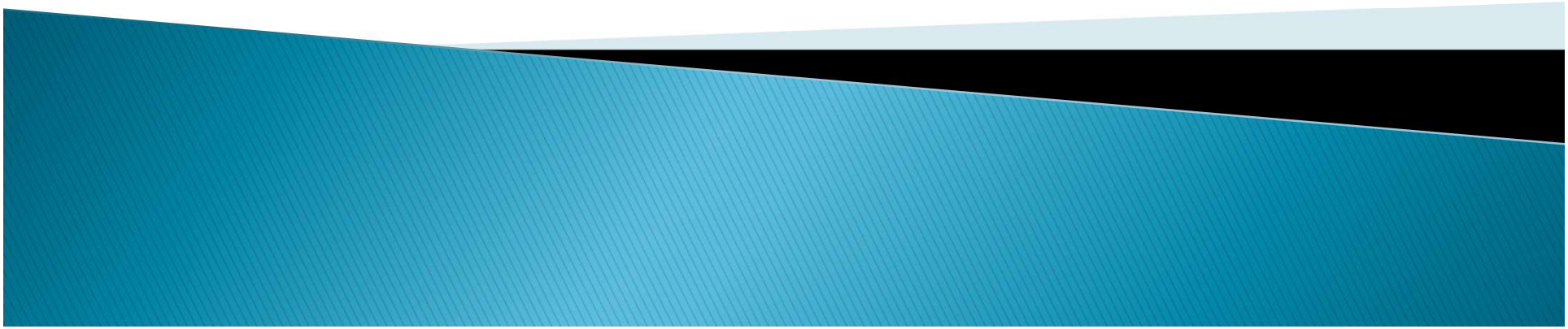
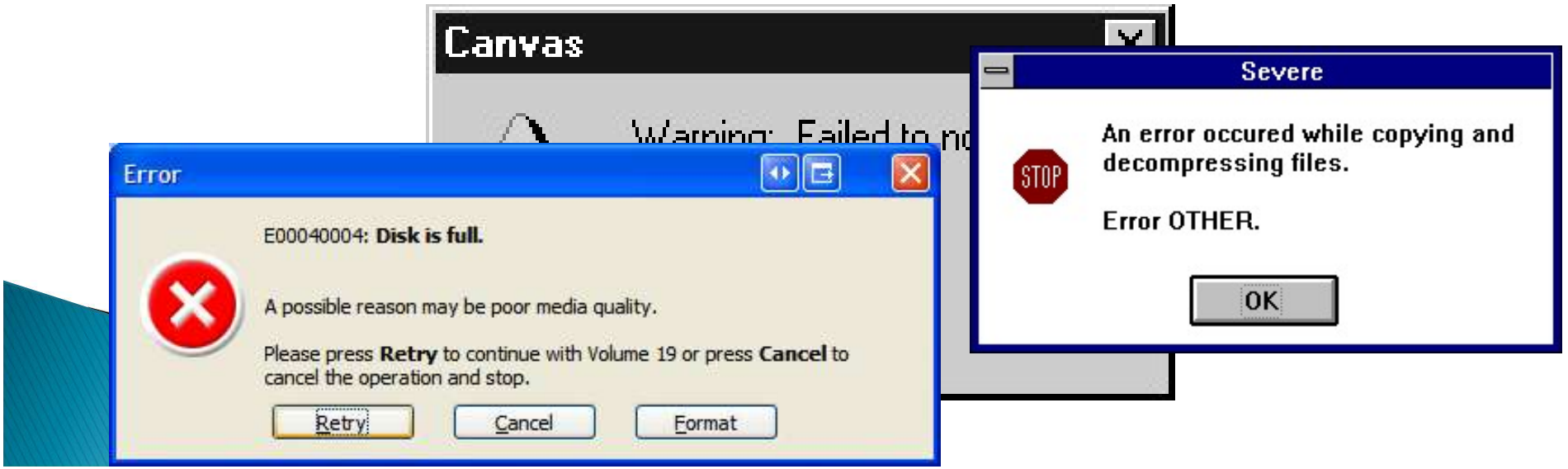
Lecture # 3



Digital products…

- Digital products are rude
- Digital products require people to think like computers
- Digital products exhibit poor behavior
- Digital products require humans to do the heavy lifting

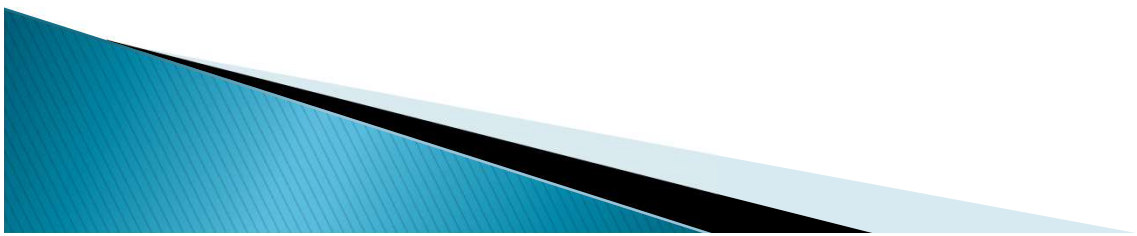


Computer, the first machine created by humans

- Capable of almost limitless *behavior when properly coded into software.*
- Interactivity is compelling to humans, so compelling that other aspects of an interactive product become marginal.
- Who pays attention to the black box that sits under your desk—it is the interactive screen, keyboard, and mouse to which users pay attention.
- Yet, the interactive behaviors of digital products, which should be receiving the lion's share of design attention, all too frequently receive no attention at all.

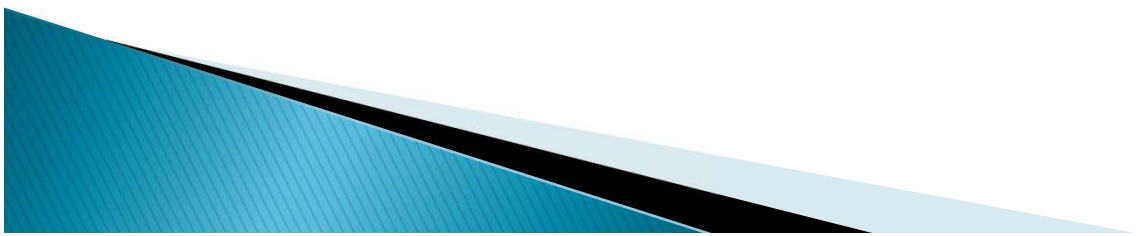
Design of behavior

- Requires greater knowledge of *context, not just rules of visual composition and brand.*
- *Design of* behavior requires an understanding of the user's relationship with the product from before purchase to end-of-life.
- Most important of all is the understanding the user wishes to use the product, in what ways, and to what ends.



User Experience (UX) Design

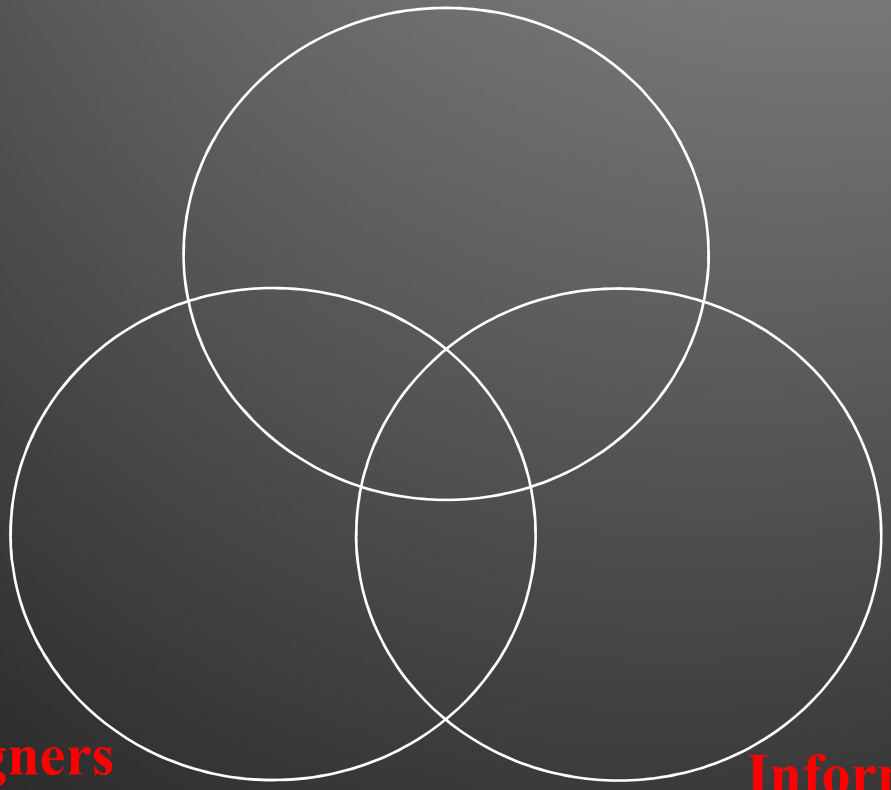
- Interaction Design focus
  - Designing to effect the experience of users
  - Relating behavior (UX) to form *and* content (UI)
- Information architecture focus
  - Structure of content
  - The way content is provided to users
- Industrial Design & Graphic Design focus
  - Form of products and services
  - Ensuring that form supports use (requiring attention to behavior and content)



Three overlapping concerns…

Behavior (UX)

Interaction designers



Form

Industrial designers

Graphic designers

(UI)

Content

Information architects

Copywriters

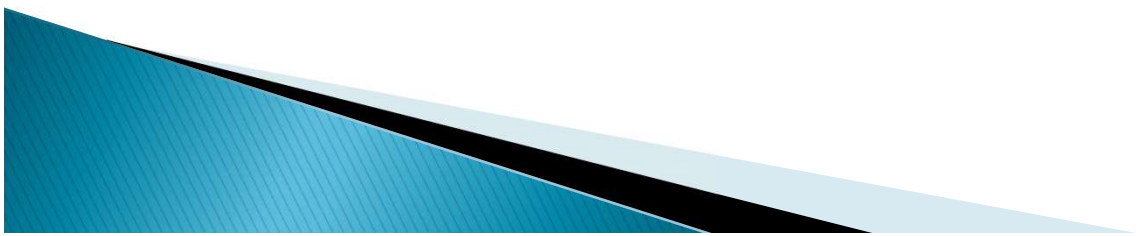
Animators

Sound designers

Interaction Design *and* the Product Team

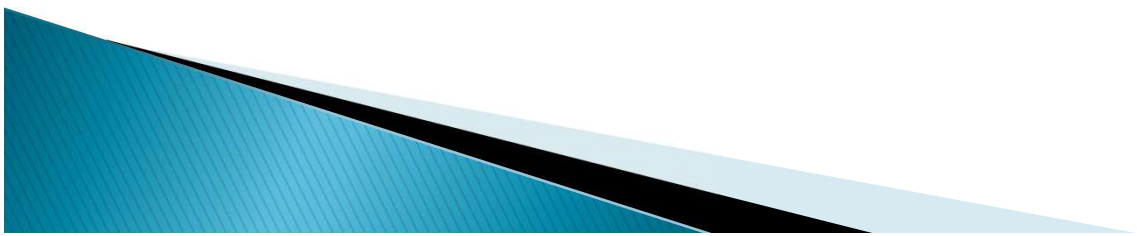
Division of responsibilities:

- Design team
  Users' satisfaction
- Engineering team
  Implementation and fabrication
- Marketing team
  Convincing customers to purchase product
- Management
  Profitability of the product, effecting what others work on



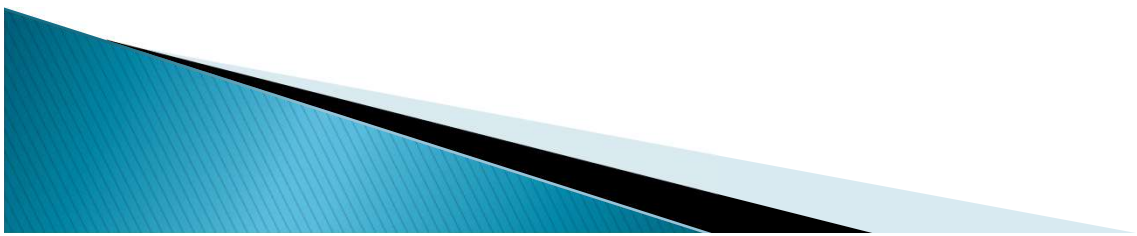
Effective & Practical Tools for Interaction Design

- Principles
  - Ideas about the practice of design
  - Rules & hints on use of user interface and interaction design *idioms*
- Patterns
  - Common ways to address user req'ts & design concerns
- Processes
  - How to understand & design user req'ts
  - How to apply design principles & patterns



"Goal"

- "Understand how users will comprehend and interact with *your* digital product, and how to use this knowledge to drive your design"
- No such thing as an objectively good user interface … it depends
  - Who is the user
  - What is the user doing
  - What are the user's motivations
- One size does not "fit all"

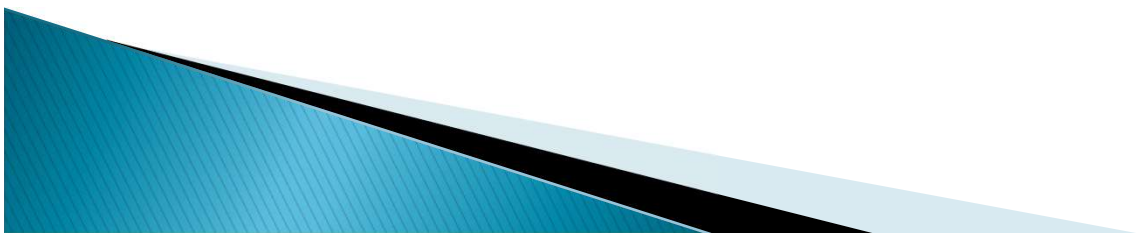


If you want good design?

- Understand the people who will interact with your product
- Understand there are no fixed guides to style or interface standards!

Four main *steps* to designing interactive systems:

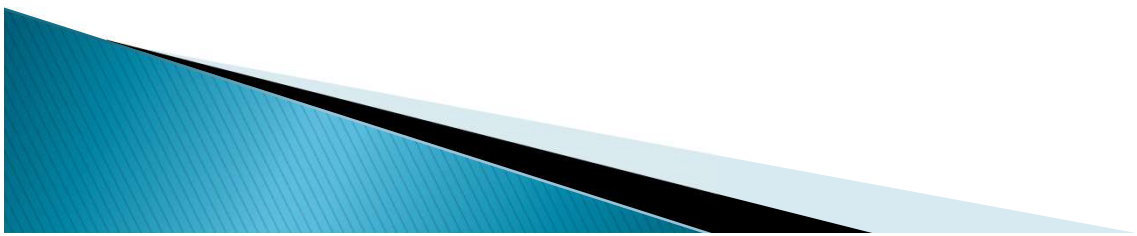
1. Researching the domain
2. Understanding users & their req'ts
3. Defining the framework of a solution
4. Filling in the design details



Part I Understanding Goal-Directed Design

CHAPTERS:

1. Goal-Directed Design
2. Implementation Models & Mental Models
3. Beginners, Experts, and Intermediates
4. Understanding Users: Qualitative Research
5. Modeling Users: Personas and Goals
6. The Foundations of Design: Scenarios & Req’ts
7. From Req’ts to Design: The Framework & Refinement



A Design Process for Digital Products

Cooper – Chapter 1

Need – Better Design Methods

- Technologically focused solutions… difficult to use and control.
- Unsatisfied users… products are difficult to use and control.

Design

(viewed as a conscious & intuitive effort to impose meaningful order)

- Understanding users' desires, needs, motivations, & context.
- Understanding business, technical, and domain opportunities, req'ts, and constraints.
- Using this knowledge to create products whose form, content & behavior (UI) *are* useful, usable, and desirable (UX), as well as economically viable & technically feasible.

Developer and Marketers

What **marketers** bring:

- Understanding & quantifying of market opportunities.
- Typical lists of req'ts focused on:
  - "Chasing the competition"
  - Managing IT resources with "to do" lists
  - Making guesses based on market surveys – what people say they will buy.
- However… we know few users can clearly articulate their needs!
- Adding "easy to use" to the list of req'ts doesn't help.

What we get…

- Products that irritate, reduce productivity, and do not meet user needs.
- Interactions patched on at the end
- Digital products *can be* rude!
  - Where did you hide that file?
  - Are you sure?
  - Did you really want to delete that file or did you have some other reason for pressing the Delete key?

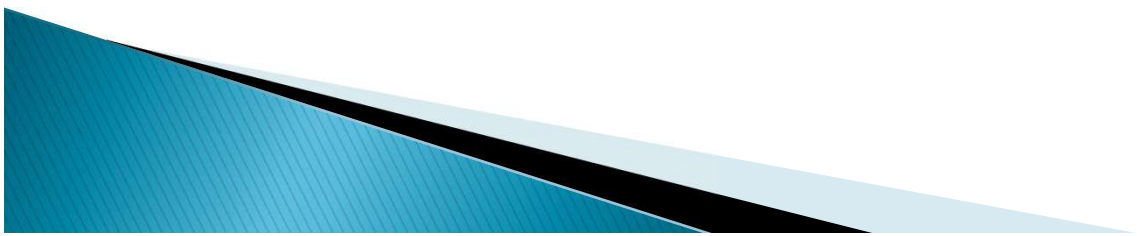
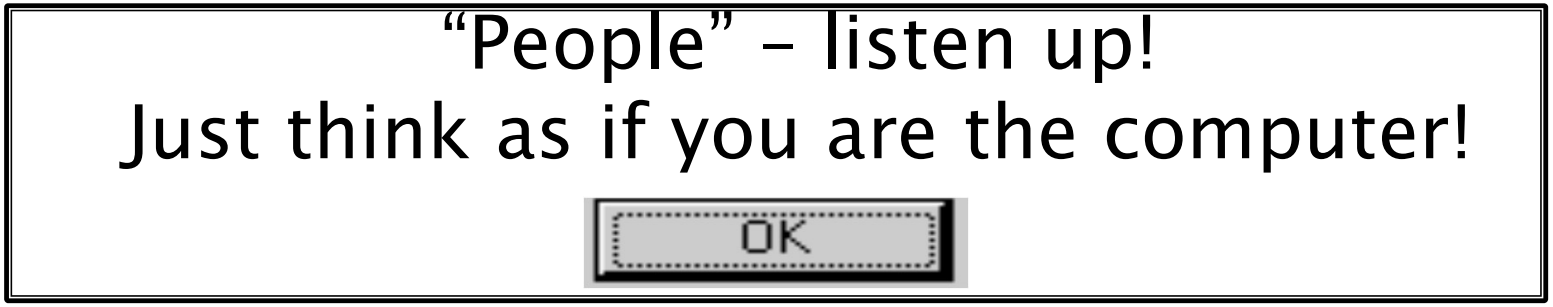


Figure 1-2

"Thanks for sharing.
Why didn't the program notify the library?
What did it want to notify the library about?
Why is it telling us?
And what are we OK-ing?
It is not OK that the program failed!"

Introductory Dialog Box



MS Word –

User wants to rename a document they are editing:

Close the document, then rename it (or)

Use "Save AS…" with new name and then delete the file with the old name

You save a document, then print & close it

But… you are then asked if you want to "Save it"

Excel has a different approach!

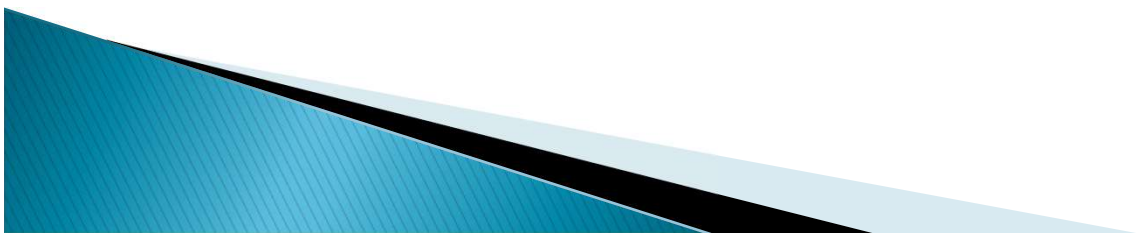
This has been "fixed"

Work interrupted

- Software requires you to “stop” what you are doing.
- How much work are you forced to do in order to manage your use of the software?

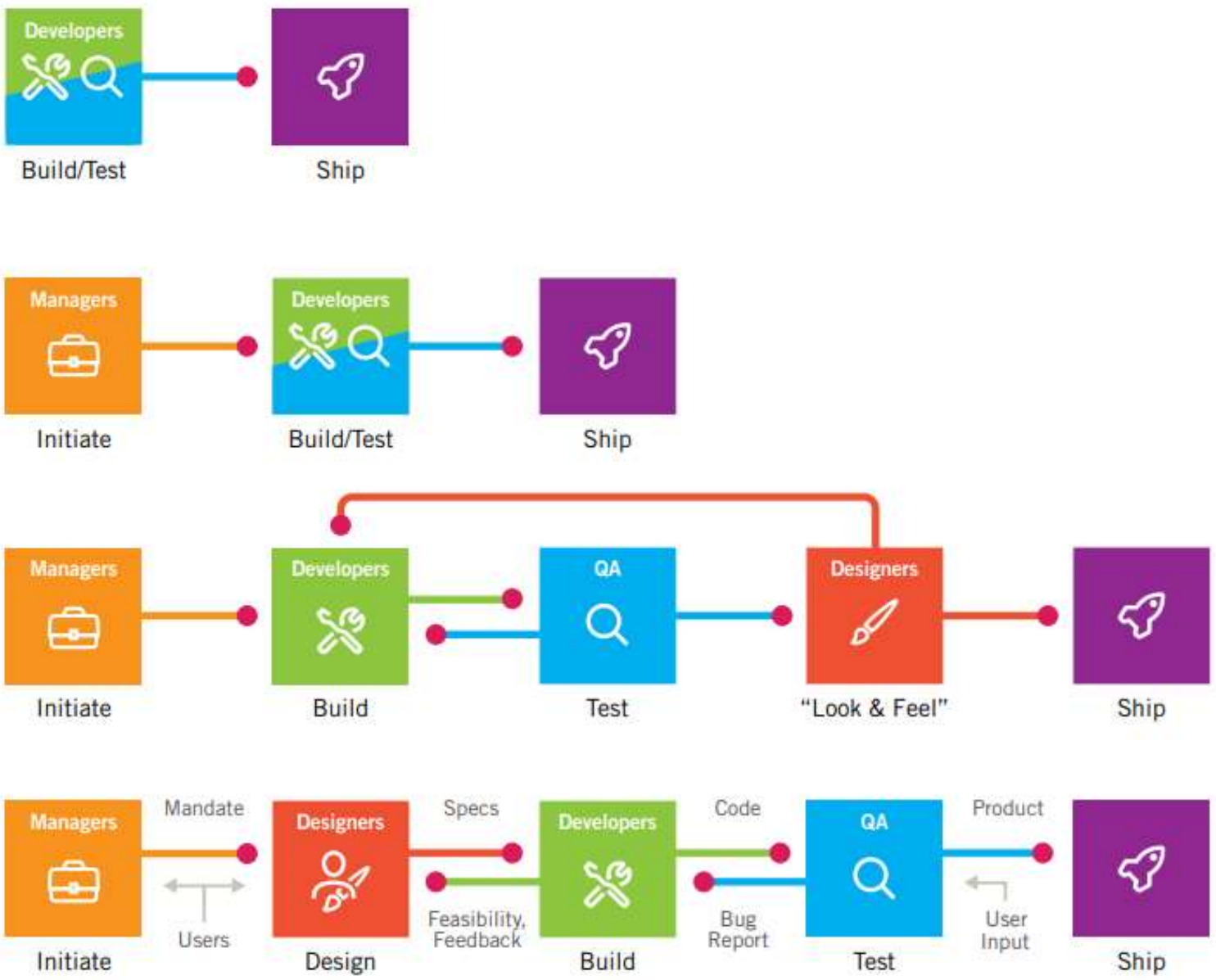
What about you?

- Think… discuss and write down some examples…



Why products are so bad?

1. Misplaced priorities
   - Focus is on functionality, not how it is to be provided
   - User's goals are not "front and center" to the design (see Figure 1-2)
2. Ignorance about users
   - How will users use the product?
   - What will they be using the product to do?
   - Why did they choose our product?
   - What will make users happy?
2. Conflicting interests
   - Tradeoff between **ease of coding** & **ease of use**
   - Programmers cannot advocate for the user, the business, and the technology - simultaneously
3. The lack of a process
   - A repeatable, predictable & analytic process
   - Transforms understanding of users into products that meet their needs & excite their imaginations
   - Especially when buyers are not users


Developers
Build/Test
Ship
Managers
Initiate
Developers
Build/Test
Ship
Managers
Initiate
Developers
Build
QA
Test
Designers
"Look & Feel"
Ship
Managers
Initiate
Mandate
Users
Designers
Design
Specs
Feasibility, Feedback
Developers
Build
Code
Bug Report
QA
Test
Product
User Input
Ship

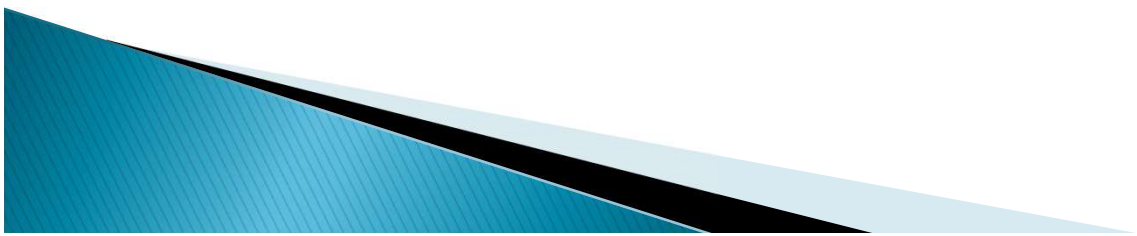
Analogy

Patient goes to the doctor – has horrendous stomach ache.

"It really hurts. I think it's my appendix. You have to take it out as soon as possible."

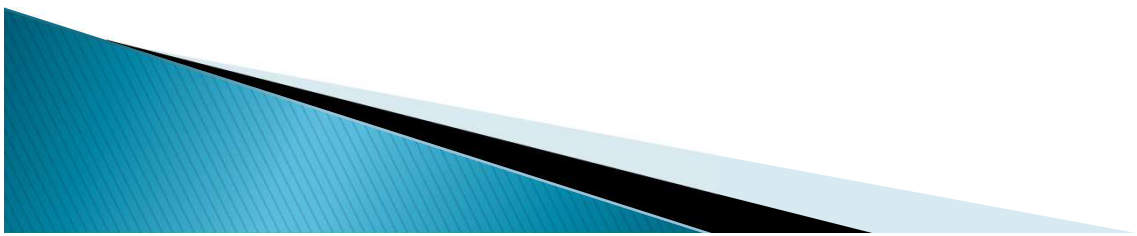
The patient is good at explaining symptoms.

The patient has no skills to make the correct diagnosis.



Now enter the computer

- Allows for limitless behavior
- Alters the nature of the products it touches
- User focus is on the screen, keyboard and mouse… it is this interactive behavior that is important!
- Design requires understanding the user's relationship with product – *before purchase*
- How will the user actually use the product, in what ways, and to what ends?



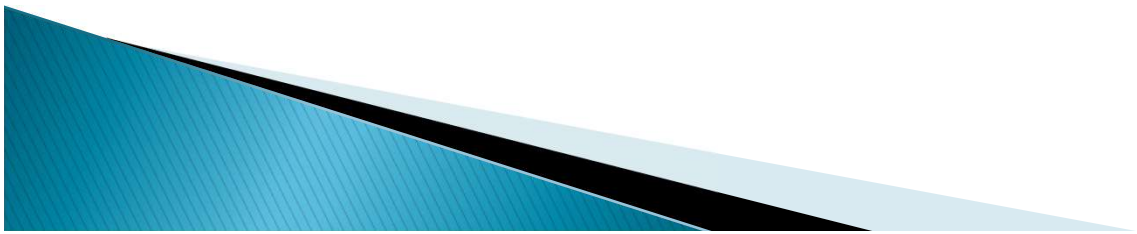
Evolution of Design

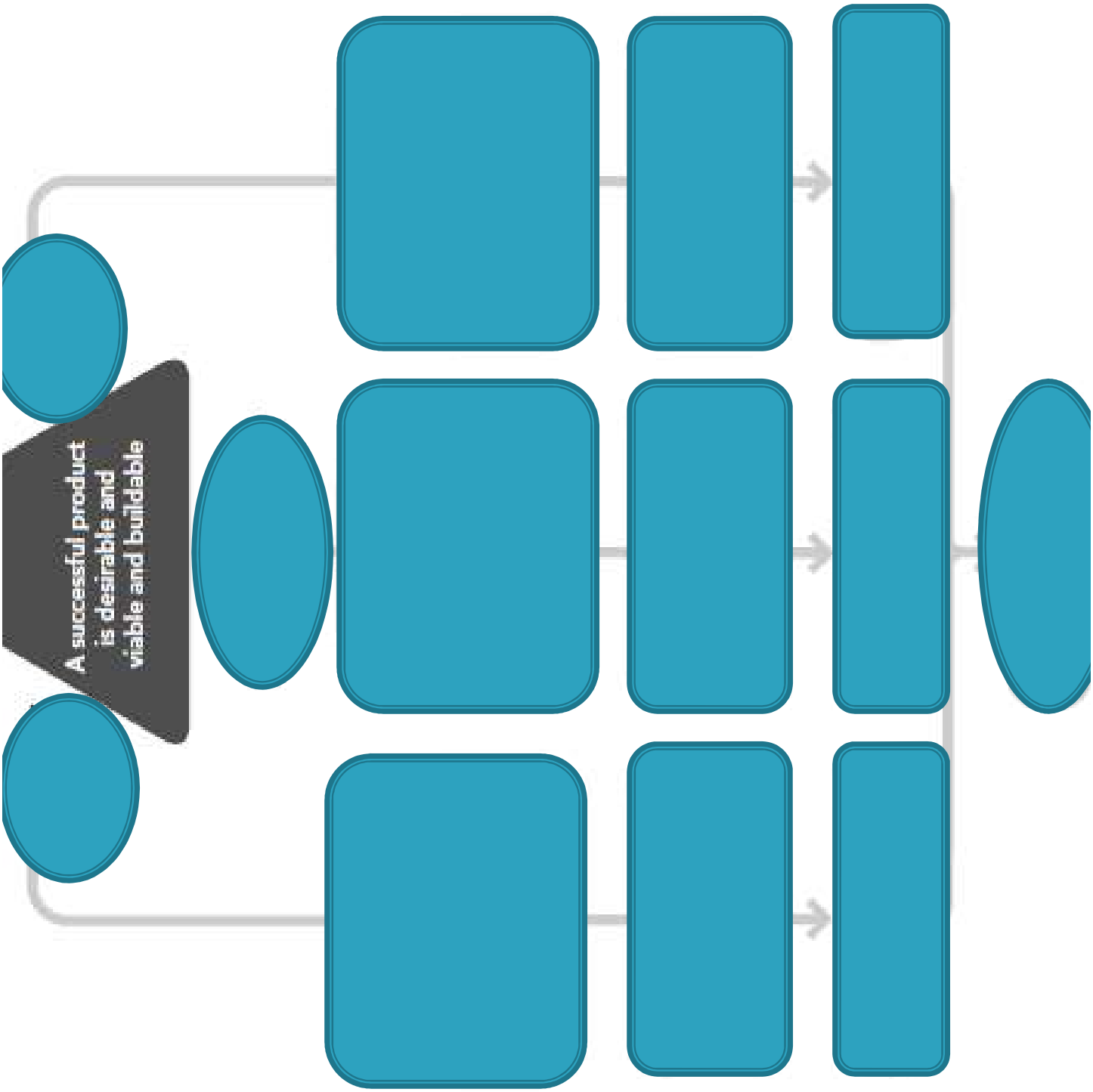
Product development concerns:

1. Desirability
2. Viability
3. Capability

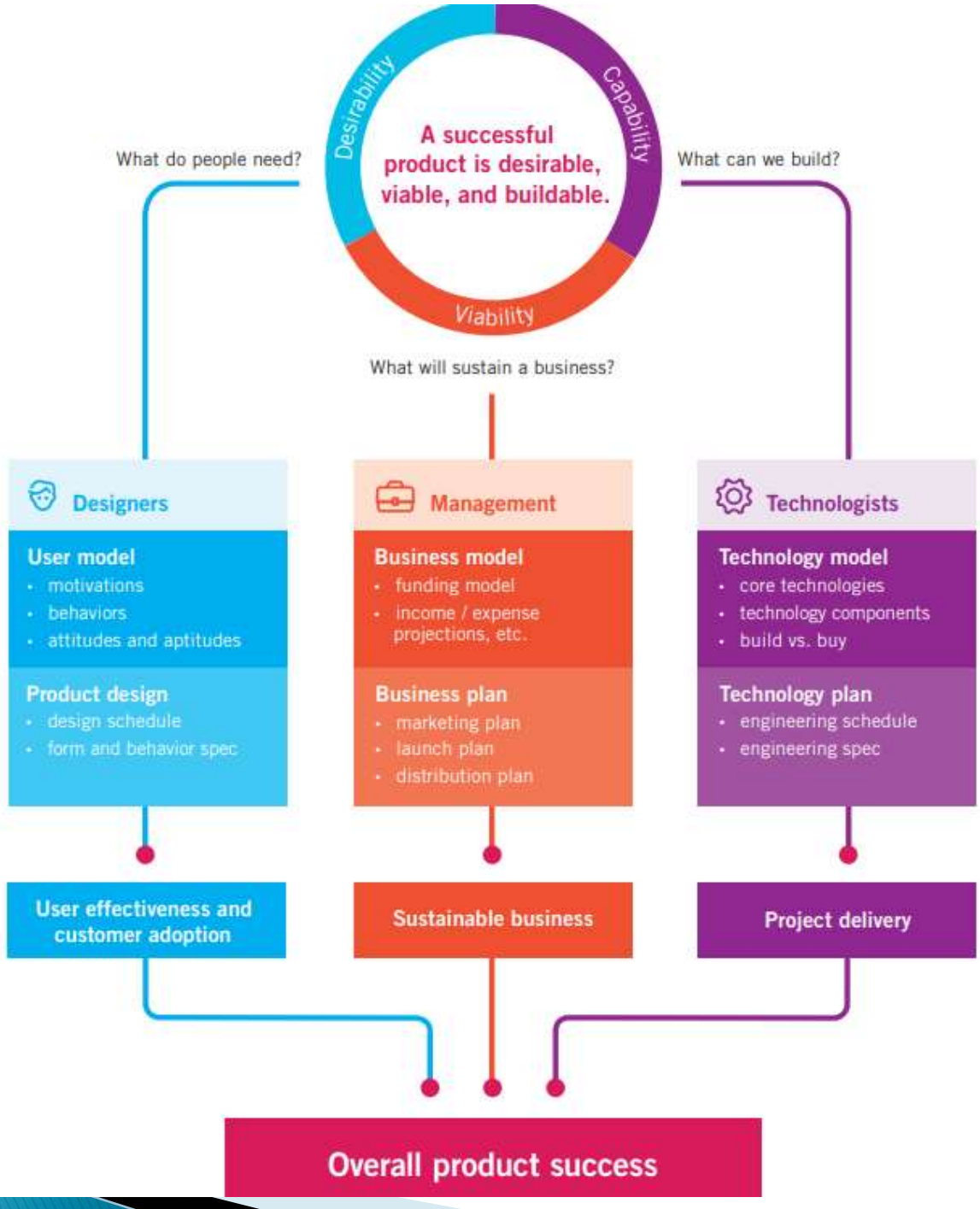
All three must be addressed…

… to achieve user goals providing appropriately designed user interactions





Building Successful Digital Products


Desirability
Capability
Viability
A successful product is desirable, viable, and buildable.
What do people need?
What can we build?
What will sustain a business?
Designers
User model
• motivations
• behaviors
• attitudes and aptitudes
Product design
• design schedule
• form and behavior spec
Management
Business model
• funding model
• income / expense projections, etc.
Business plan
• marketing plan
• launch plan
• distribution plan
Technologists
Technology model
• core technologies
• technology components
• build vs. buy
Technology plan
• engineering schedule
• engineering spec
User effectiveness and customer adoption
Sustainable business
Project delivery
Overall product success

Companies that have struggled to find the balance

Apple

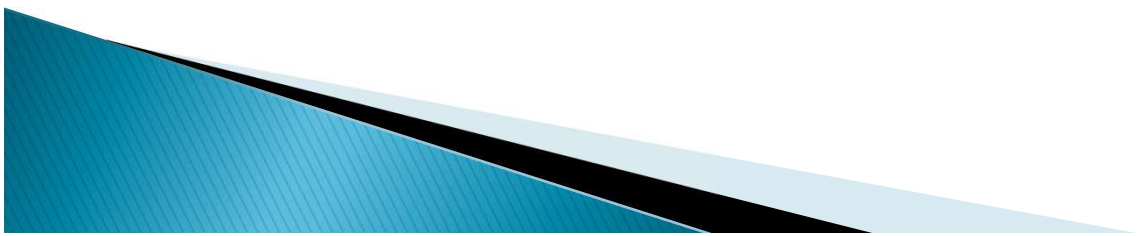
… emphasized desirability but has made many business blunders. Nevertheless, it is sustained by the loyalty created by its attention to user appearance

Microsoft

… is one of the best run businesses ever, but it has not been able to create highly desirable products. This provides an opening for competition

Novell … now part of

… emphasized technology and gave little attention to desirability. This made it vulnerable to competition



User's Goals?

- Are goals the tasks users do?
- Are they the same for all users?

Authors' example:

Accounting clerk

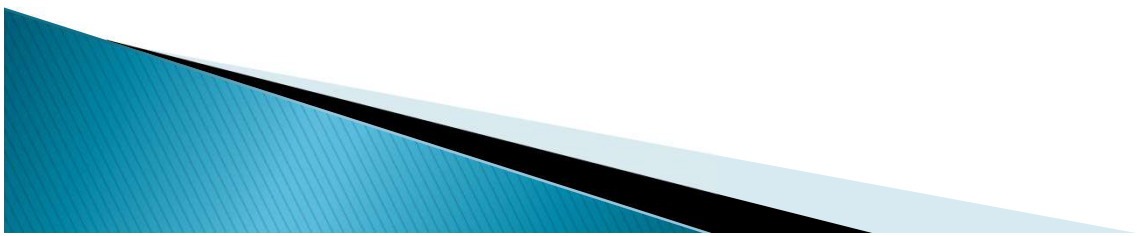
Processing invoices?

Employer's goal

Employee goals… but maybe

Appearing competent

Keeping engaged in work while doing routine and repetitive tasks



Business Goals – the driver?

- Not necessarily aligned with user's goals
- Satisfy user's goals and the *Business Goals* have a better chance of being achieved

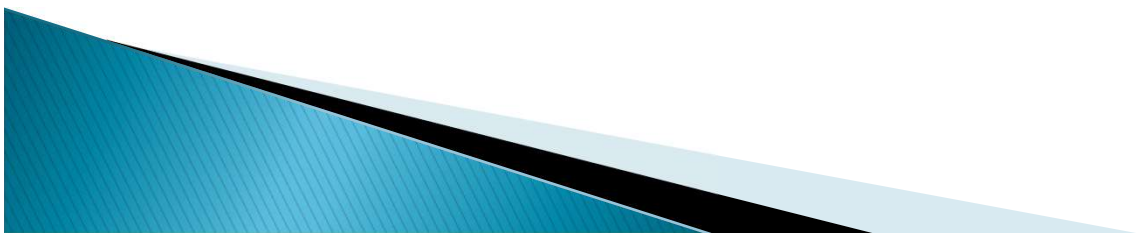
Reminder:

What commercial software does?

- Makes users feel stupid
- Causes users to make big mistakes
- Requires too much effort to operate effectively
- Does not provide and engaging or enjoyable experience

The Message

- Goals are not the same as tasks *or* activities!
- Goals motivate people to perform activities.
- Understand the goals, you understand user expectations & aspirations.
- You need to understand the meaning of the activities to the user.
- Task and activity analysis is needed for detail… after user goals are understood.



Goal versus tasks and activities?

- Goa ctivities. A g ondition,
- whe e inte ls of orga reach a goa
- Dor ny in whi sks, which are iich are then themselves composed of operations

Tasks vs. Goals

FUJITSU

- Smaller in Scope
- Procedural, linear
  - often one at a time
- Thinking is Removed
- Focus on action to transform something

"Micro-managers"

- Larger in Scope
- Collective, parallel
  - Sometimes overlapping
- You must "figure it out"
- Focus on end result produced

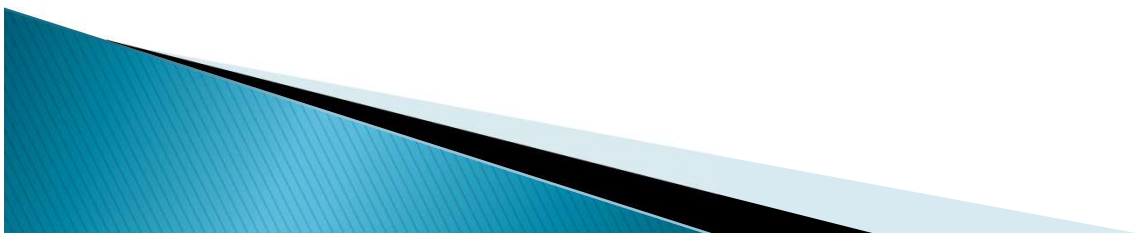
"Good managers"

Goal versus tasks and activities?

- User's goals change slowly… tied to motivation
- Change in activities & tasks … tied to current technology
- Concentrate only on activities & tasks…

  May leave you with a design embedded in the existing technology

  May meet corporate goals but not the users'
- Understanding user's goals allows you to use the technology to eliminate irrelevant tasks and transform the users' work environment.



Designing to meet goals

Context is important

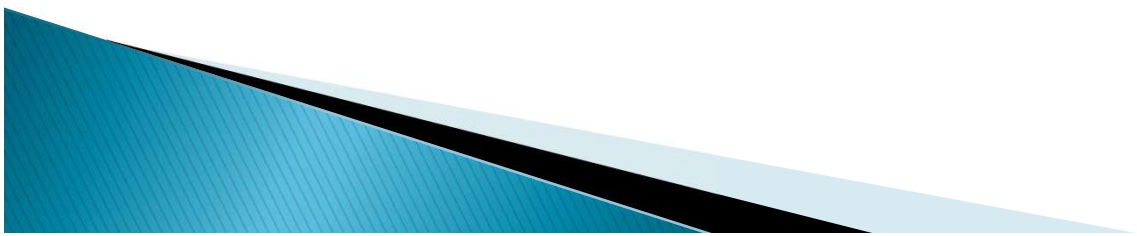
Good design makes users more effective

not to make users look or feel stupid

should improves business throughput & ease of use

"Software that enables users to perform their tasks without addressing their goals rarely helps them be truly effective."

"Good design makes users more effective"



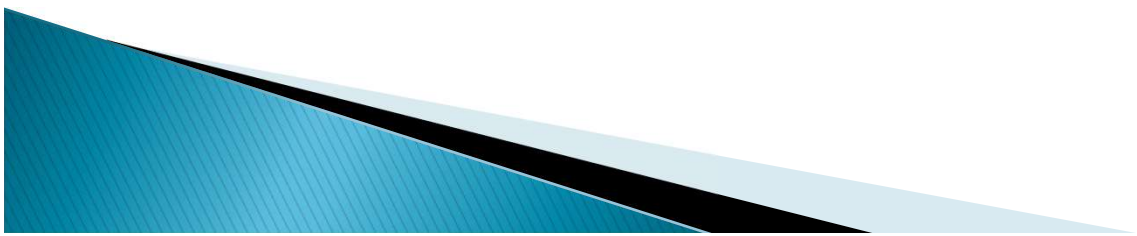
Computer Literacy

"Some have it… some don't

… but it is needed in an information economy"

Really?

> "It's a euphemism for forcing human beings to stretch their thinking to understand the inner workings of application logic…
>
> … rather than having software-enabled products stretch to meet people's usual ways of thinking."



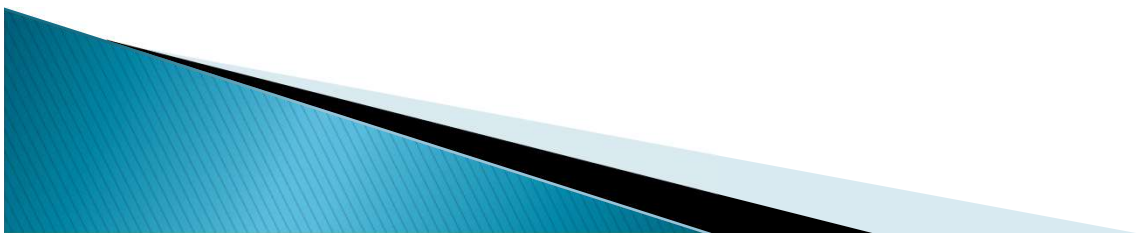
Striving toward perfection…

Software has a behavioral face it shows to the world… that is created by the developer or designer.

What the user sees is the representation of the computer's executed code.

(the developers code in *implementation model*)

How the computer "gets the job done" is hidden from the user. (the user interacts with the *represented model*)



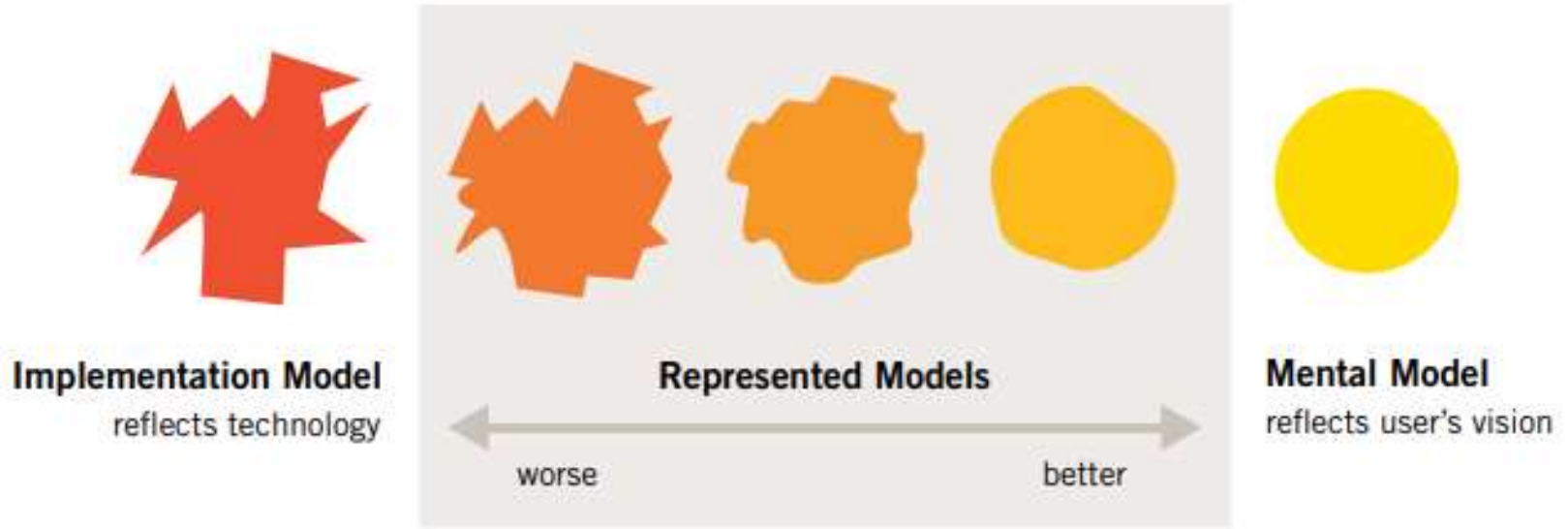


Figure 1-4: A comparison of the implementation model, mental model, and represented

DESIGN PRINCIPLE User interfaces should be based on user mental models rather than implentation models