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

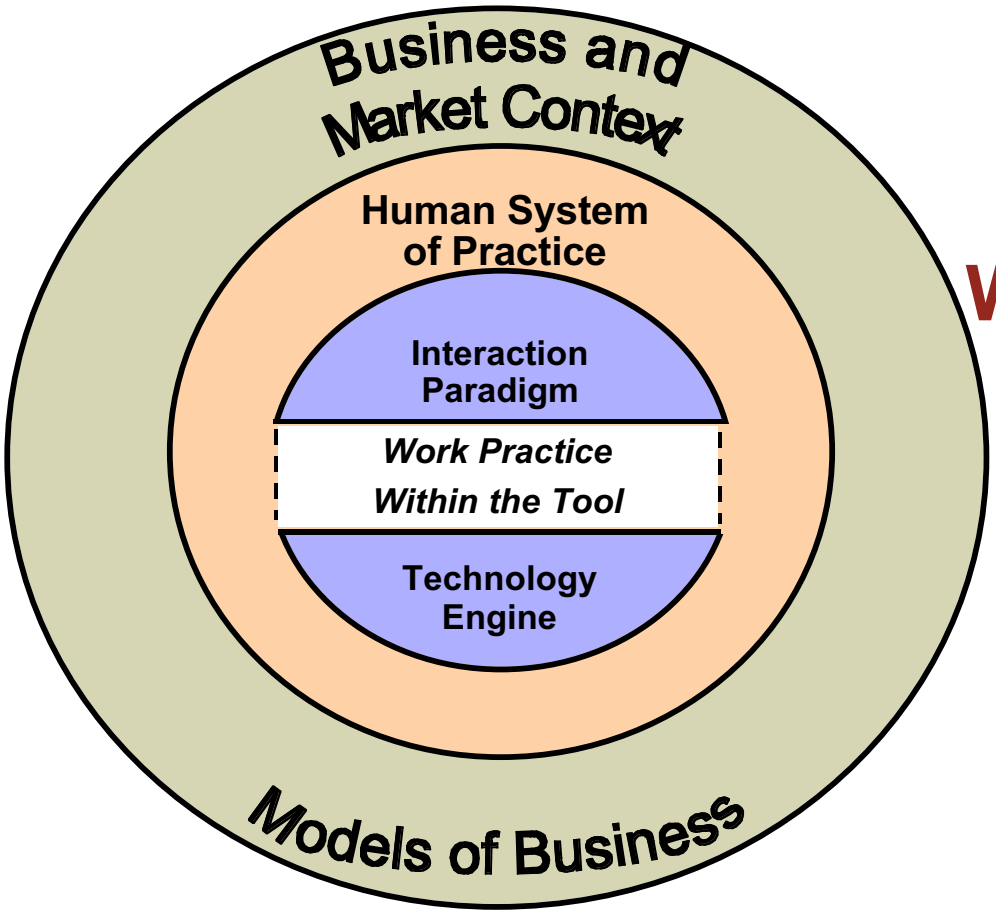
Interaction paradigm *synthesizes predictable and easy access to function*

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*

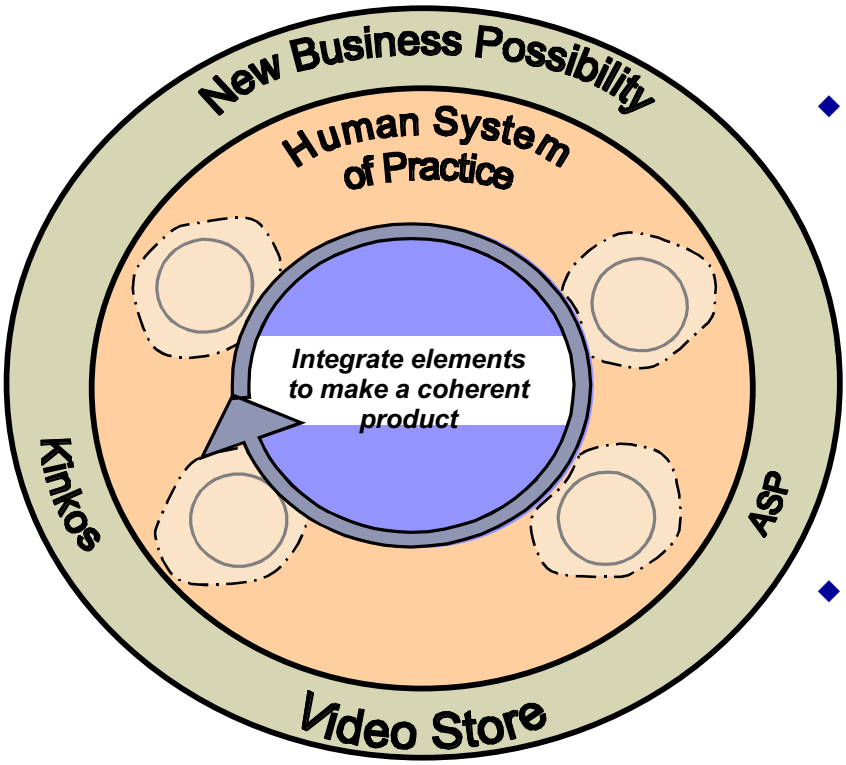
Invents and uses middle-ware, hardware, algorithms, efficient ways of processing and structuring the system

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