Unit 2

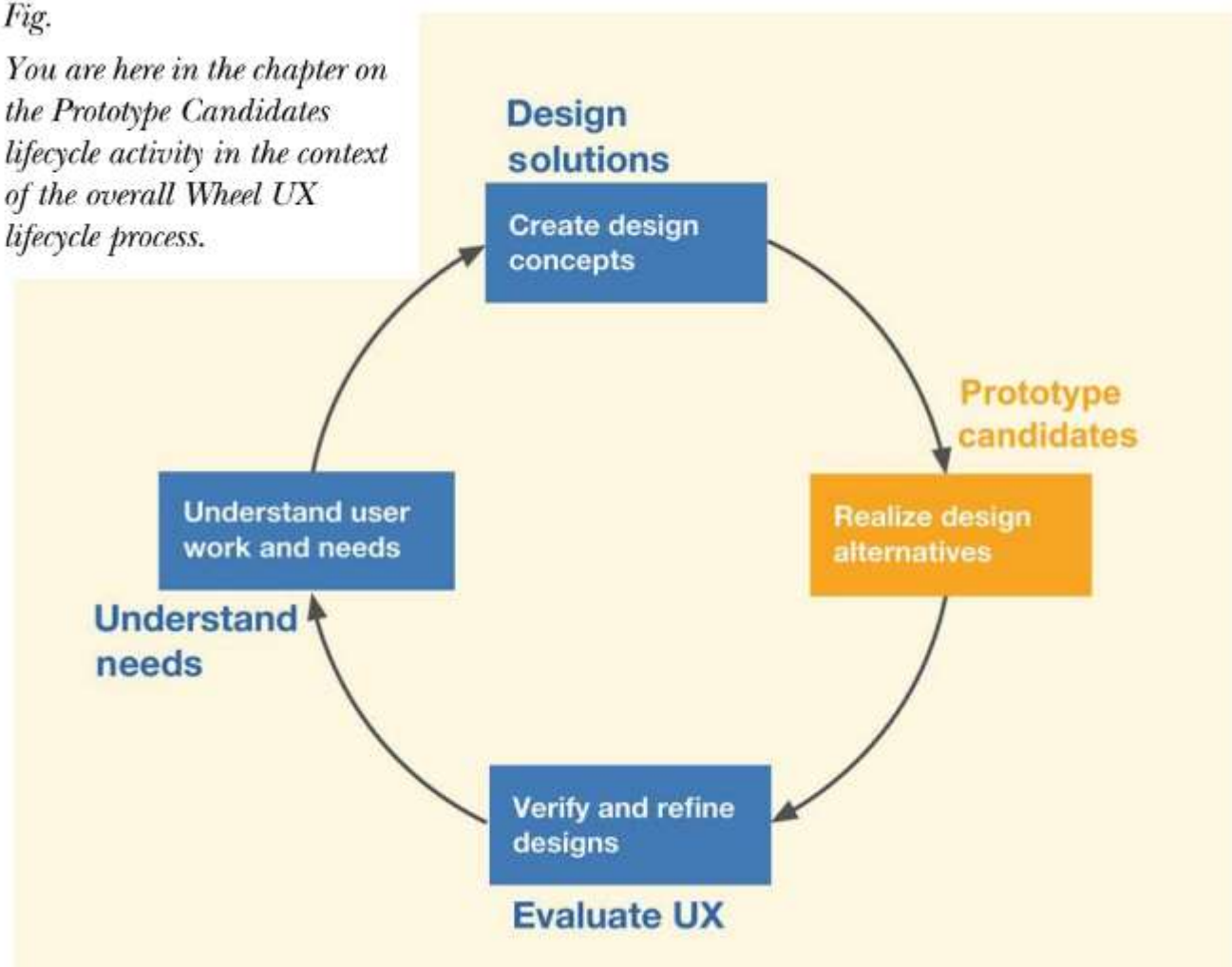
Prototyping design

Prototyping design

1. Depth and Breadth of a prototype –
2. fidelity –
3. wireframe –
4. specialized prototypes –
5. software tools

Fig.

You are here in the chapter on the Prototype Candidates lifecycle activity in the context of the overall Wheel UX lifecycle process.



Prototyping

- Types of prototypes and how to make wireflow and wireframe prototypes within the Prototype.
- Prototyping is a good example of this intertwining.

Protyping

- Automobile designers build and test mockups, architects and sculptors make models, circuit designers use “bread-boards,” artists work with sketches, and aircraft designers build and fly experimental designs.
- The concept of a prototype was the key to affording the design team and others an early ability to observe something about the final product—evaluating ideas, weighing alternatives, and seeing what works and what does not.

Advantages of prototyping

- Provide a platform to support UX evaluation with users.
- Offer concrete baseline for communication between users and designers.
- Provide a conversational "prop" to support communication of concepts not easily conveyed verbally.
- Allow users to "take the design for a spin" (who would buy a car without taking it for a test drive or buy a stereo system without first listening to it?).
- Give project visibility and buy-in within customer and developer organizations.
- Encourage early user participation and involvement.
- Give the impression that design is easy to change because a prototype is obviously not finished.
- Afford designers immediate observation of user performance and consequences of design decisions.
- Help sell management on an idea for new product.
- Help affect a paradigm shift from an existing system to a new system.

1. Depth and Breadth of a prototype

- Prototypes is to provide fast and easily changed early views of an envisioned UX design. Because it must be quickly and easily changed, a prototype is a design representation that is in some way(s) less than a full implementation.
- Focusing on just the breadth or just the depth of the system

Horizontal prototypes

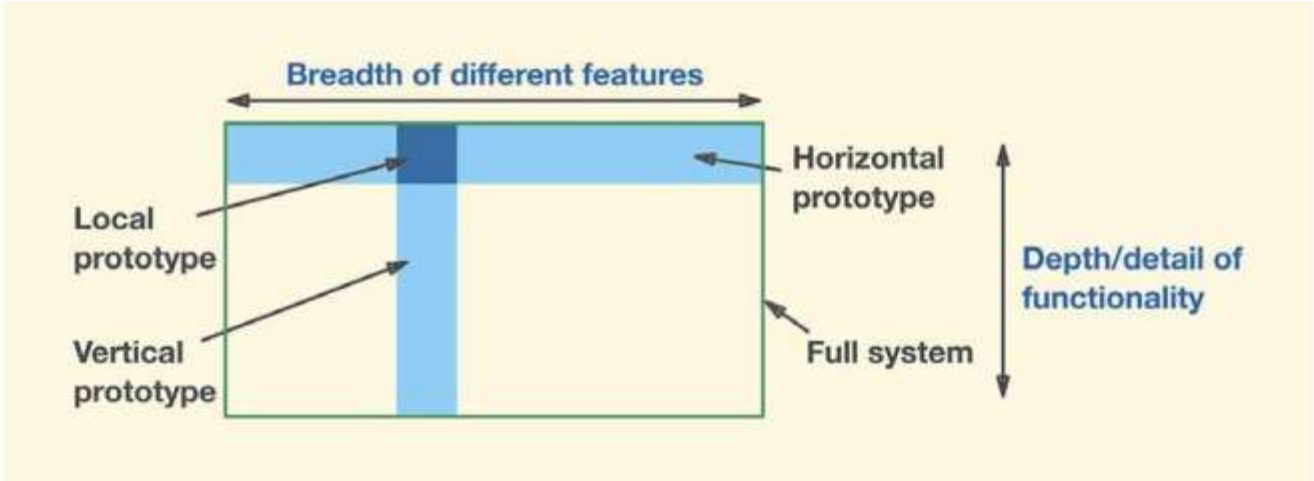
- A horizontal prototype is a good place to start with your prototyping, as it provides an overview on which you can base a top-down approach.
- A horizontal prototype is effective in demonstrating the product concept and for conveying an early product overview to managers, customers, and users

Vertical prototype

- A vertical prototype contains more depth of detail for some functionality, but only for a narrow selection of features.

Fig.

Horizontal and vertical prototyping concepts, adapted from Nielsen (1993), with permission.



Vertical prototype

- Often the functionality of a vertical prototype can include a stub for or a connection to an actual working backend database
- A vertical prototype is ideal for times when you need to represent completely the details of an isolated part of an individual interaction workflow in order to understand how those details play out in actual usage.
- For example,
  - the checkout part of the workflow for an e-commerce website.
  - A vertical prototype might show that one task sequence and associated user actions, in depth.

2. Fidelity

- The level of fidelity of a prototype is another dimension along which there are tradeoffs with respect to completeness and cost/time.
- The fidelity of a prototype reflects how “finished” it is perceived to be by customers and users.
- Being “finished” applies to completeness of content and functionality as well as how refined it is in appearance.
- The level of fidelity to aim for depends on your current stage of progress in the project and the purpose for which you plan to use the prototype.

4. WIREFRAME PROTOTYPES

- Wireframes are now the go-to prototyping technique in UX practice.
- The bulk of the wireframe prototypes will be made during interaction design creation.
- 1. What is wireframe? A wireframe is a sketch, image, or prototype of a single interaction page or screen
- 2. Wireframe Design Elements : Low-fidelity wireframes usually do not have graphical design elements such as images or specific colors or typography.

4. Wire frame

- Typical elements represented in a wireframe can include:

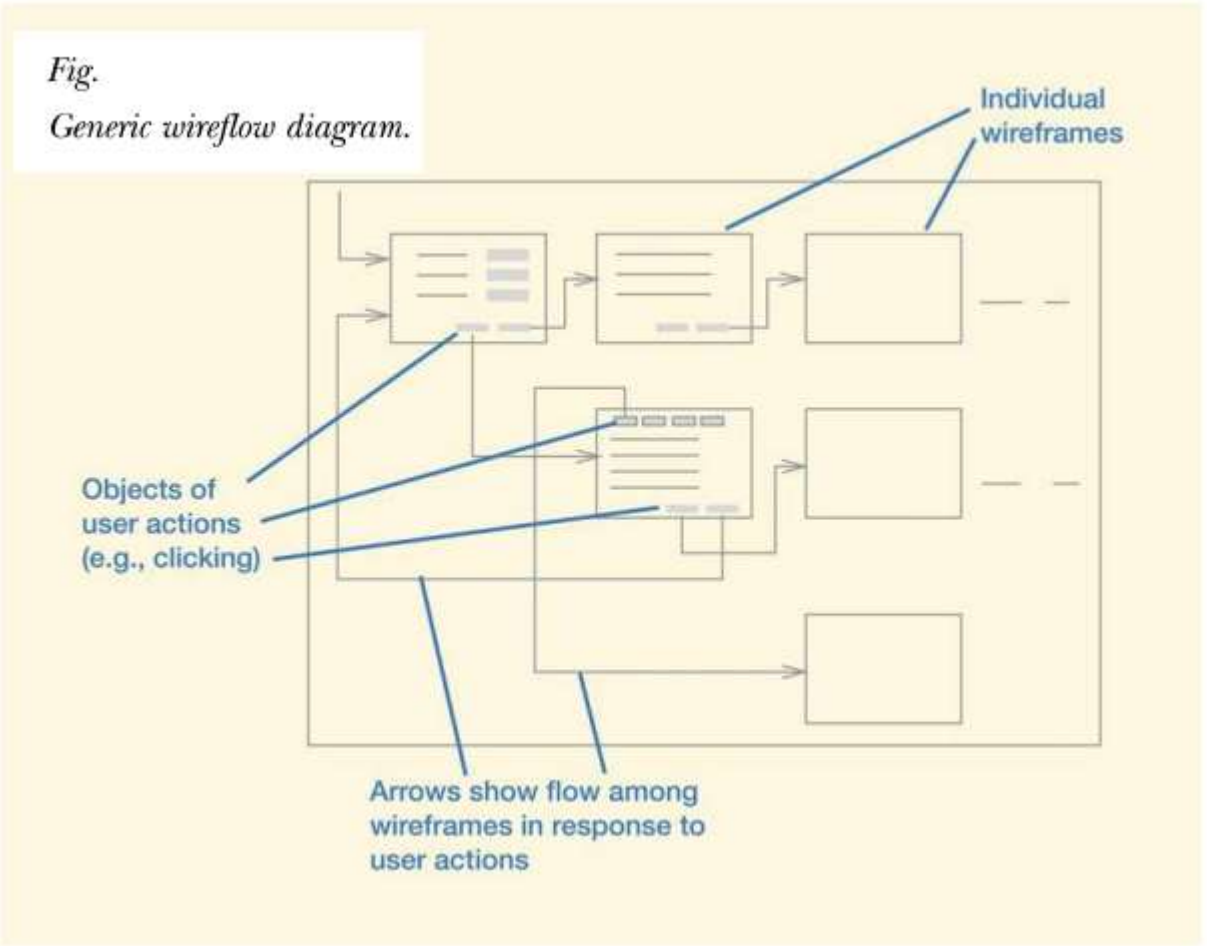
  - Header.
  - Footer.
  - Content areas.
  - Labeling.
  - Menus.
  - Tabs (possibly with drop-downs).
  - Buttons.
  - Icons.
  - Pop-ups.
  - Messages.
  - Navigation bar, navigation links.
  - Placeholders for logo and branding images
  - Search field.

4. Wireframe

- 3. Wireframe prototypes :
  - The most common term UX professionals use in the context of prototyping using boxes, arrows, and other simple shapes is a wireframe

Wireflow diagram

Fig.
Generic wireflow diagram.



Example: State Diagram for Bundling Network Services[3]

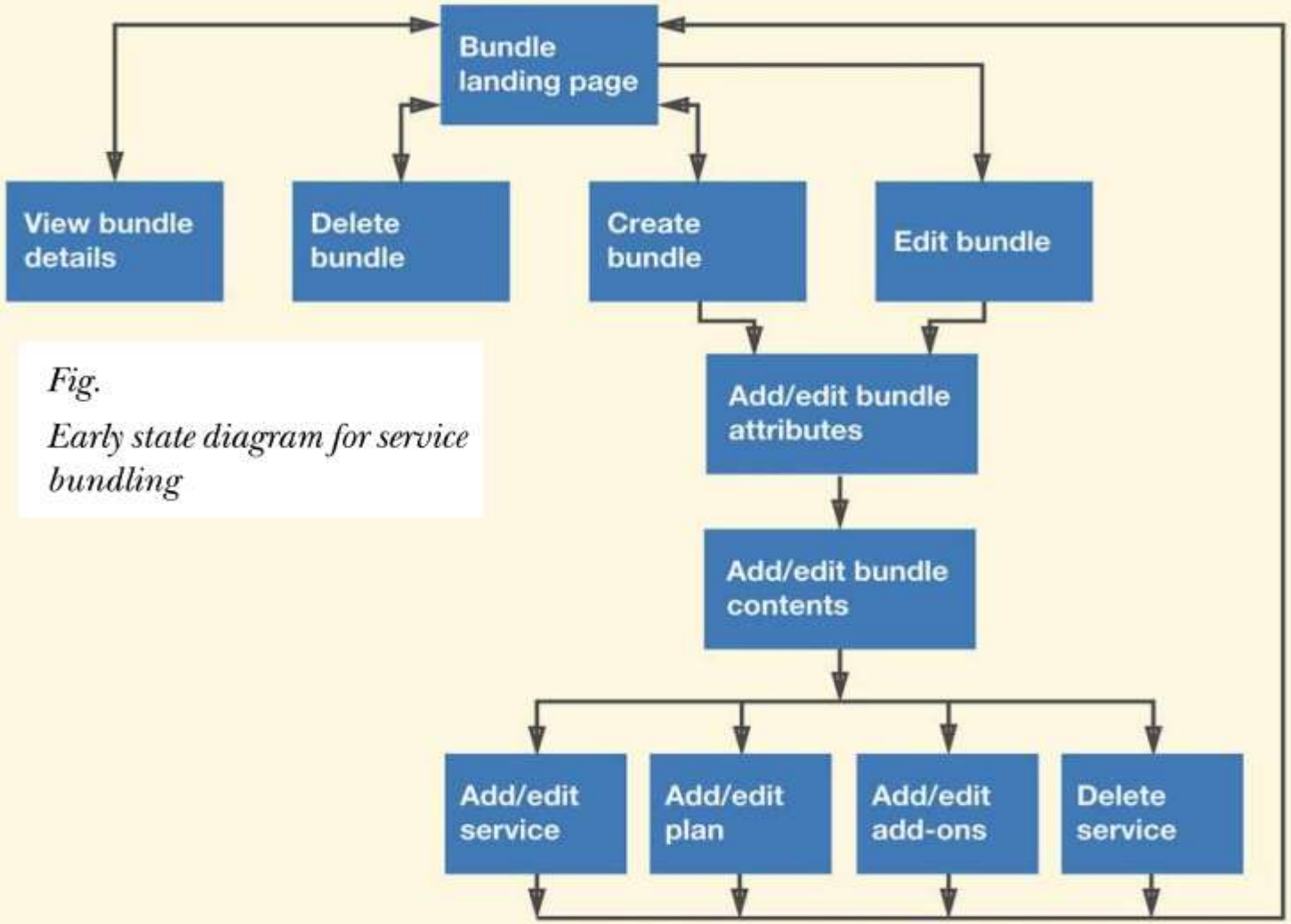


Fig.

Early state diagram for service bundling

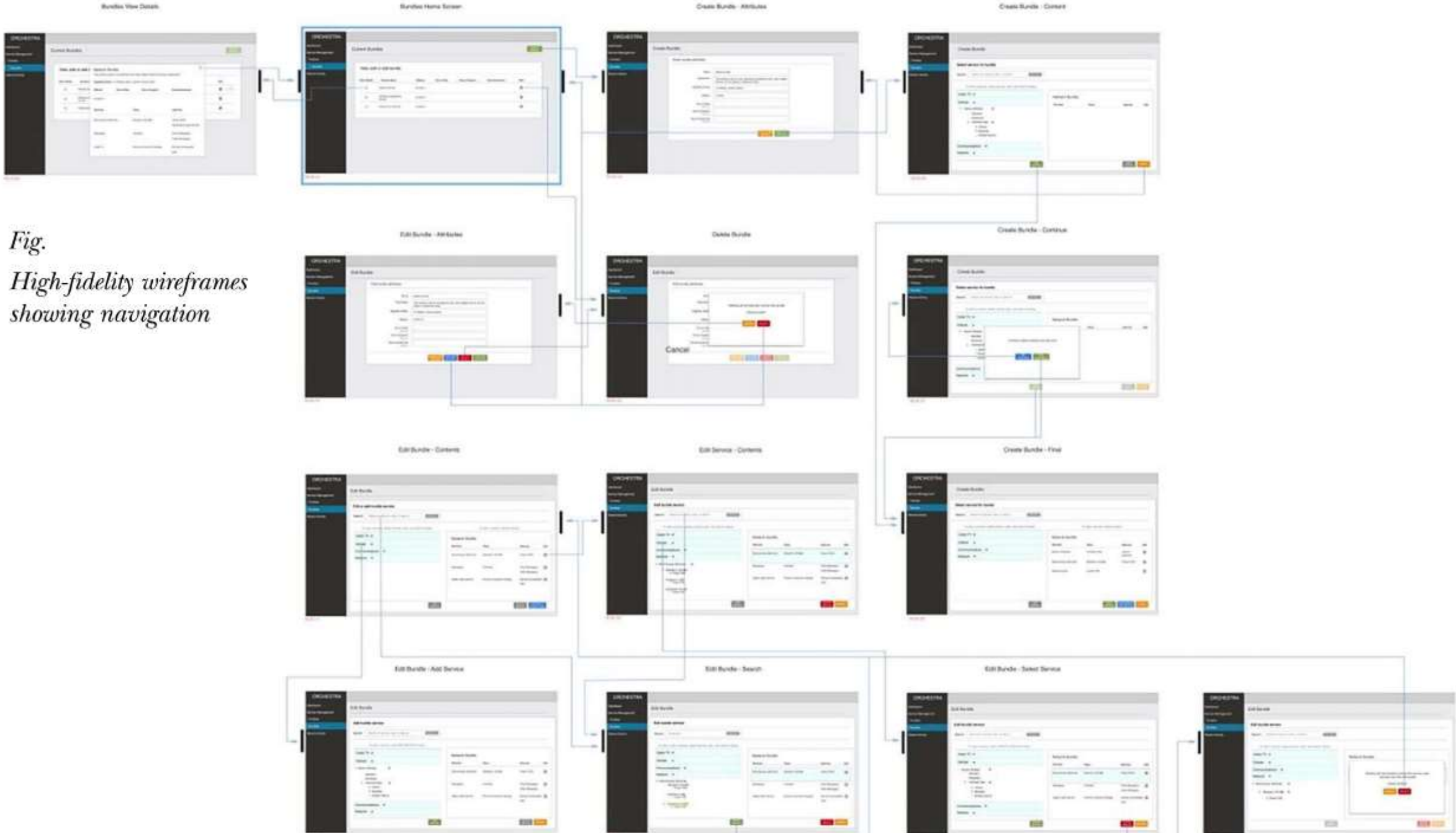


Fig.

High-fidelity wireframes showing navigation

Fig.

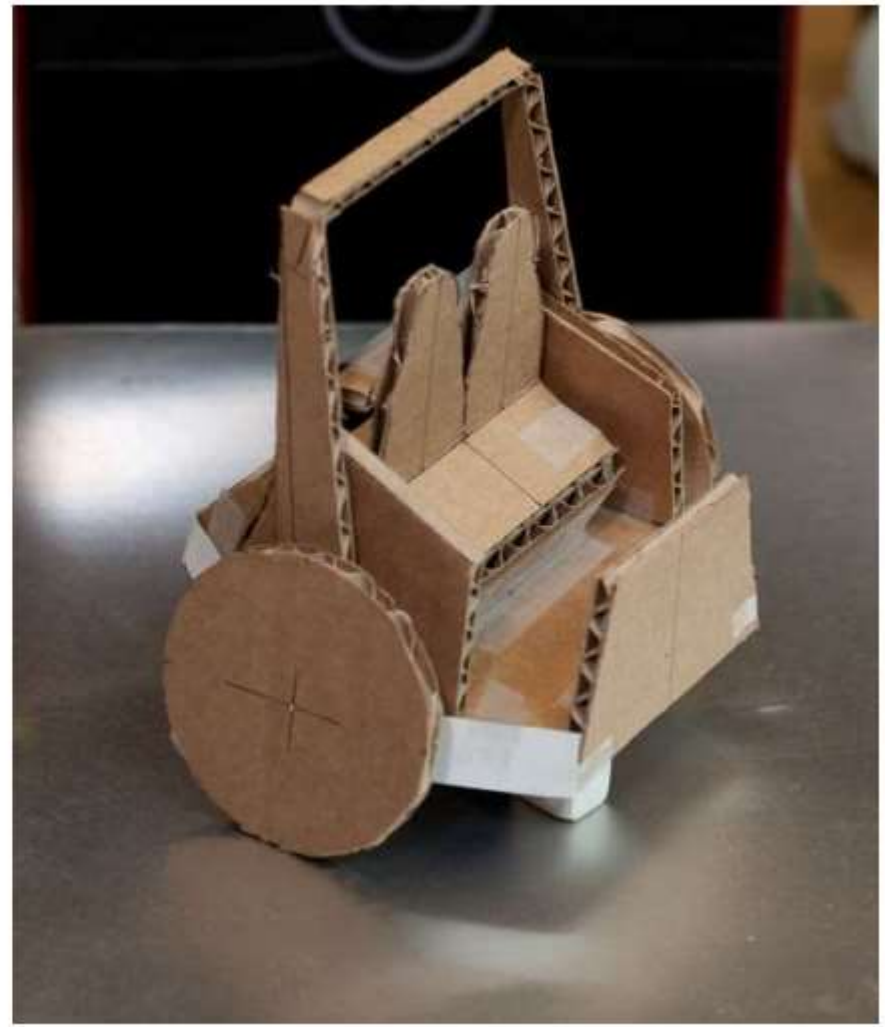
Posting a readable wireflow diagram using colored yarn to represent navigational connections between individual wireframes

5. Specialized prototype

- Physical Mockups for Physical Interactivity
- Paper-in-Device Mockup Prototype, Especially for Mobile Applications
- Animated Prototypes

Fig.

Example of a rough physical mockup



Physical Mockups for Physical Interactivity

- A physical mockup is a tangible, three-dimensional prototype or model of a physical device or product, often one that can be held and often crafted rapidly out of materials at hand, used during exploration and evaluation to at least simulate physical interaction.
- Physical prototypes are an inexpensive way to afford designers and others insight into the product look and feel.
- Case study of such an approach for a handheld communicator device that combines the functionality of a PDA and a cellphone.

Example

- The TKS kiosk is an ideal candidate for physical prototyping.
- Brainstorm the physical design through ideation and sketches and then build some cardboard mockups that sit on the floor or the ground, add some physical buttons, and have a cutout for the screen about head height.
- After homing in on the overall look and feel with cardboard, you can make a wooden version to be sturdier, then add physical buttons and attach a touchscreen (e.g., an iPad or a detachable laptop ouchscreen) from the inside to fill the cutout and allow some real interaction.
- Use materials at hand and/or craft physical prototypes with realistic hardware

Example

- For low fidelity, these prototypes are higher fidelity in some ways because they are typically three-dimensional, embodied, and tangible.
- Touch them and manipulate them physically.
- If they are small, you can hold them in your hands.
- Physical prototypes are excellent media for supporting evaluation of emotional impact and other user experience characteristics beyond just usability.

Example

- Explore the physical feel and other requirements for such a device and its interaction possibilities.
- A rough physical mockup of a design for a “rickshaw”-style cart for transporting people in developing countries.
- Physical prototyping is now being used for cellphones, consumer electronics, and products beyond interactive electronics, employing found objects.

4. Specialized prototype

- Physical mockup that users can see and hold as a real object.
- Users get a real feeling that this is the product.
- The kind of embodied user experience projected by this approach can lead to a product that generates user surprise and delight, product praise in the media, and must-have cachet in the market.

4. Animated prototype

- Video animation can bring a prototype to life for concept demos, to visualize new UX designs, and to communicate design ideas.
- An animated prototype is a prototype in which the interaction objects are brought to life via animation, usually in video, to demonstrate dynamically and visually what the interaction ooks like. Storyboard
- A visual scenario in the form of a series of sketches or graphical clips, often annotated, in cartoon-like frames, illustrating the interplay between a user and an envisioned ecology or device.
- Video animations based on a series of sketches can carry the advantages of low-fidelity prototypes to new dimensions where a static paper prototype cannot tread.

5. Software tools

- Sketch
- Invision