

Innovation

OIDD614 – Session 3

Karl T. Ulrich

Course Topics

- What is innovation?
- Need pull vs. solution push
- Internal vs. external innovation
- Horizon 1, Horizon 2, and Horizon 3 innovation
- VIDE success model; value = $f(\text{idea, development, exogenous factors})$
- Opportunity identification
- Individual vs. group performance in idea generation
- Problem definition using "5 Whys"
- Innovation tournament structure
- Tournament performance levers: N, mean, variance, filter ratios
- Design thinking: observational methods, rapid prototyping, iterative refinement
- Concept exploration/development methods
- Whiteboard 101 (plus more optional visual expression tutorials)
- Branding and naming
- Valuing innovation projects
- Crowdfunding and open innovation
- How to pitch
- Culture of innovation
- Lean innovation/MVP, project planning
- (Project-specific content and methods.)



Isamu Noguchi – 1947 – produced by Herman Miller

For your amusement:

<http://fuckyournoguchicoffeetable.tumblr.com/>

DESIGN

Creation of Artifacts in Society



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ulrichbook.org

Design is conceiving and giving form to artifacts that solve problems.



Marissa Mayer
Photo: TechCrunch50-2008

Design thinking

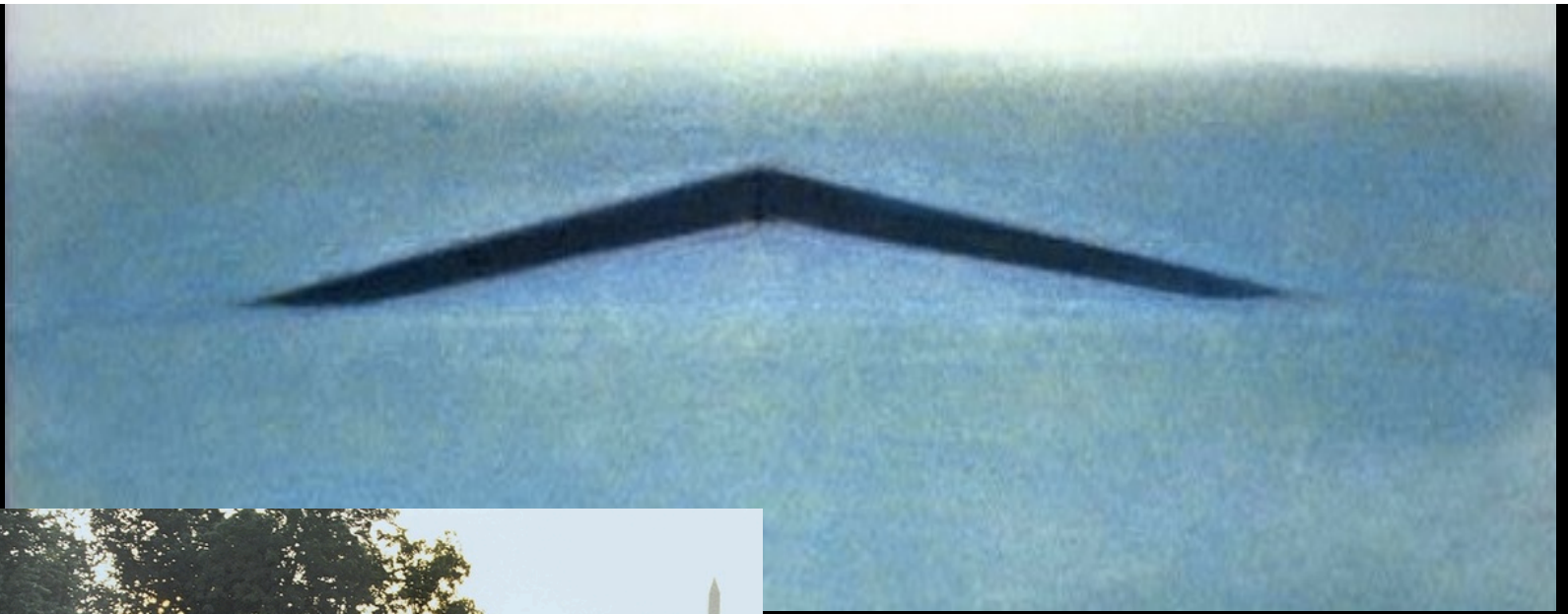
*Product design /
Industrial design*



Maya Lin
Photo: Sharon Styer

Design arts

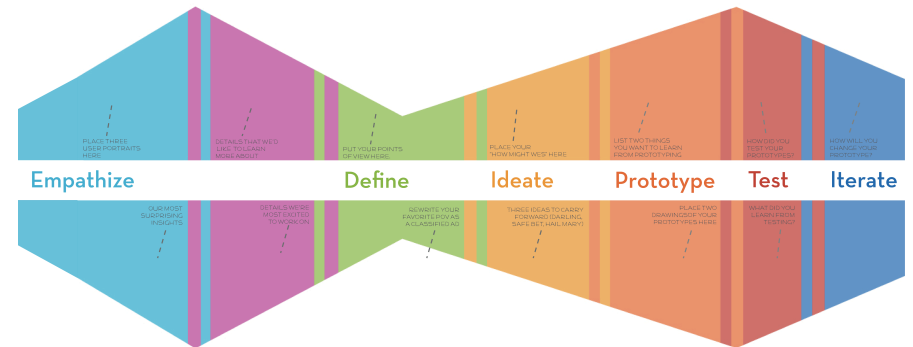
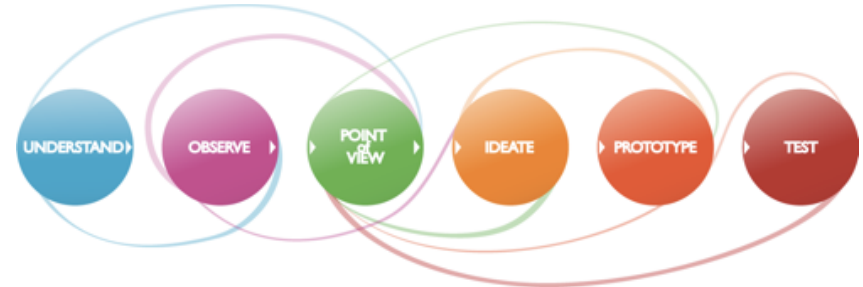
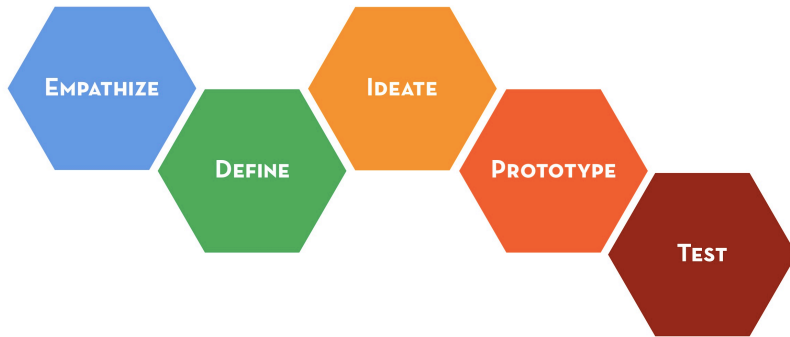
Jonathan Ive
Photo: Marcus Dawes





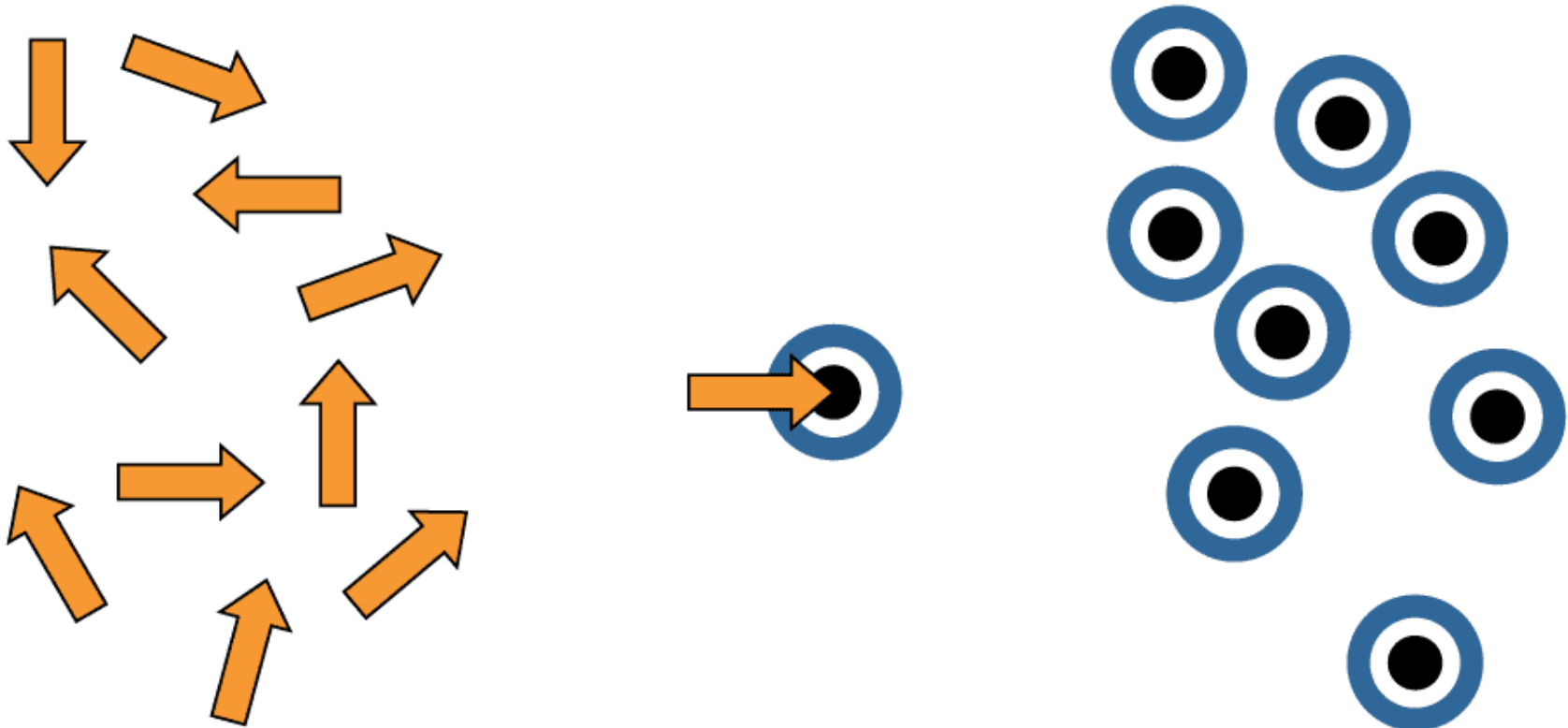
Xiaomi Mipad

Stanford dSchool Process

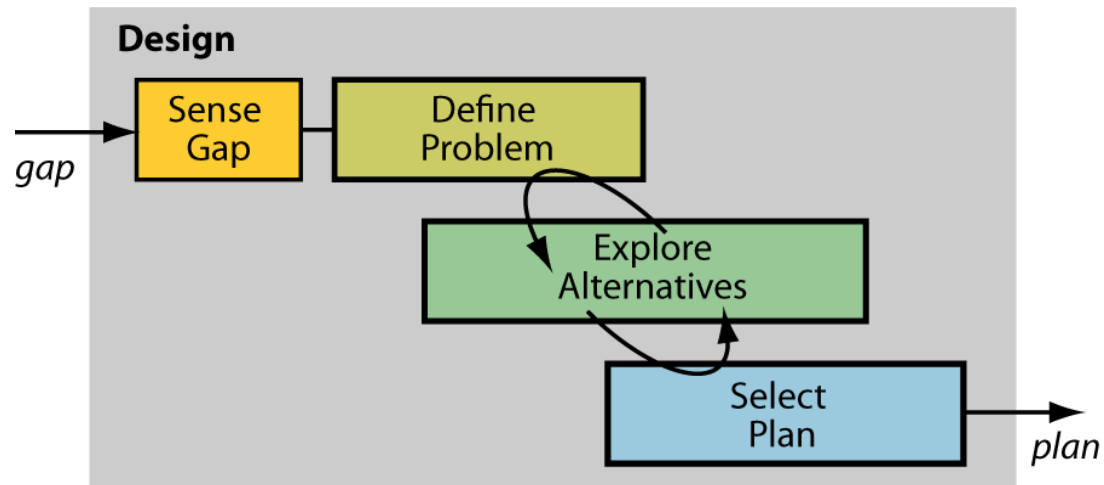
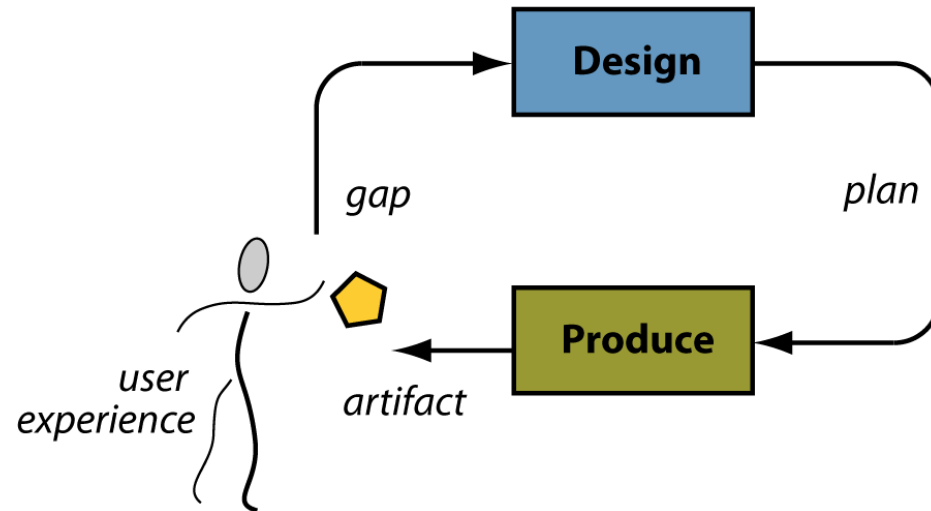


innovation

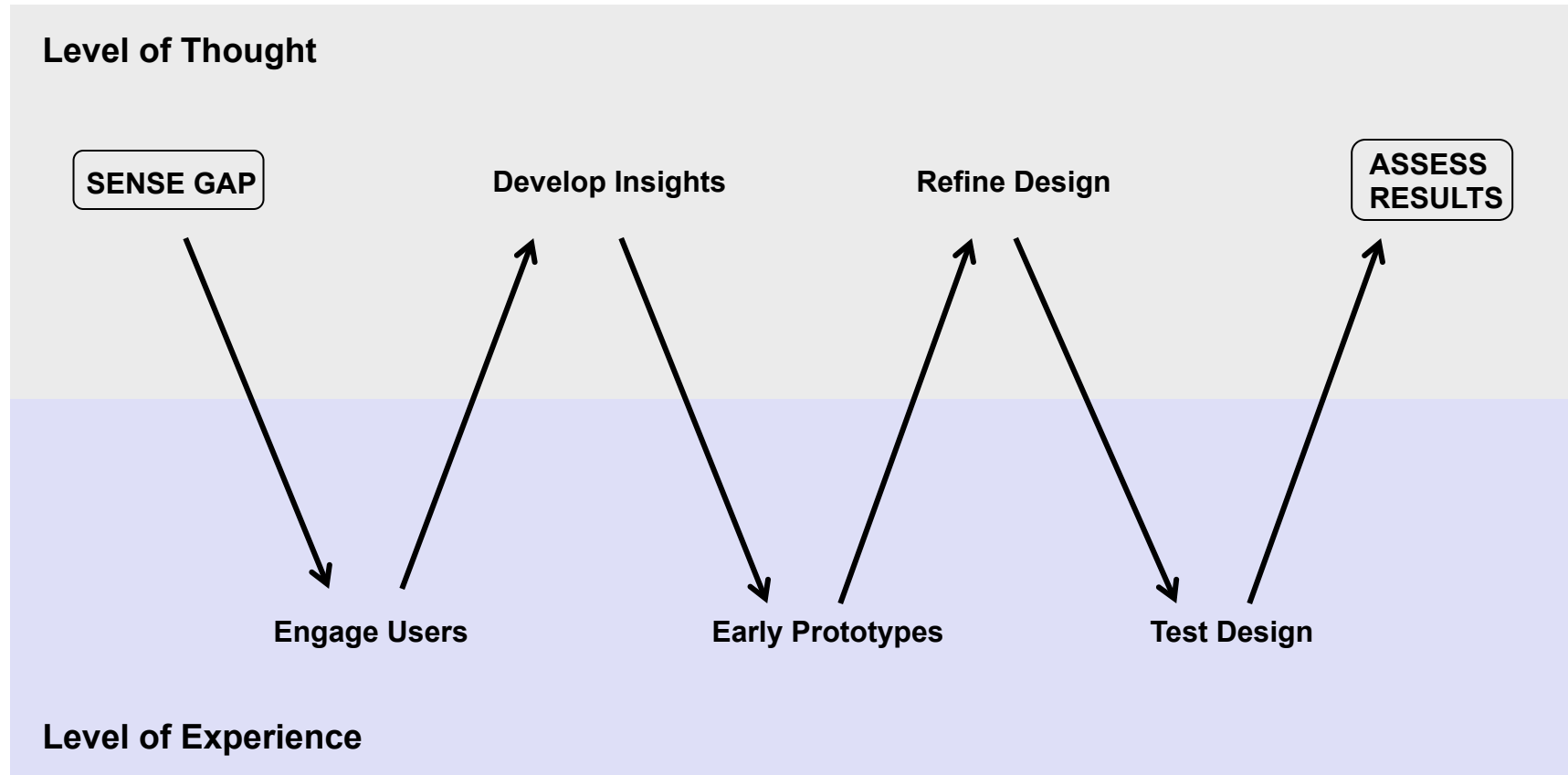
A new match between a solution and a need.



Design = Innovation when Pulling from Needs



The W-V Model



- Emphasizes iterative experiential process.
- Developed and articulated within Total Quality Management movement in 1980s.
- Is this some new kind of “design thinking” or just good problem solving process in high-uncertainty environments?

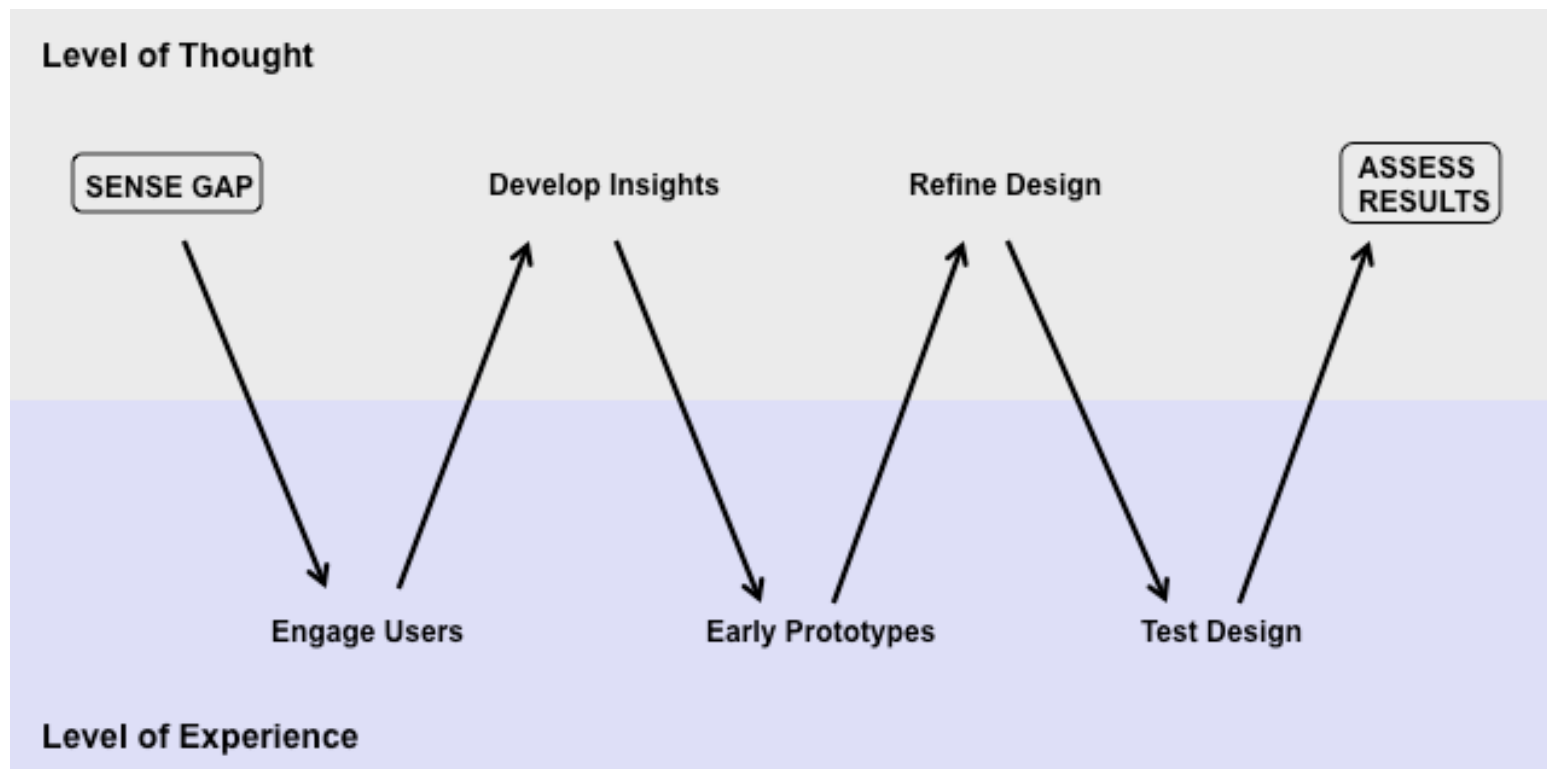
Reference: Shoji Shiba and David Walden, *Four Practical Revolutions in Management: Systems for Creating Unique Organizational Capability*, 2nd Edition.

“Design Thinking”

- 5 Whys – abstracting problem
- User orientation
- Observational methods
- Early prototypes
- Iterative refinement
- Visual expression

- Culture of “yes”
- Bias for action

Plus beauty, elegance, craft, and care.



Mission Statement for the Workshop

Design Goal: Create an artifact to be used by students to carry/manage/organize stuff in daily life – e.g., a bag, strap, organizer, etc.

Primary Market Segment: Wharton MBA students

Deliverable: Develop and deliver to the market a prototype of the most preferred product (with a demo and 60 second pitch).

Deliverables, Timing, and Constraints

- Teams of 3 men or 3 women.
- Men will design for women; women for men.
- Prepare a prototype of your team's product to be presented to your target customers by 4:45pm.
- Prepare one sheet promoting your product.
- You may use up to 60 seconds to pitch your bag.
- After presentation of the bags, the target market will be asked to “buy” **three** products.
- **Key limitation:** for the prototype, you are only allowed to use five materials: Tyvek, velcro, duct tape, staples, and marker ink.

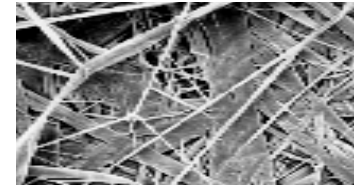
BIG NAME

Features and Benefits

Tyvek

- Tyvek:

- Made from high-density polyethylene fibers
- Discovered by a DuPont researcher in 1955, who noticed cotton-like fluff coming from a pipe in an experimental lab
- is lightweight, strong, vapor-permeable, and low-linting
- Is water-, chemical-, puncture-, tear- and abrasion-resistant.
- Comes in hard (paper-like) and soft (cloth-like) finishes
- Is very difficult to puncture or tear, yet easy to cut with scissors



- Applications of Tyvek include:

- Construction
- Protective apparel
- Outdoor advertising
- Specialized printing (race numbers, maps, frozen food labels)
- Medical packaging
- Envelopes
- Car and boat covers



Duct Tape Uses

Distinctive clothing



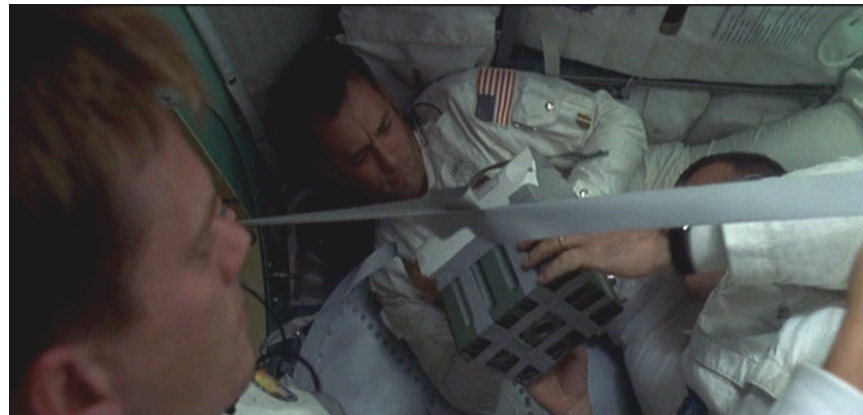
Blister cure



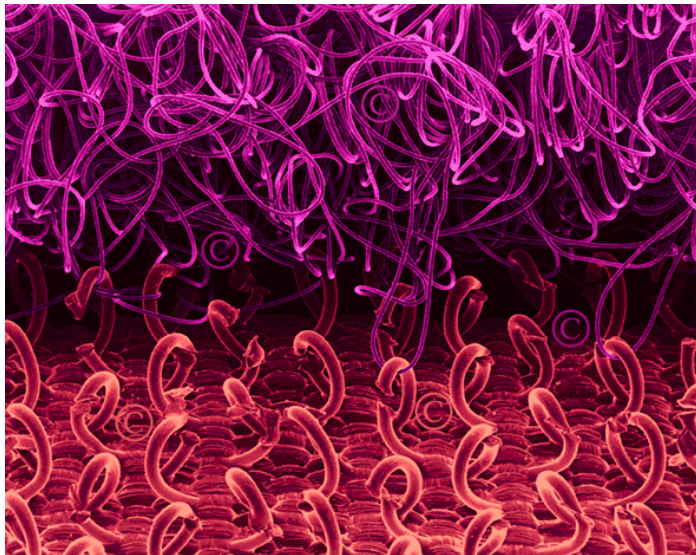
Cast for sprained ankle



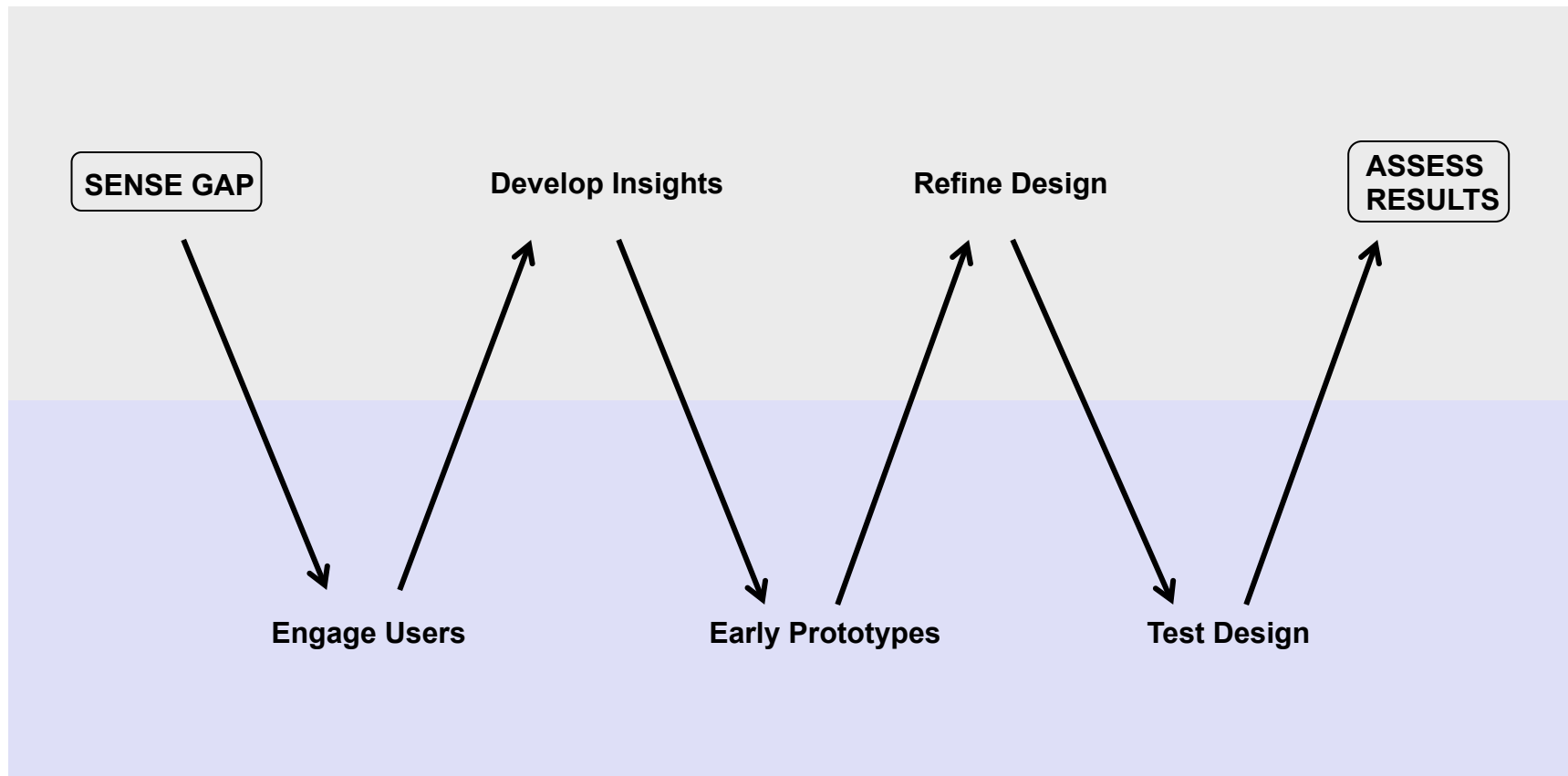
Spacecraft repair



The Wonders of Velcro



Workshop Timeline



3:30
Users &
Insights

3:45
Design

4:00
Proto I

4:30
Proto II

4:45
Pitch

Some Heuristics (i.e., “design hacks”)

- What problem are we really trying to solve here? (5 whys...)
- If we were to only focus on this one pain point, what would the solution look like?
- How could we make this problem go away entirely?
- How would Google do it? How would Apple do it? How would Toyota do it?
- Purity of gesture vs. “Swiss Army knife”



Learning More

- Core77.com (pretty good general design blog, mostly industrial design)
- Remarkable films (all on Netflix)
 - *Objectified* (includes some nice Apple stuff)
 - *Eames* (Ray and Charles Eames – life and work)
 - *Helvetica* (great overview of graphic design, not just about typeface)
- If you're really into this stuff:
 - *My Architect* (film about Louis Kahn)
 - *The Sketches of Frank Gehry* (film about Gehry)
 - *Design and Thinking* (film – I haven't seen it, but plan to soon)