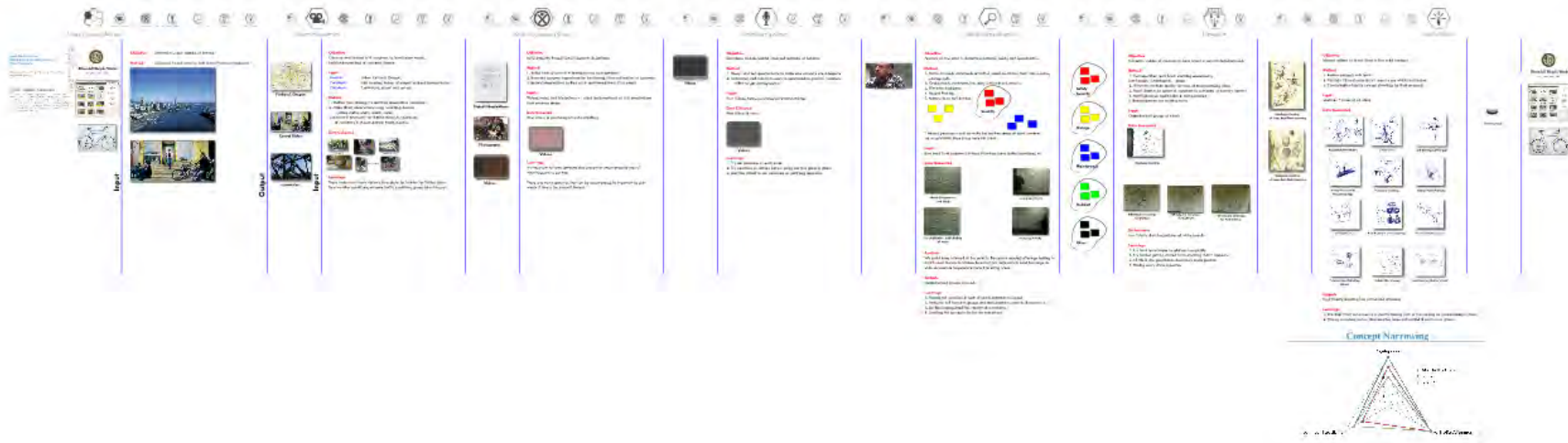


ED/User Centered Design/Process



Portland State University

Professor Shimon Shmueli

Teaching Assistant Nima Behkami

ETM: 556/656 USER CENTERED INNOVATION

TEAM 3

Meghana Rao
Opinderjit Bhella
Neil Runde
Nikita Vagesh

2010.06.04



ED/User Centered Design/Process



ED/User Centered Design/Process

SET DIRECTION



Select a General Market

RESEARCH



Observe Customers



Walk in Customers Shoes



Interview Customers

CREATIVE INNOVATION



Pattern Determination



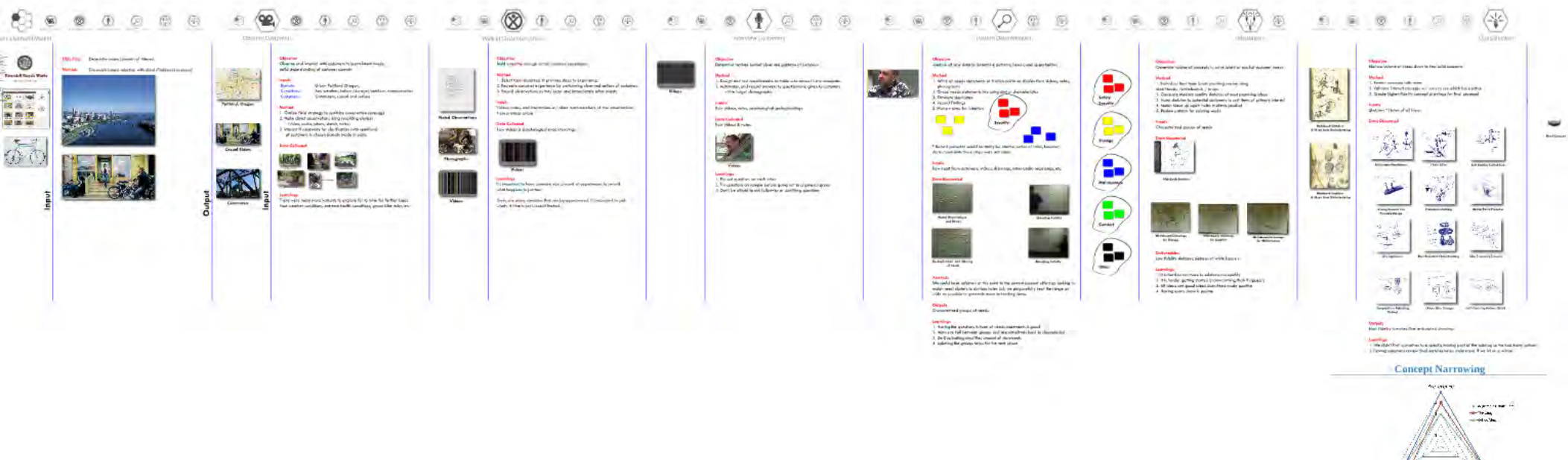
Ideation



Idea Selection

divergent

convergent



Small/Medium Sized Manufacturer and Distributor of Bikes/Accessories

We were hired to help determine customer needs
and possible concepts

RBW Mission Statement

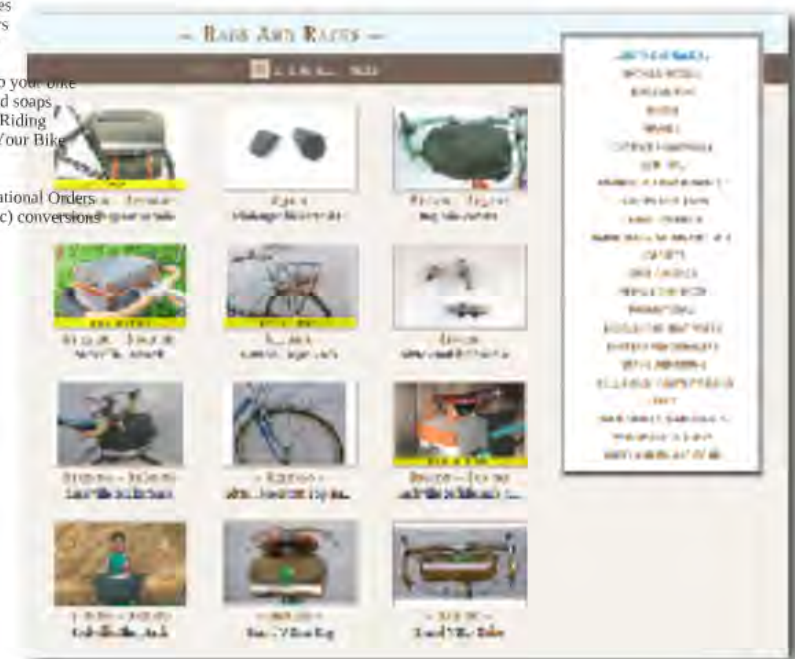
- Our mission is to make things that wouldn't be made if we weren't here, to offer an alternative to racing-centric bikes and parts, and to espouse a different approach to riding. And to resurrect and keep healthy many of the better ideas, designs, and styles of bicycles, clothing, and accessories that we personally like to use or wear. If you'd like to know more, just ask. It's not a secret business we have here.

- Bicycle Making
 - Frame Materials
 - Graphics
 - The Big Picture
 - A Lug Primer
 - Powder, Clear Powder Coating
 - The Top Tube Ruse
- Bike Camping
 - Camping vs. Touring
 - A kit for one night out
- Bike Fit
 - Fit, Sizing, Position
 - PBH and How To Measure It
 - Setup Mistakes
 - Choosing a Frame Size
- Clothing
 - All you need is wool
 - Socks
 - Special clothes for riding?
 - Why Wool Doesn't Stink
 - The Shoes Ruse
- Components
 - Bags
 - Bars and Tape
 - Baskets
 - Opinions about bike parts
 - Racks
 - Rims
 - Shifting
 - Tires
 - Cranks
 - Cantilever brakes
 - Front Derailleurs
 - Pick a tire chart
- Misc.
 - Adding things to your bike
 - Goops, lubes and soaps
 - Tips for Happy Riding
 - How We Pack Your Bike
 - Saddle Sores
 - Velosophy
 - Shipping International Orders
 - 650B (from 700c) conversions
 - Torque Specs



Rivendell Bicycle Works

<http://www.rivbike.com/>





Walk in Custom

Observe Customers

that wouldn't be made if we
ative to racing-centric bikes and
t approach to riding. And to
ny of the better ideas, designs, and
accessories that we personally like
know more, just ask. It's not a



Input

Not Original Data

Output

Commuters

0

Input

Learnings
There were
Poor weath



Idea Selection



Select a General Market



Walk in Customers Shoes



Interview Customers



Pattern Determination



Ideazation



Idea Selection



Select a General Market



Observe Customers



Observe Customers



Portland, Oregon



Casual Riders



Commuters

Objective

Observe and interact with customers to learn latent needs, build understanding of customer domain

Inputs

Domain: Urban Portland Oregon,
Conditions: Any weather, indoor (storage)/outdoor, transportation
Customers: Commuters, casual and serious

Method

1. Outline field strategy to optimize observation coverage
2. Make direct observations using recording devices (video, audio, photo, sketch, notes)
3. Interact if necessary for clarification (why questions) of customers in chosen domain made in pairs.

Data Collected



Ad Hoc Security



Drink Holders



Portland Bike Lane



Long Term Storage



Ad-Hoc Transport



Common Urban Locking

Learnings

There were many more variants to explore for to mine for further ideas. Poor weather conditions, extreme traffic conditions, group bike rides, etc.

Output

Input

Walk in Customers

Objective

Build empathy

Method

1. Select topic
2. Recreate
3. Record

Inputs

Videos, notes, photos from previous

Data Collected

Raw video



Noted Observations



Photographs



Videos

Learnings

It's important to know what happens

There are many ways to do it wisely if time

(video, audio, photo, sketch, notes)

3. Interact if necessary for clarification (why questions)
of customers in chosen domain made in pairs.

Data Collected



Ad Hoc Security



Drink Holders



Portland Bike Lane



Long Term Storage



Ad-Hoc Transport



Common Urban Locking

Learnings

There were many more variants to explore for to mine for
Poor weather conditions extreme traffic conditions around



Video



Walk in Customers Shoes



Noted Observations



Photographs



Videos

Objective

Build empathy through actual customer experience

Method

1. Select tasks observed in previous steps to experience.
2. Recreate customer experience by performing observed actions of customers
3. Record observations as they occur and immediately after events

Inputs

Videos, notes, and interactions w/ other team members of raw observations from previous phase

Data Collected

Raw videos & psychological understandings



Videos

Learnings

It's important to have someone else present at experiences to record what happens to partner.

There are many scenarios that can be experienced, its important to pick wisely if time is (as is usual) limited.



Videos

Objective

Determine

Method

1. Design
 2. Adminis
- withi

Inputs

Raw video

Data Collected

Raw video



Videos

Learnings

1. Try out
2. Try que
3. Don't b





Idea Selection



Select a General Market



Observe Customers



Walk in Customers' Shoes



Interview Customers



Pattern Determination



Ideation



Idea Selection



Select a General Market



Observe Customers



Walk in Customers' Shoes



Videos

Objective

Determine motives behind observed patterns of behavior

Method

1. Design and test questionnaire to make sure answer's are adequate
2. Administer, and record answers to questionnaire given to customers within target demographic

Inputs

Raw videos, notes, psychological understandings

Data Collected

Raw videos & notes



Videos

Learnings

1. Try out questions on each other
2. Try questions on sample before going out to a general group
3. Don't be afraid to ask follow-up or clarifying questions



Objective

Analysis of

Method

1. Write all
2. Group ne
3. Eliminate
4. Record F
5. Narrow d



* Record pe
do to constr

Inputs

Raw input f

Data Gener



Noted Obs
and N





Idea Selection



Select a General Market



Observe Customers



Write in Customers Stories



Interview Customers



Pattern Determination



Ideation



Idea Selection



Select a General Market



Observe Customers



Write in Customers Stories

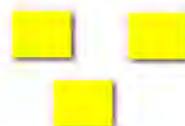


Objective

Analysis of raw data to determine patterns, needs, and opportunities

Method

1. Write all needs statements or friction points on stickies from videos, notes, photographs
2. Group needs statements into using similar characteristics
3. Eliminate duplicates
4. Record Findings
5. Narrow area for Ideation



* Record personas would normally be another series of tasks, however, do to constraints these steps were not taken

Inputs

Raw input from customers, videos, drawings, notes audio recordings, etc.

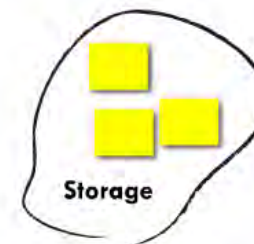
Data Generated



Noted Observations
and Needs



Grouping Activity



Objective

General

Method

1. Interview
2. Sketch
3. Hypothesis
4. Model
5. Review

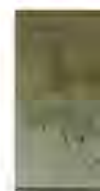
Inputs

Characteristics

Data



Notes



Whiteboard
findings



* Record personas would normally be another series of tasks, however, do to constraints these steps were not taken

Inputs

Raw input from customers, videos, drawings, notes audio recordings, etc.

Data Generated



Noted Observations and Needs



Grouping Activity



De-duplication and labeling of needs



Grouping Activity

Analysis

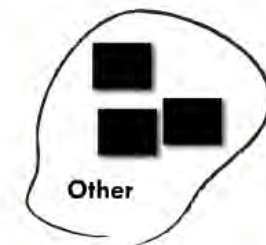
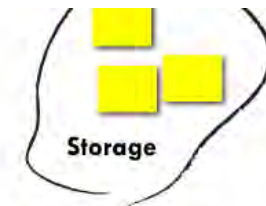
We could have referred at this point to the current product offerings looking to match need clusters to obvious holes but, we purposefully kept the range as wide as possible to generate more interesting ideas.

Outputs

Characterized groups of needs

Learnings

1. Having the questions in form of needs statements is good
2. Items can fall between groups and are sometimes hard to characterize
3. De-Duplicating simplifies amount of statements
4. Labeling the groups helps for the next phase

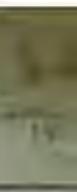


Input
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Learn

1. It is
2. It is
3. All
4. Ha



Idea Selection



Select a General Market



Observe Customers



Walk in Customers Shoes



Interview Customers



Pattern Determination



Ideation



Idea Selection



Select a General Market



Observe Customers



Walk in Customers Shoes

unities

ideos, notes,

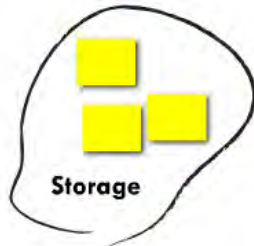


however,

ngs, etc.



g Activity



Objective

Generate volume of concepts to solve latent or explicit customer needs

Method

1. Individual then team brain storming session using sketchbooks / whiteboards / props
2. Generate Medium quality sketches of most promising ideas
3. Hand sketches to potential customers to sort items of primary interest
4. Match ideas up again holes in clients product
5. Review patents for existing works

Inputs

Characterized groups of needs

Data Generated



Notebook Sketches



Whiteboard Drawings
for Storage



Whiteboard Drawings
for Comfort



Whiteboard Drawings
for Maintenance

Objective

Narrow

Method

1. Review
2. Valid
3. Creat

Inputs

Sketches

Data Ge



Notebook Sketches
of Ideas from Brainstorming



Notebook Sketches
of Ideas from Brainstorming

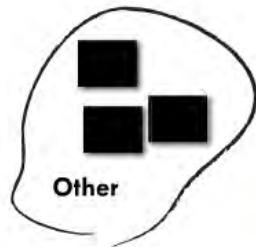
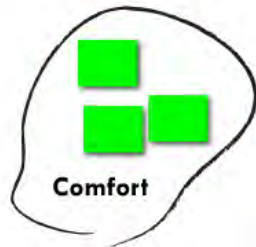


Adjust



Alwe
Pre





Characterized groups of needs

Data Generated



Notebook Sketches



Whiteboard Drawings
for Storage



Whiteboard Drawings
for Comfort



Whiteboard Drawings
for Maintenance

Deliverables

Low fidelity sketches, pictures of white boards

Learnings

1. It is hard to not move to solutions too quickly
2. It is harder getting started brain-storming than it appears
3. All ideas are good ideas does keep mode positive
4. Having every draw is positive

Notebook Sketches of Ideas from Brainstorming



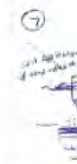
Notebook Sketches
of Ideas from Brainstorming



Adjustal



Always
Pres



Gri



Tempu

Outputs High fidel

Learnings

1. We dic
2. Having



Idea Selection



Select a General Market



Observe Customers



Walk in Customers Shoes



Interview Customers



Pattern Determination



Ideation



Idea Selection

Customer needs

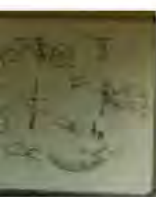
Ideas
Primary interest



Notebook Sketches
of Ideas from Brainstorming



Notebook Sketches
of Ideas from Brainstorming



Board Drawings
Maintenance

Objective

Narrow volume of ideas down to few solid concepts

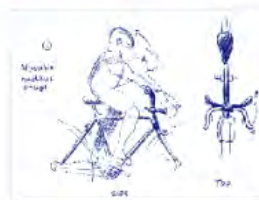
Method

1. Review concepts with team
2. Validate filtered concepts w/ users to see which has traction
3. Create higher-fidelity concept drawings for final proposal

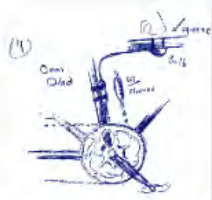
Inputs

Sketches * Notes of all ideas

Data Generated



Adjustable Handlebars



Chain Oiler



Self Sealing Coffee Cup



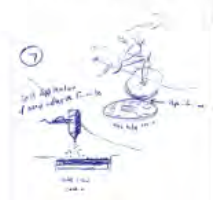
Always Present Tire
Pressure Gauge



Protectant Clothing



Stirrup Pants Protector



Final Concept

Rivender

http://



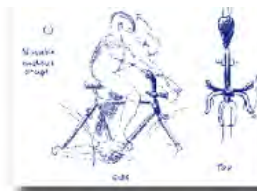


**Notebook Sketches
of Ideas from Brainstorming**

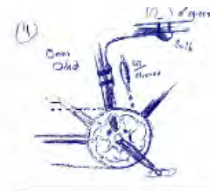


**Whiteboard Drawings
for Maintenance**

bears



Adjustable Handlebars



Chain Oiler



Self Sealing Coffee Cup



**Always Present Tire
Pressure Gauge**



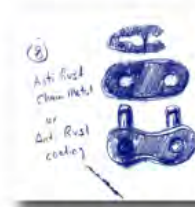
Protectant Clothing



Stirrup Pants Protector



Grit Applicator



Rust Resistant Chain/Coating



Bike Proximity Detector



**Temperature Adjusting
Helmet**



Urban Bike Storage



Self-Cleaning Helmet Shield

Final Concept

Outputs

High fidelity sketches/line articulated drawings

Learnings

1. We didn't limit our-selves to a specific missing part of the catalog so we had many options
2. Having customers review final sketches helps understand if we hit on a winner

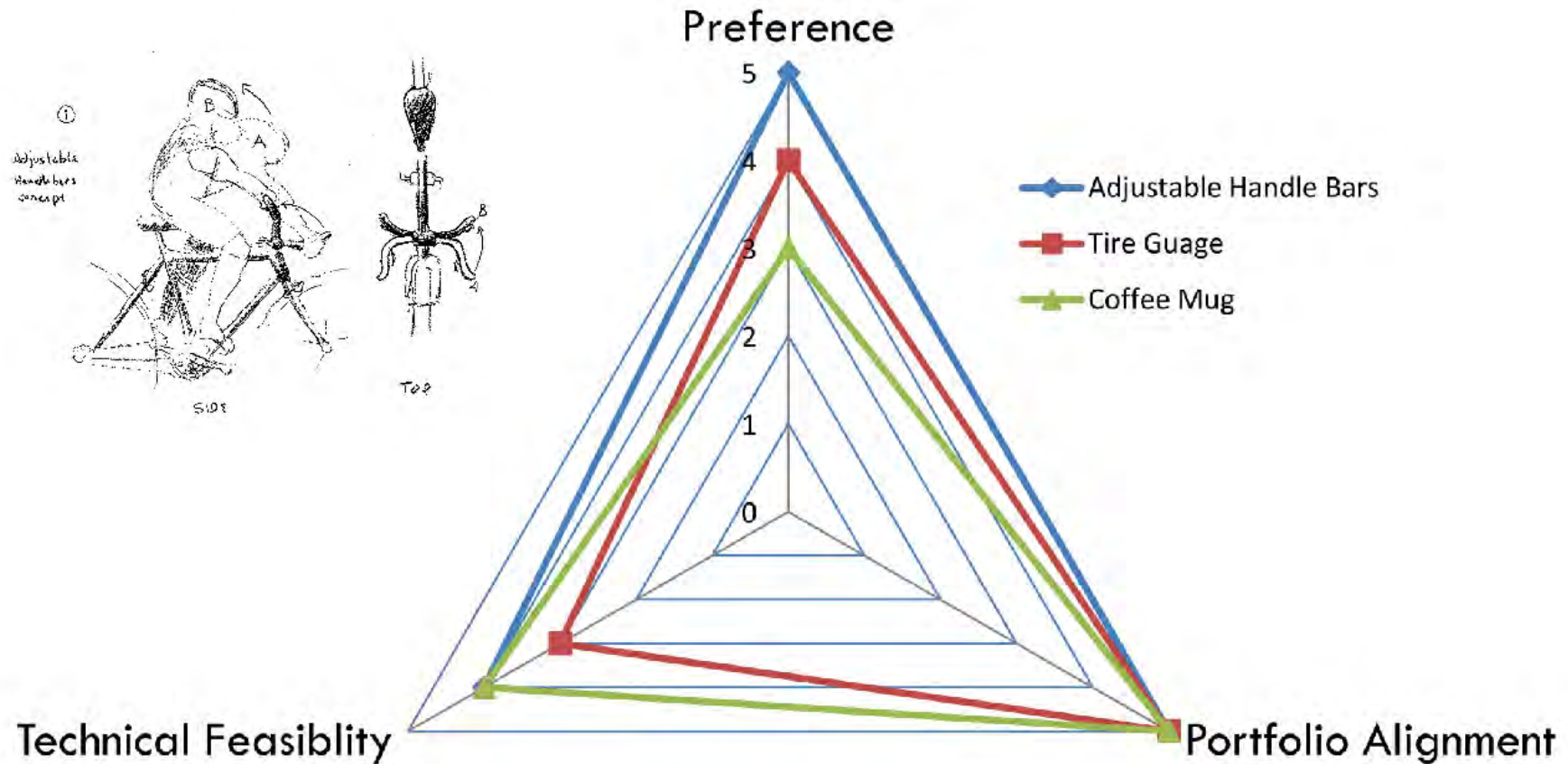
Concept Narrowing

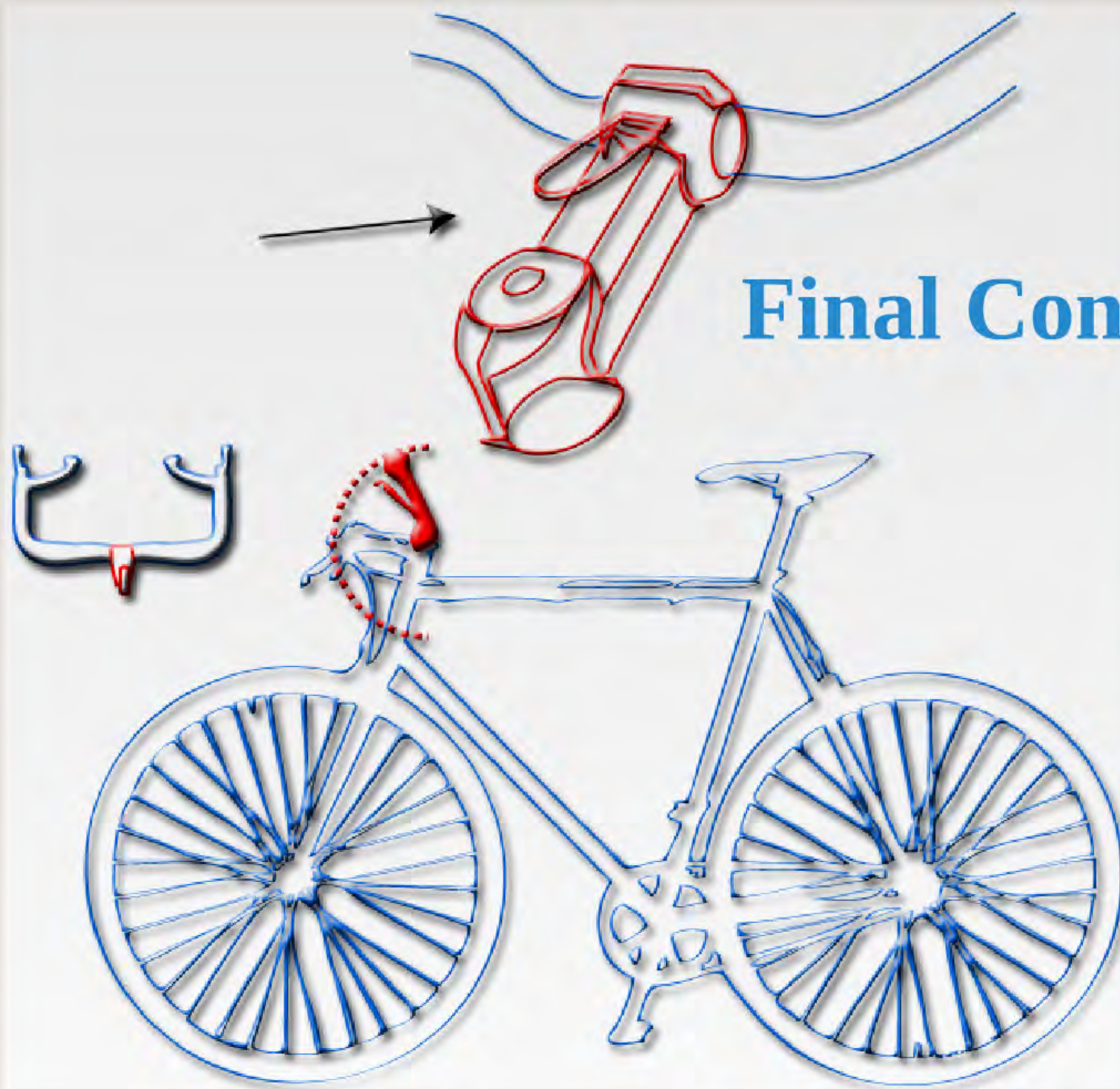
Preference

Learnings

1. We didn't limit our-selves to a specific missing part of the catalog so we had many options
2. Having customers review final sketches helps understand if we hit on a winner

Concept Narrowing





Final Concept

[illegible]



ED/User Centered Design/Process

SET DIRECTION



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Ideation



Idea Selection

divergent

convergent

