadsheet
  - Core email
  - Creating and manipulating shapes
  - Cell phones need a genre – they are inconsistent
  - If everyone steals Palm, Palm interaction will become a genre
- User interface elements are genres
  - Tabs
  - Trees
- Content has genres
  - Left navigation bar on the web

Steal and twist them
Business focus drives invention

Business see within its core competency

- We make small boxes, so we look for small boxes
- We make software, so we look for software solutions
- If we look for information, we see information needs

Challenging a business’s core competency is hard

- Even when sanctioned by the company
- It implies changing sales approaches, delivery mechanisms, skill sets and management styles

Success is finding something right for your company
Stories synthesize the parts

Job titles (personas) hide the fundamental work
- A person plays many roles
- Many kinds of people play the same role
- A single role or person doesn’t tell the whole story

Task is only one part of the larger story
- A task fits into a larger story
- It makes a product linear
- A future scenario is still just the story of a task

Workgroups are core to any kind of work
- No one works alone; all products are part of collaboration
- Distributed work is about a distributed workgroup
- Communities are just big, loose workgroups

Design is making a movie
Story thinking drives systemic design

Multiple people with multiple experiences interact in multiple storylines to achieve their intents

Write a script of a new future:

- Characters: roles from Flow model
- Setting: Physical and Culture models for context
- Plot is what happens: Sequence models
- Props: Artifact model
- Key themes: Affinity Diagram

Storytelling takes multiple perspectives
Selling is about a benefit story

Product success is only as good as the sales story

- Consolidated data tells the story of “life” now
  - Revealing the things that work and the flaws

- A good sales story makes the customer feel understood;
  - “You know my problems so you probably have a good solution”

- A design is the story of the future that solves the problems
  - A diffused message is hard for the sales force and the customer

- The consolidate cultural model helps identify 1 or 2 key messages
  - Build the sales story and the design around the messages
  - A roll-out plan that has a big picture and releases with coordinated messages creates trust and loyalty in the customer

Selling is part of design
Vision a solution

Tell the story of the new world with technology

- Visioning is a group storytelling process
  - Driven by deep knowledge of technology, business direction and customer work
  - Synthesizing role, task, customer and business value
  - To create a new work practice through inventing new products and technology
- Multiple visions explore possibilities
- Evaluate afterwards to free creativity
  - Use the variations to recombine parts
  - Minuses suggest design challenges
Paradigm shift can be deliberate

Getting out of the box is hard – we are stuck
- Within our corporate culture
- With our known designs and technologies
- With our assumptions about the work domain
- With our usual language and explanations

Having skill in all the materials is hard
- Work patterns – we need lots of experience
- UI patterns – software genres
- Business models – we don’t think about business
- Technology – new and old

Deliberate paradigm shift needs process
- Techniques of design and data collection to open up thinking
- Wide experience to steal from and build on
- A cross functional team to include all perspectives
- Deep skill and knowledge in new technical platforms – without its blinders
Metaphor focuses the story

Metaphor is not a UI paradigm

Metaphor is a diagnostic tool simplifying complex practice
- To find the core problem
- To see the core design challenge
- To reveal limiting assumptions

Map an everyday practice to the problem studied
- Use any known practice as a metaphor
- What work is this work like?

And a source for stealing and twisting design solutions
Invention is recombination with a twist

- Use customer data to find the market’s core issues and focus design direction
- Use divergent customer data to see the design problem from a new perspective
- Map metaphors to the data to see the problem and new solution possibilities
- Use all your materials and twist them to find a new solution
- Map technology into the existing story to create a new story
- Design at every level of design
- Make sure the business model works – for your company and the customer’s
Make your value proposition real

The value proposition is a customer-centered story that you can deliver

- It matches the customer pain and joy
- It extends and supports the customer’s fundamental intent
- It smoothes the work practice that is experienced as rocky
- It really delivers the story technically, or at least the amount of the story you promise
- It is a step on the way to the bigger story
- It is a value proposition for the business too

And fits with your organization’s goals