Translating Needs Into Functionalities

Make data actionable

Adjust personas
Affinity diagrams
Breakdowns
Cultural model
Artifact models

Identify right time and place
Physical model
Sequence model
Flow model

Turn problems into tasks
Thinking
Memory
Attention
Motivations
Habituation
Translating Needs Into Functionalities

Make data actionable

- Adjust personas
- Affinity diagrams
- Breakdowns
- **Cultural model**
- Artifact models

**External influences** - because:

“Work takes place in a culture, which defines expectations, desires, policies, values, and the whole approach people take to work”


*Contextual design: defining customer-centered systems.*

**Includes:**

- Influencers (represented as bubbles)
- Extent of influence (overlap of bubbles)
- Influences (as arrows - mind direction)
- Breakdowns
Cultural Model

Cultural Model

Marketing
- Our new features are top priority
- If I say do X, you figure out what that means

Competitors
- We have 50 new features; catch up

U9 (Developer)
- You aren’t our primary user, we’ll fix bugs for you in our own time
- Our technology is standard; use it even if it doesn’t work

Base technology group

Customer support
- Our bug reports are top priority

Cultural Model (Consolidated)

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Make data actionable

Physical objects that support the work (created and/or used in the process) - because you want to know what objects people need and interact with

Sketch or photo

Complete with comments and notes on:

- Structure
- Related purpose and tasks
- Functionality

Adjust personas
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Artifact models
Artifact Model

Contextual design: defining customer-centered systems.
Artifact Model

Artifact Model (Consolidated)

**Consolidated Shopping List**

**Family Shopping List**
- Store name / Store section
  - Item (2)
  - Item (4th item)
- Item (brand)
- Item (brand, 2)

**Personal Shopping List**
- Usual organized like the house, built just prior to shopping
- Items are added randomly, not grouped
- List is concise, usually only capturing generic name (e.g. toothbrush, lunch meat)
- List is often for one specific store

**Family Shopping List**
- Usage:
  - List is usually built over time
  - Items are added together using available white space
  - Items can be more detailed with brand name and quantity where needed
  - Items are grouped by store name or store section (e.g. food or household goods)
  - Head chef reviews the final list and decides what to buy
- Intents:
  - Capture needs for multiple family members
  - Instruct shopper what to purchase for all family members when the shopper is not head chef
  - Make sure to get healthy, quality items family members need and match their expectations

**Personal Shopping List**
- Item
- Item
- Item
- Item

Beyer, Hugh, and Karen Holtzblatt. [Contextual design](https://www.contextualdesign.com/).
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Identify right time and place

Physical model
  Sequence model
  Flow model

Physical work environment (plan) - because you want to know how people adapt their environment to accomplish work

Includes:
- Structures that limit and define space
- Walls, desks, file cabinets, etc.
- Hardware, software, communication tools
- Artifacts and their location in relation to each other

Complete with comments and notes
Physical Model

Physical Model, P1  DLP Forum, Spring 2004
Michelle Dalman, "Reviving DIDO," Indiana University

Ballantine Hall
*far away
*not wired
*less than ideal presentation quality
Physical Model

Translating Needs Into Functionalities

- Physical model
- Sequence model
- Flow model

Identify right time and place
Translating Needs Into Functionalities

Identify right time and place

Physical model

Sequence model

Flow model

Sequence of work steps and the intention behind steps - because you want to know how work is organized in stages

Includes:
- Intent behind step
- Triggers, that initiate sequence
- Steps, at a high level of details (actions, not movements)
- Loops and branches showing order and iteration
- Breakdowns (where things go wrong)
<table>
<thead>
<tr>
<th><strong>Sequence Model</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intent:</strong> Needs to prepare 4 lectures for A214: Life and Art of Ancient Rome – Roman Religion</td>
</tr>
<tr>
<td><strong>Trigger:</strong> Class meets tomorrow afternoon, need to have first lecture ready</td>
</tr>
<tr>
<td><strong>Note:</strong> In progress: PPT, Netscape 4.x and file Finder windows open before we arrived. Loyal MAC (OS 9.x) user.</td>
</tr>
<tr>
<td><strong>Prompted by syllabus – topic for this week, Roman Religion</strong></td>
</tr>
<tr>
<td><strong>Intent:</strong> Recycle PPT – use a base PPT rather than start from scratch</td>
</tr>
<tr>
<td><strong>Find existing PowerPoint (PPT) lecture on similar topic</strong></td>
</tr>
<tr>
<td><strong>Note:</strong> Keeps all the existing images/PPT slides</td>
</tr>
<tr>
<td><strong>Copies (Saves As) PPT as A214 for Roman Religion Lecture</strong></td>
</tr>
<tr>
<td><strong>Intent:</strong> Colleague normally teaches this class (A214)</td>
</tr>
<tr>
<td><strong>Goes to Classical Art Historian’s course web page (A210) – Bookmarked</strong></td>
</tr>
<tr>
<td><strong>Intent:</strong> Colleagues usually has good images (from DIDO)</td>
</tr>
<tr>
<td><strong>Browses “Roman Gods” link (see Artifact A210 home page)</strong></td>
</tr>
<tr>
<td><strong>Note:</strong> Image quality assessment is automatic and very subjective</td>
</tr>
<tr>
<td><strong>Identifies desired image / assesses quality</strong></td>
</tr>
<tr>
<td><strong>Intent:</strong> Expand lecture with reliable resource</td>
</tr>
<tr>
<td><strong>Downloads image (CTRL+Click) to “Download Image to Disk”</strong></td>
</tr>
<tr>
<td><strong>Note:</strong> Knows keyboard shortcuts</td>
</tr>
<tr>
<td><strong>Saves image to “Roman Art” folder</strong></td>
</tr>
<tr>
<td><strong>Intent:</strong> Dynamically builds own image collection</td>
</tr>
<tr>
<td><strong>No sub-folders – many, many unique images in one folder</strong></td>
</tr>
<tr>
<td><strong>Note:</strong> Steps identified with * are done fluidly and repetitively while preparing lecture. Steps will not be represented for every image found as such but in shorthand: Integrates image</td>
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<tr>
<td>*** Renames image (long, descriptive names)**</td>
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<tr>
<td><strong>Resizes/Positions image in PPT</strong></td>
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*Reviving DIDO*, DLF Spring 2004,  
Michelle Dalmau, Indiana University
Sequence Model

U2 Sequence -- Grocery Shopping

INTENT: Collect groceries needed to feed family and plan what they’ll eat
TRIGGER: Weekend and there’s time to shop.
Invites husband to go along as a shared activity
INTENT: Balance doing tasks with family time
Husband had 3 other things planned and is overwhelmed
Argument
Husband agrees to come along
Go to favorite grocery store — it’s closed
Decide to get only the things that are really needed right now (Passover, breakfast, ricotta, fruit); helper will buy produce later
Go back to second-choice store
Walk to produce
Decide it’s no good—will get canned fruit
Decide to go straight to canned fruit instead of walking aisles
H leaves, gets detergent, comes back
End up in front of Passover items
Discuss with H what they need, how many boxes Matzo
Look at gefilte fish without sugar, decide how much to get
Look at new cereal to try, decide to get
Discuss whether kids will like pancakes, decide to get
Can’t find chocolate, H finds elsewhere
Decides not to buy any of the normal items, helper will buy the next day
Look at safflower oil, okay for Passover, buy it
Look at chocolate covered Matzos, say it’s expensive, buy it
Walk aisles again for canned fruit—still can’t find
H separates and goes off looking on his own
H returns and says found fruit, hidden by promotional sign
Go to checkout counter

## Translating Needs Into Functionalities

### Identify right time and place

**Physical model**

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**Notes:** In progress: PPT, Netscape 4.x and file Finder windows open before we arrived. Loyal MAC (OS 8.x) user.

- **Integrate PPT – use a base PDF rather than start from scratch.**
- **Find existing PowerPoint (PPT) lecture on similar topic.**
- **Copies (Save As) PPT to A214 for Roman Religion lecture.**

**Integrate:**
- Goes to Classical Art History’s course web page (A210) – Bookmarked.
- Browses “Roman Gods” link (see Artifact A210 home page).
- Identifies desired image/variable quality.

**Integrate:**
- “Downloads image (CTRL+Click) to “Download Image to Disk”
- “Saves image to “Roman Art” folder.

**Note:** Knows keyboard shortcuts.

<table>
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### Flow model

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| **Note:** Steps identified with “*” are done finitely and repetitively while preparing lectures. Steps will not be represented for every image found as such but in shorthand: Integrates image. |

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**"Reviving DIDO," DLF Spring 2004, Michelle Dalmay, Indiana University**
Translating Needs Into Functionalities

Identify right time and place

Directions of communication and coordination
Defines how work is broken up across people and how people coordinate

Includes:

- Interviewee (in the middle - circle)
- Other groups/people (circles)
- Physical/virtual places (usually rectangles)
- Artifacts as they pass between people
- Breakdowns (where things go wrong)
Flow Model

- **Hard Drive (Mac)**
  - Stores groups of images
  - Doesn't back up hard drive

- **Internet**
  - Allows access to large collections of images
  - Posts images and metadata to study guides

- **Colleague Professor**
  - Ancient Art Historian
  - Prepare lectures
  - Present lectures

- **Slide Library**
  - Hold necessary equipment (laptop and projector) for presenting lectures in Fine Arts building
  - Fix equipment problems

- **Media Services**
  - Deliver equipment (laptop) to classrooms in Ballantine Hall
  - Fix equipment problems

- **Lecturer (Art History) (Medievalist)**
  - Prepares lectures in digital format
  - Presents lectures in digital format
  - Requests equipment

- **Classrooms**
  - Meeting place for lecture presentations
  - 1 is wired; 1 is not properly equipped

- **Students**
  - Attend lecture
  - Review materials on Oncourse
  - Complete assignments and exams

- **Oncourse**
  - Holds course materials: lecture presentations (PPT) and course syllabus
  - Presentations have to be smaller than 20 megs in size

- **Work Flow Model, "Reviving DIDO", DLF Spring 2004, Michelle Dalmau, Indiana University**
Translating Needs Into Functionalities

- Identify right time and place
- Physical model
- Sequence model
- Flow model
Translating Needs Into Functionalities: Preparation

- Cultural Model: External influences
- Artifact Model: Physical objects
- Affinity Diagram
- Flow Model: Communication and coordination
- Physical Model: Physical work environment
- Sequence Model: Work steps
- Work Models: Personas, Flow Model

Personas are translated into functionalities using Affinity Diagrams, which lead to Work Models. These models then help in translating needs into functionalities through the Physical and Sequence Models.