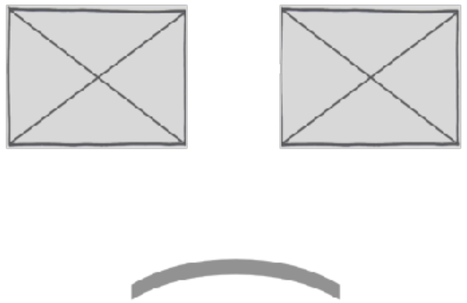
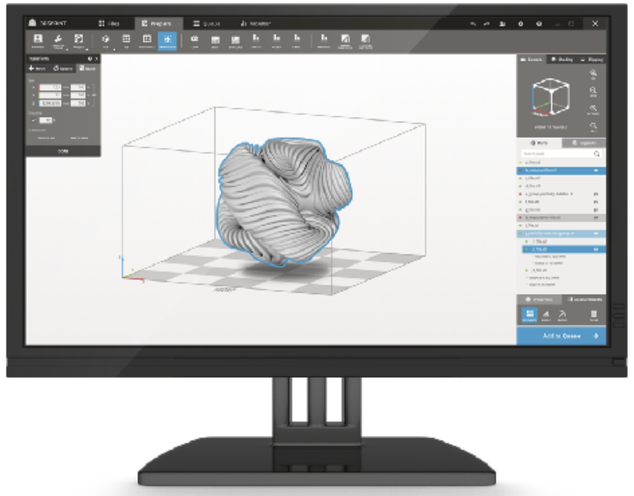


We'll Figure It Out
Designing for Hardware Products

Noam Zomerfeld // Talk for Cornell Tech // Nov 2019

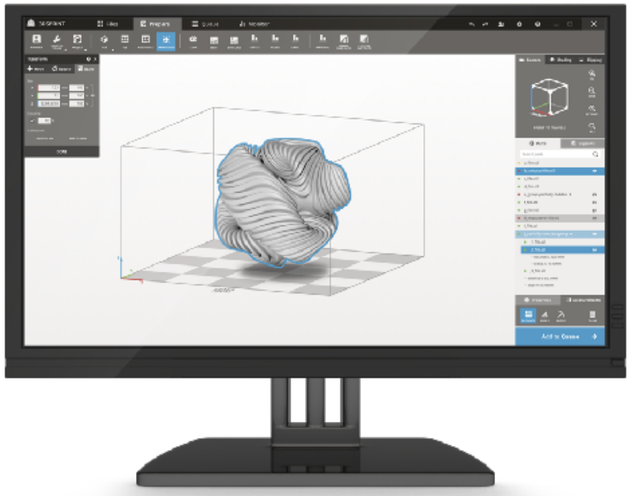

3D SYSTEMS
3D SYSTEMS


Simbionix
Simbionix
Simbionix



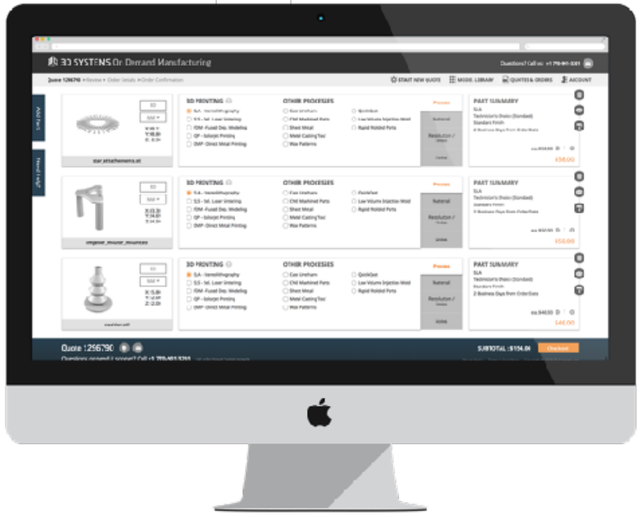
3D SYSTEMS: **Software Products**

SCANNING SOFTWARE



PRINTING SOFTWARE

E-COMMERCE WEBSITE



3D SYSTEMS: **Fig4 Dental (NextDent 5100)**

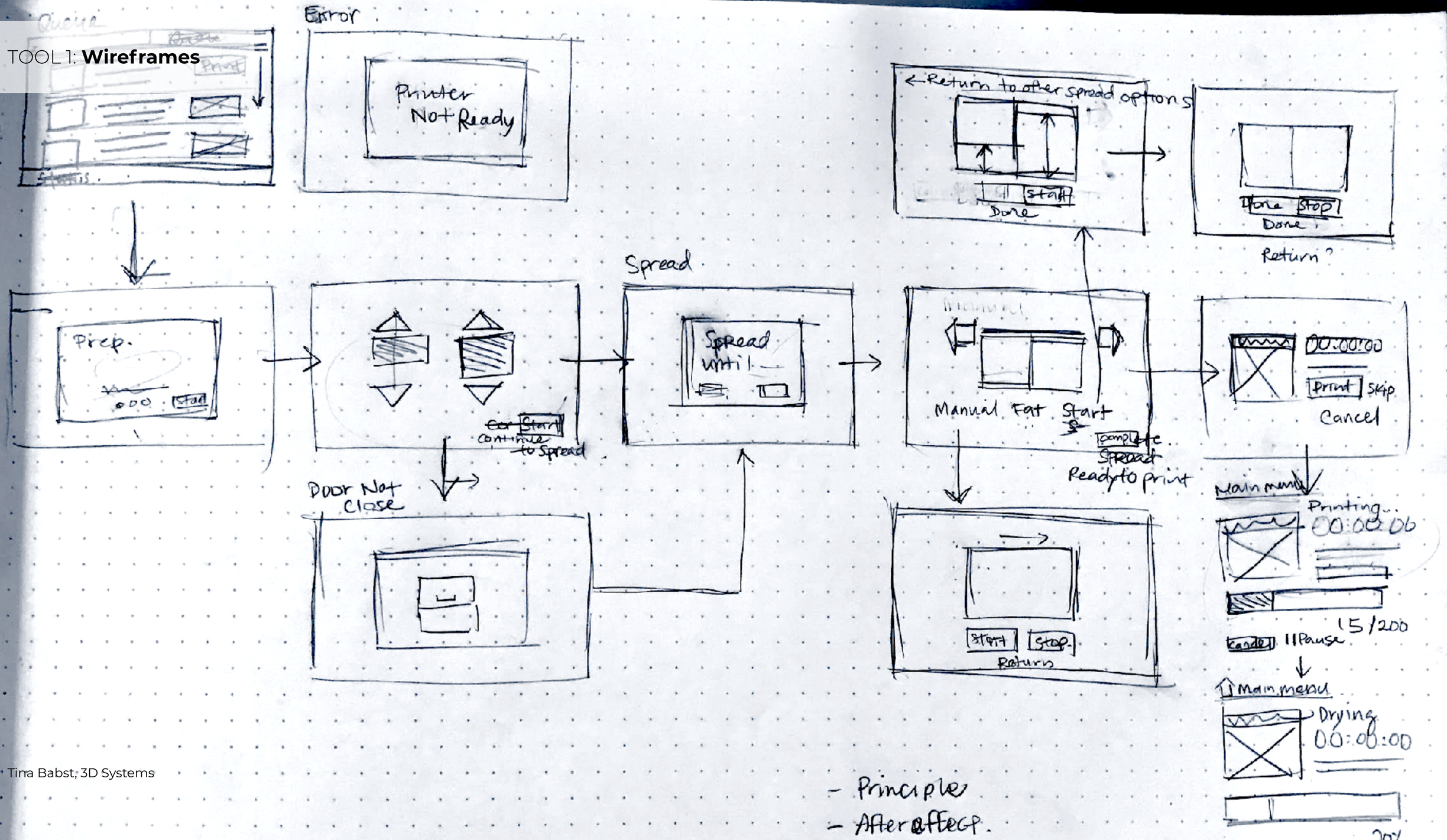
3D SYSTEMS: **Fig4 Production**

3D SYSTEMS: **Fig4 Modular**

3D SYSTEMS: **Fig4 Family (Goldilocks)**

Manual — Automatic

TOOL 1: **Wireframes**



TOOL 2: **Interactive Mockups**

Designing for **Scale?**

3D SYSTEMS: **Fig4 Production**

3D SYSTEMS: **Fig4 Modular - Multiple Screens**

Design as
Choreography?

Design as Choreography?

Amy Fasteneau, The Elements of Dance

3D SYSTEMS: **Fig4 Production**

3D SYSTEMS: **Fig4 Production**

ACTION

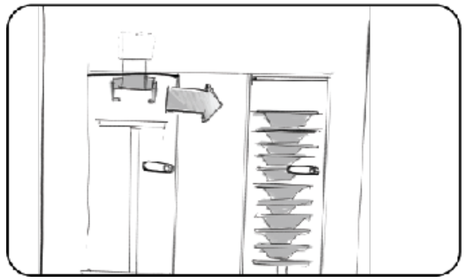
3D SYSTEMS: **Fig4 Production**

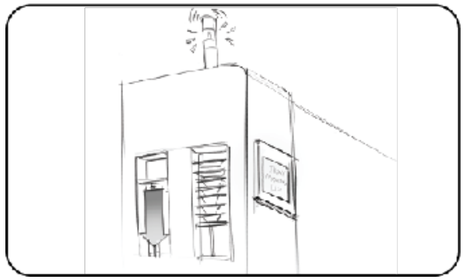
Are we making someone walk around a room-size machine?

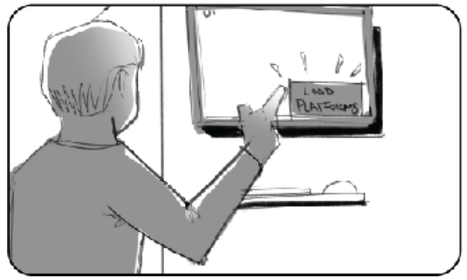
Was it designed to facilitate human action / interaction?

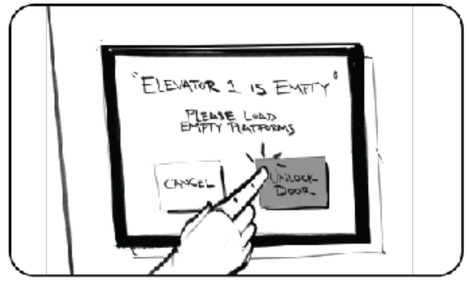
ACTION

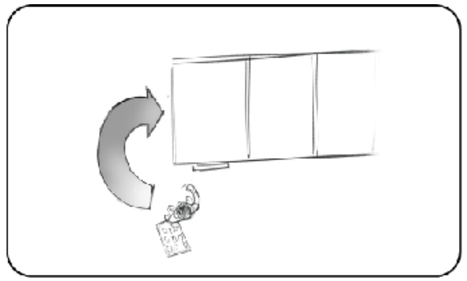
TOOL 3: **Storyboards**

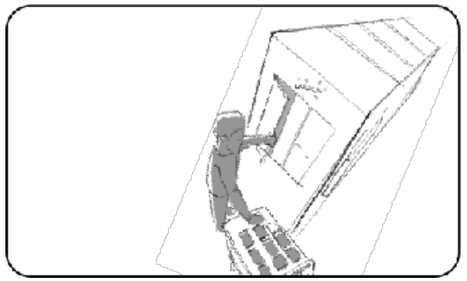


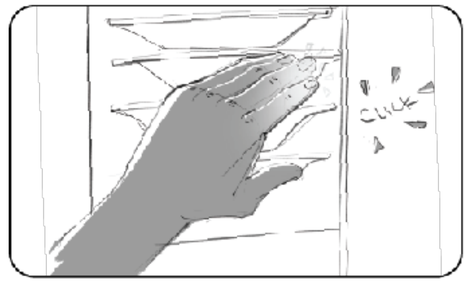


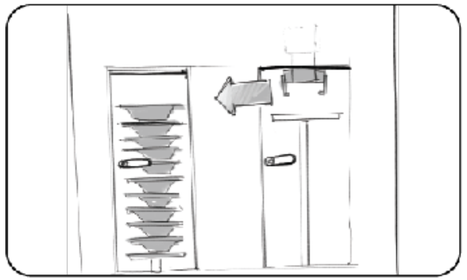


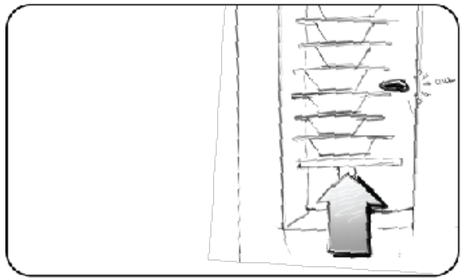






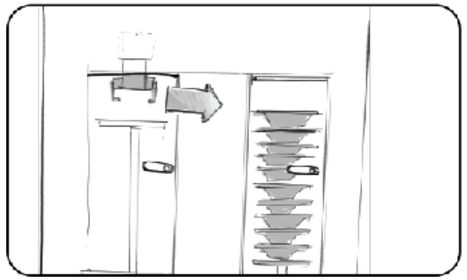


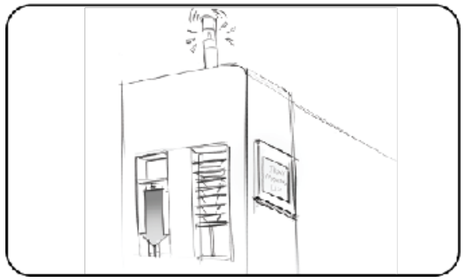


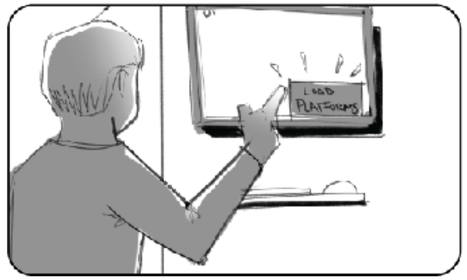


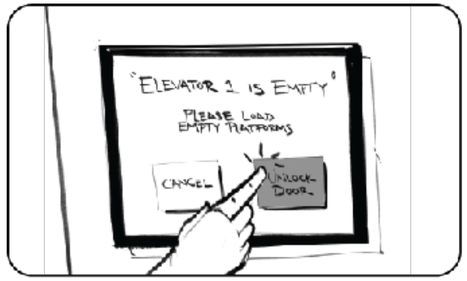
TOOL 3: **Storyboards**

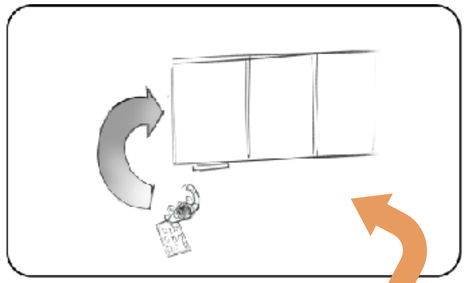
FLASHING LIGHTS +
AUDIBLE ALARM

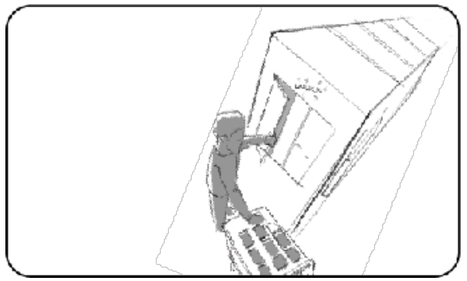


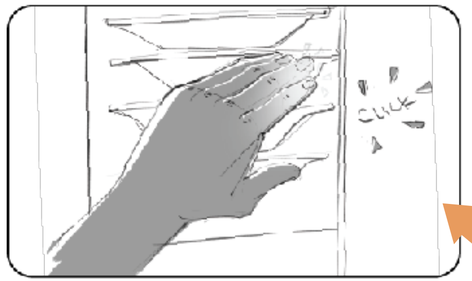




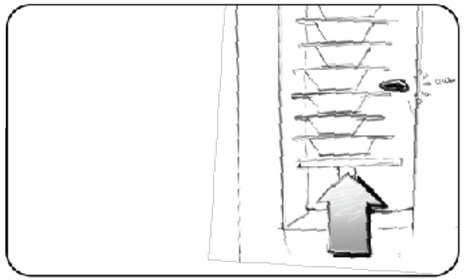








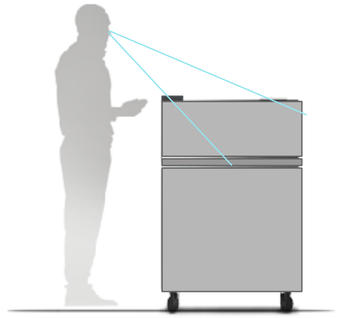
WALKING TO THE OTHER
SIDE OF THE MACHINE



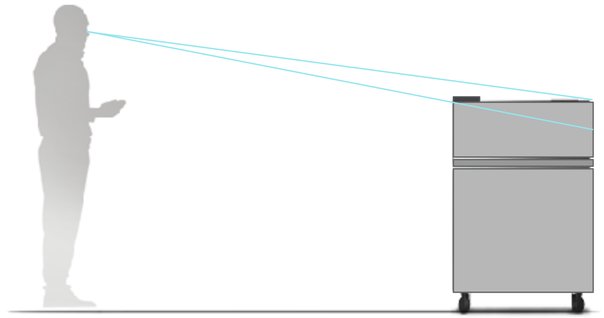
CLOSING A DOOR
(DIGITAL SENSOR)

TOOL 4: **Paper / Cardboard / Foamcore Prototyping**

PRINT VISIBILITY



Good visibility from close range



No Print visibility long range

TOOL 4: **Paper / Cardboard / Foamcore Prototyping**

TOOL 4: **Paper / Cardboard / Foamcore Prototyping**

Insert the cartridge

Insert MQC fitting

TOOL 4: **Paper / Cardboard / Foamcore Prototyping**

TOOL 4: **Paper / Cardboard / Foamcore Prototyping**

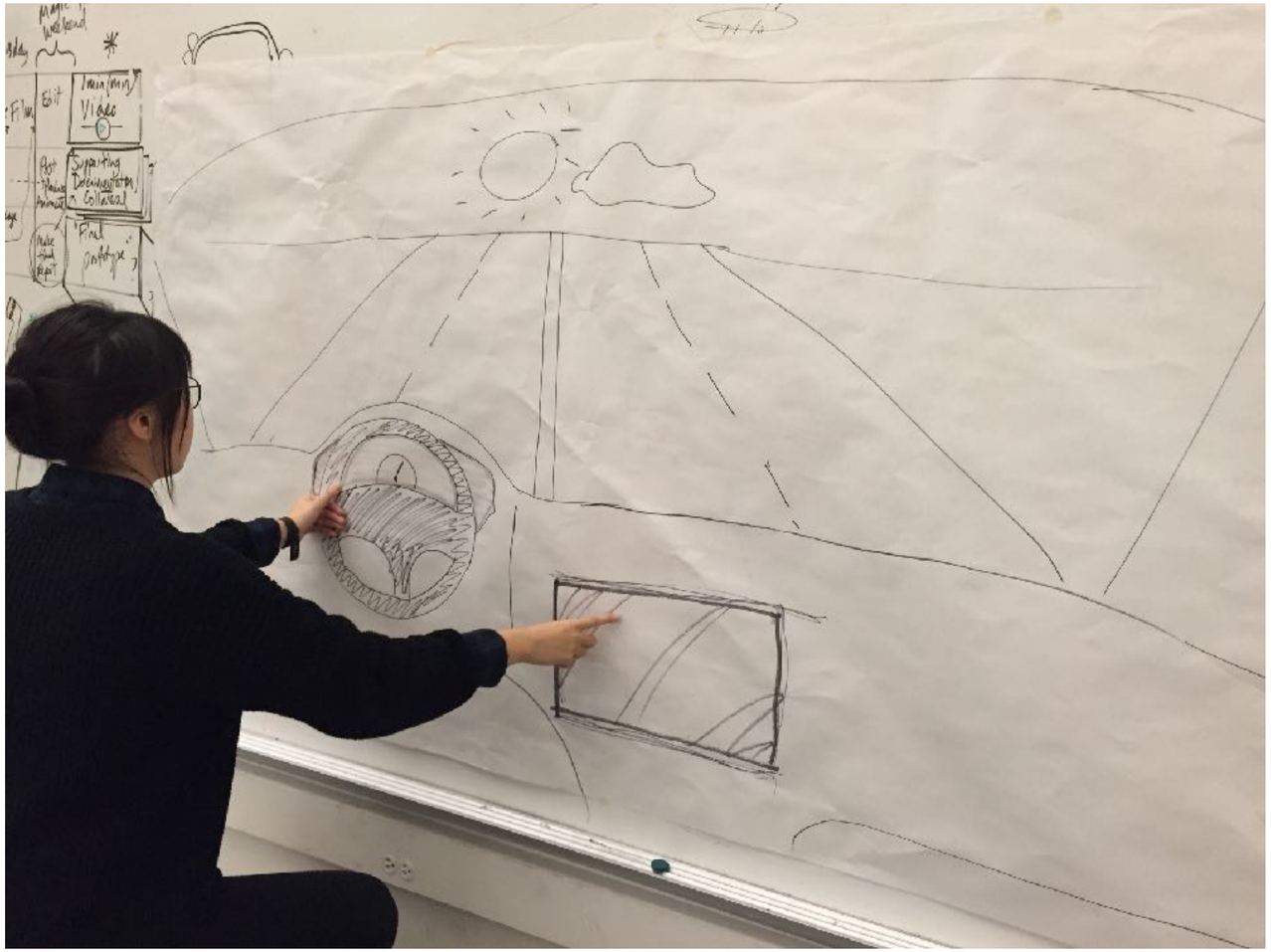
TOOL 5: **Body Storming**

This interaction is not optimal
but accepted in the kitchen

TOP CARTRIDGE
This may be obscured from view by the tabletop surface. Need to make sure fitting close as possible to front.

BOTTOM CARTRIDGE
The user will be required to bend all the way over to insert this lower cartridge

TOOL 5: **Body Storming**



It does not have to look nice....

Use what you got.

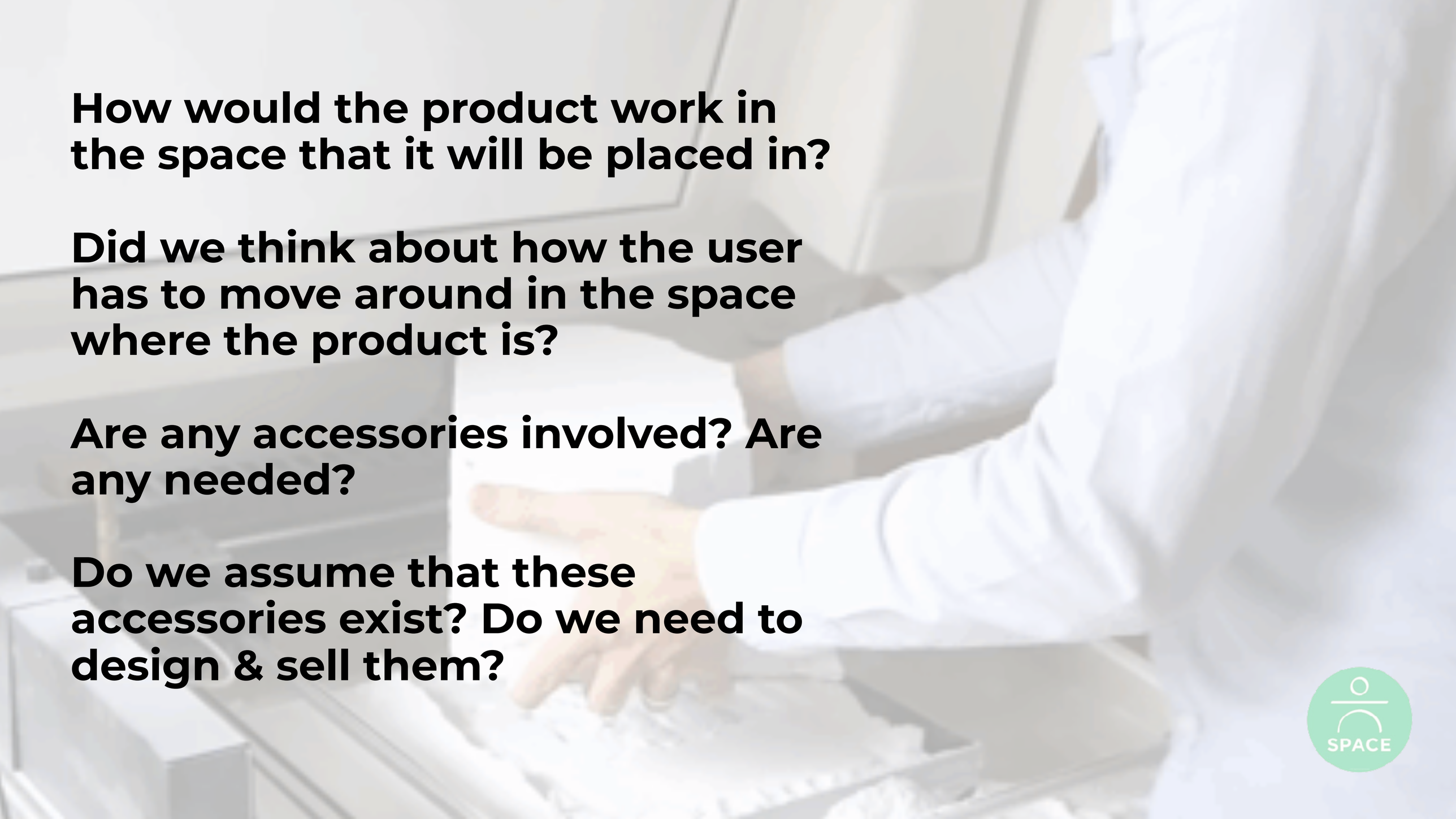
Make people get up and act it out it.

TOOL 5: **Body Storming**

De-powdering
Sugar


Do you want ants? Because that's how you get ants.

The things we make don’t exist in a vacuum.



How would the product work in the space that it will be placed in?

Did we think about how the user has to move around in the space where the product is?

Are any accessories involved? Are any needed?

Do we assume that these accessories exist? Do we need to design & sell them?

SPACE

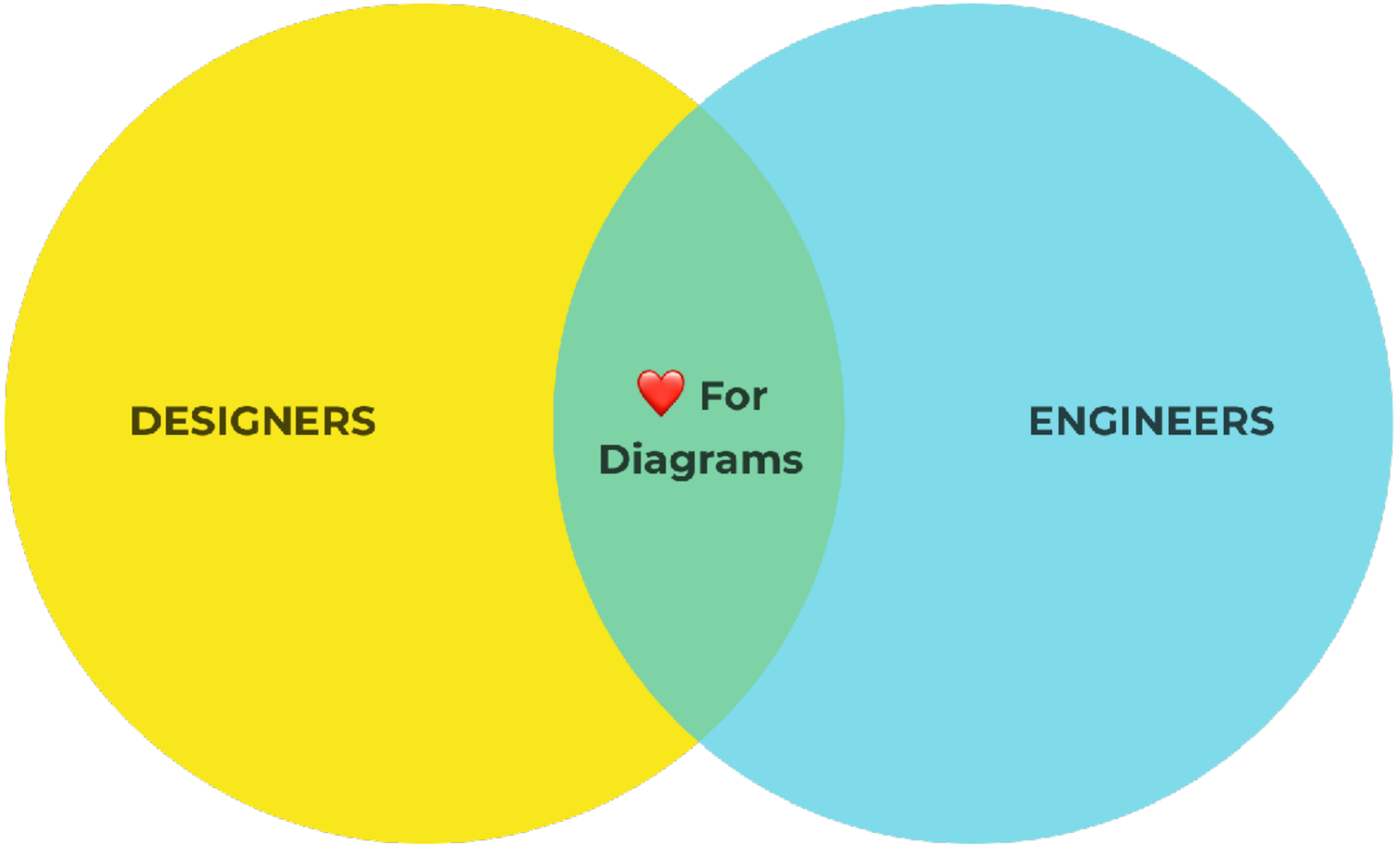
vs.

Waiting in physical space for physical things feels very different than waiting in “digital space”

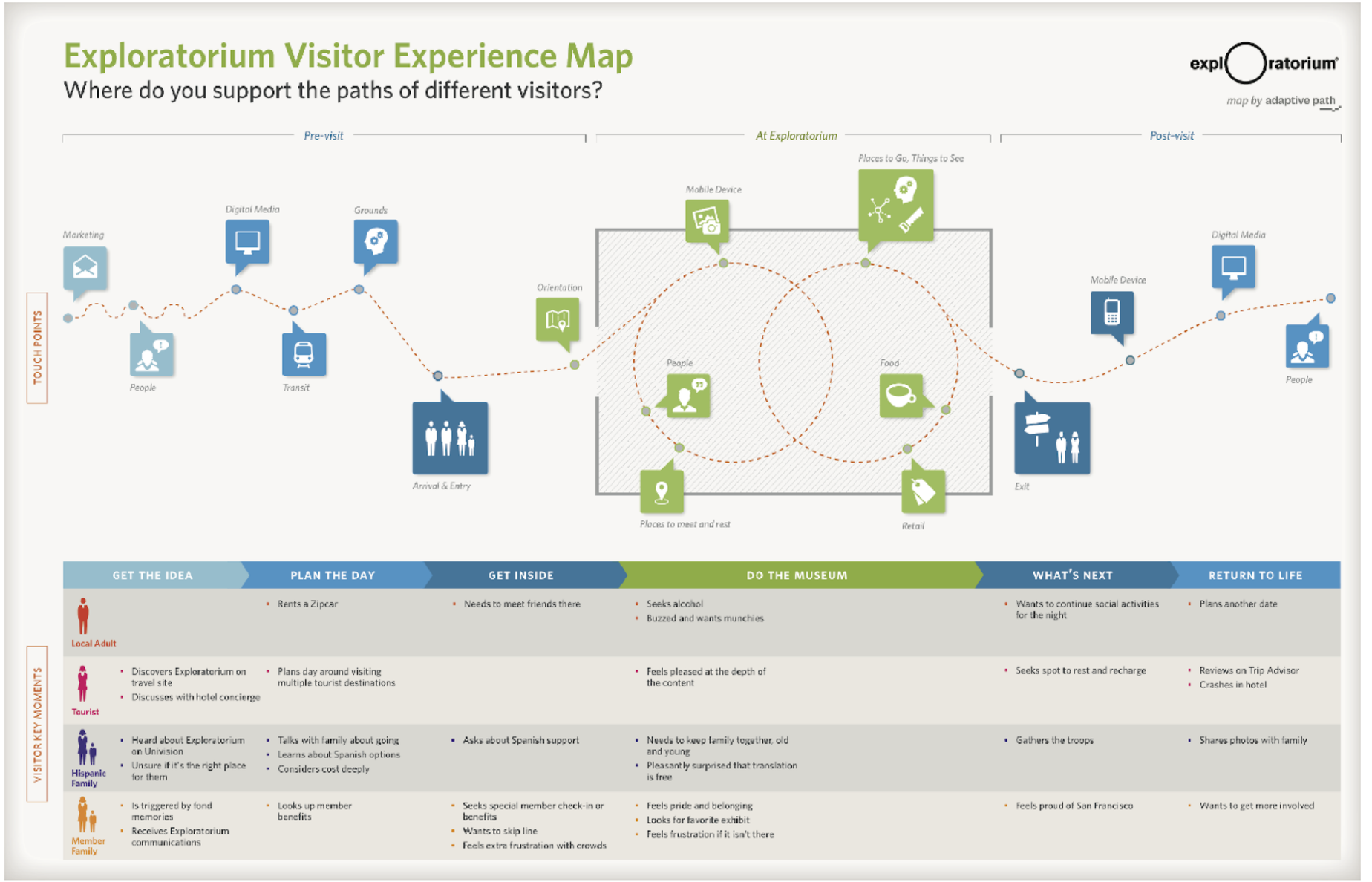
vs.

If you don’t believe me, go turn the microwave for 20 seconds and stand there and watch. Without using your phone.

WORKFLOWS **For HW Design**

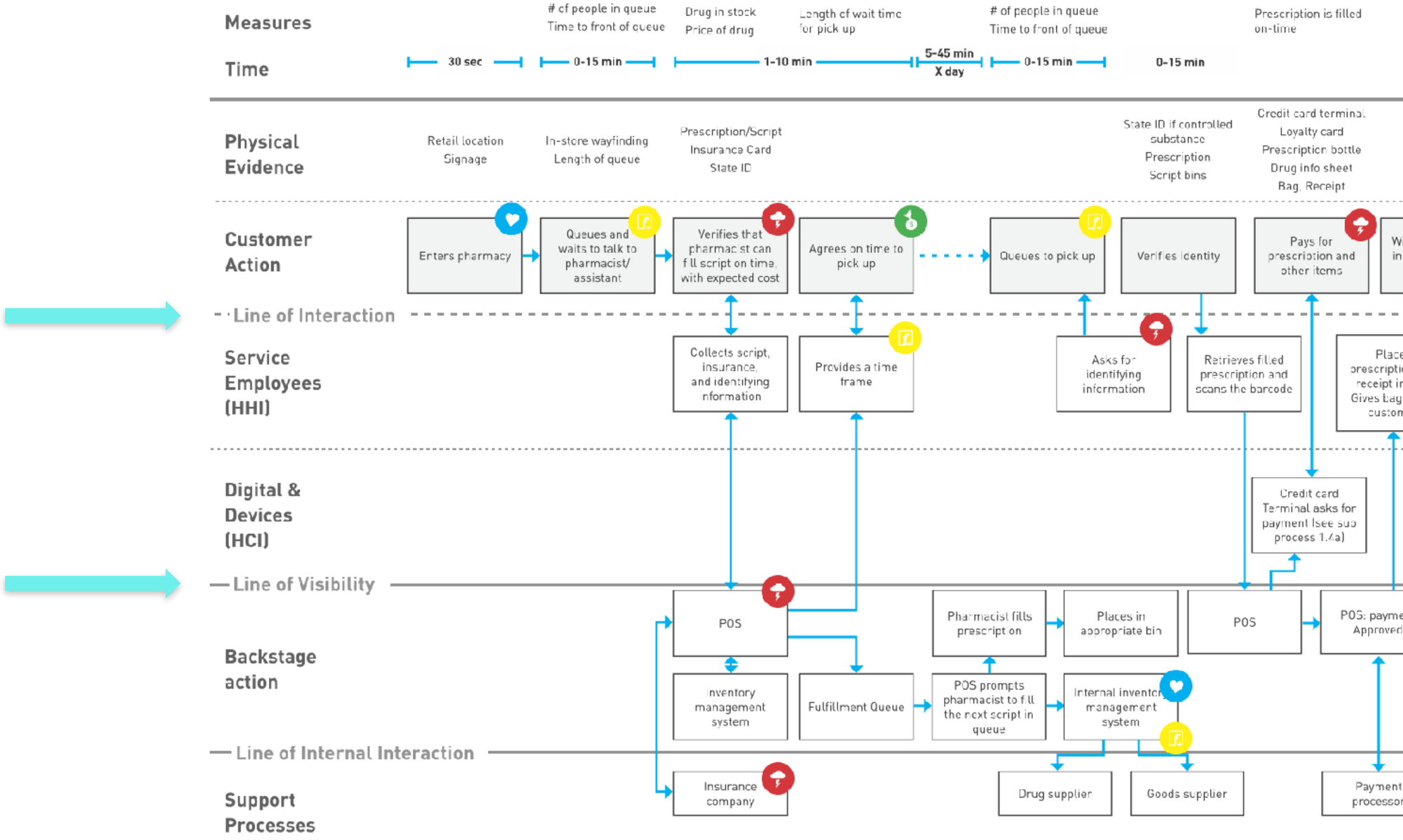

DESIGNERS
❤️ For Diagrams
ENGINEERS

TOOL 6: **Journey Maps**



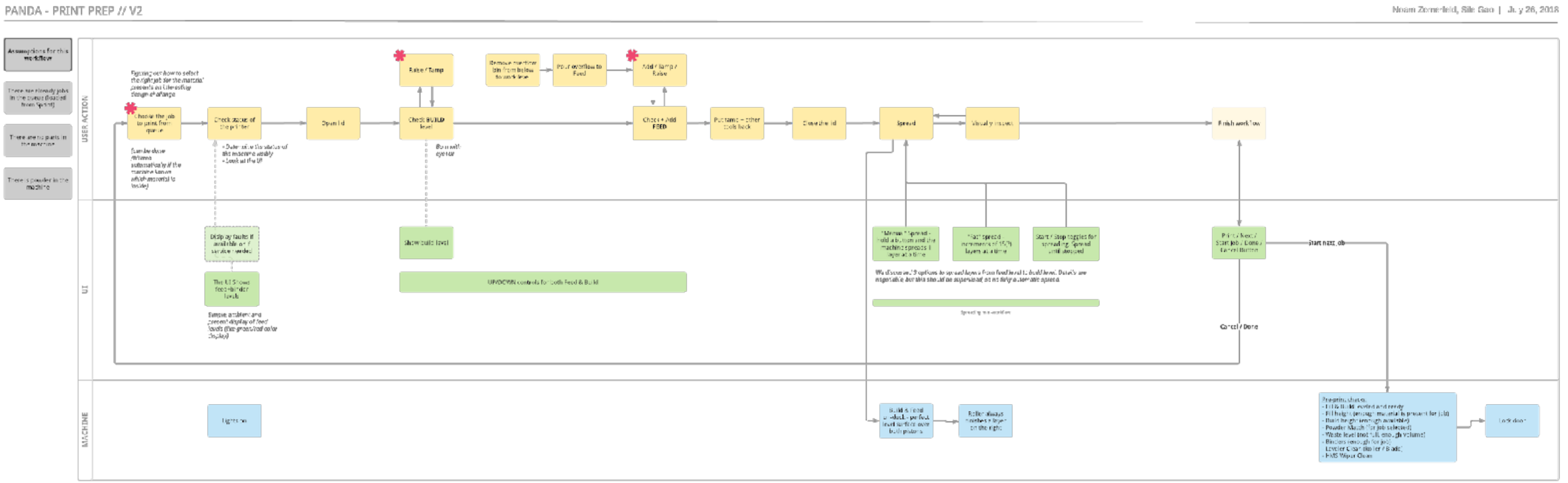
Chris Risdon & Adaptive Path

TOOL 7: **Service Design Blueprints**

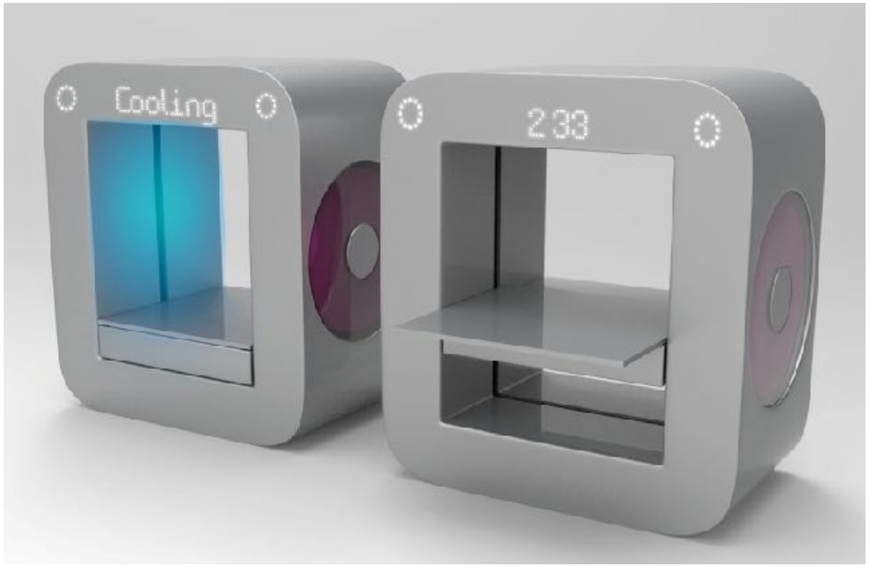


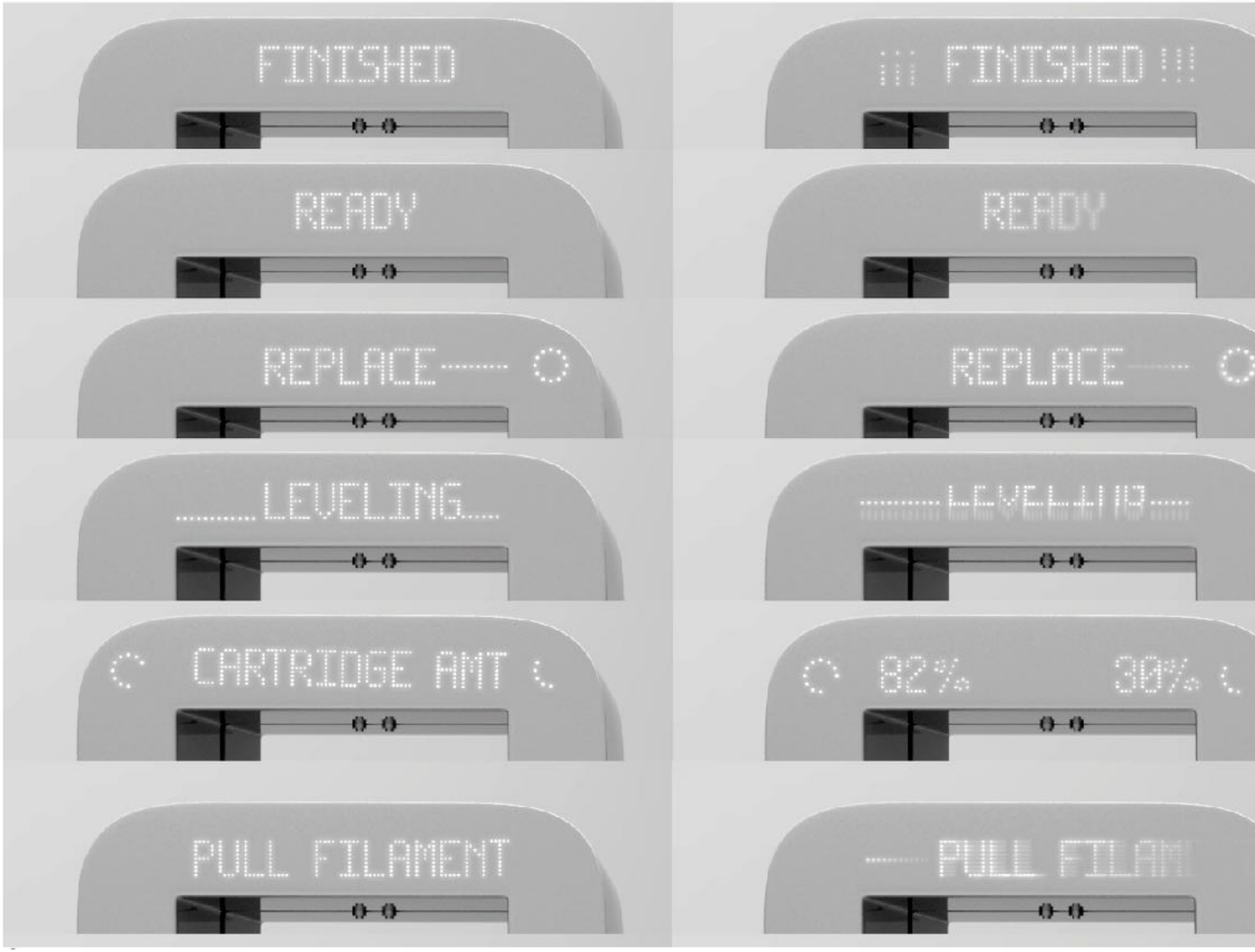
TOOL 8: **HW Product Experience Maps**

TOOL 8: **HW Product Experience Maps (modified tasfklows really...)**

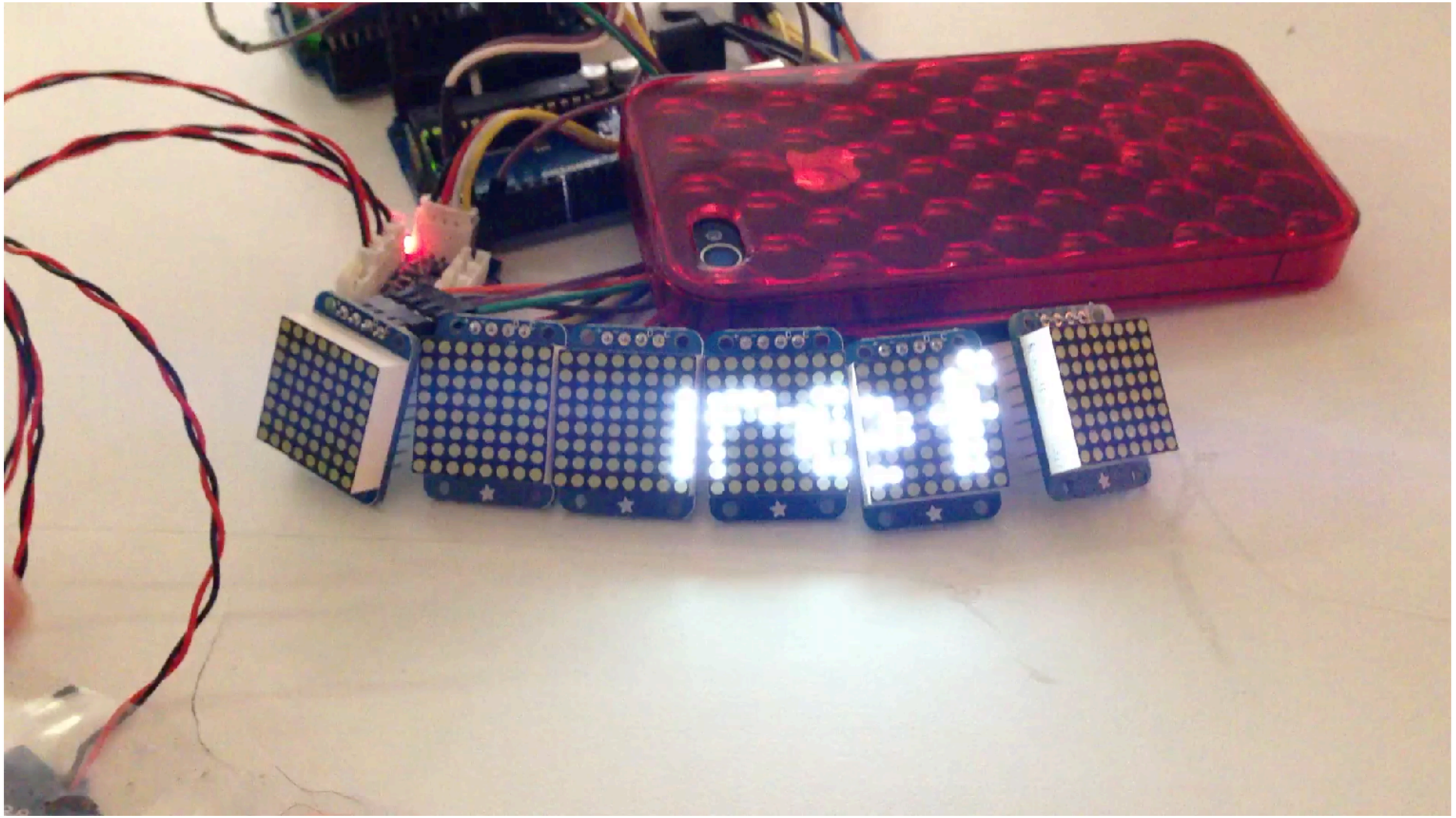


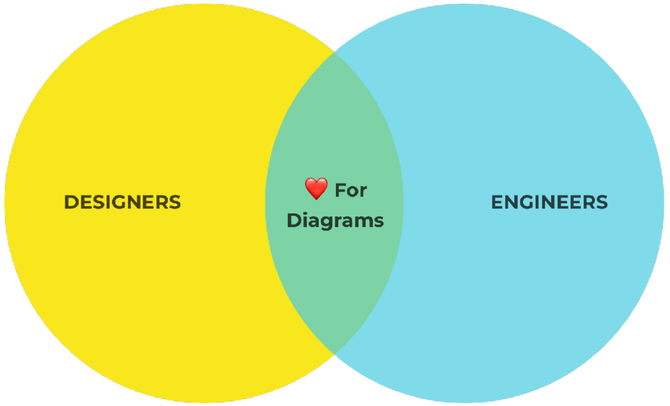
TOOL 9: **Electronic/Mechanical Prototypes**





TOOL 9: **Electronic/Mechanical Prototypes**





We'll Figure It Out
Designing for Hardware Products

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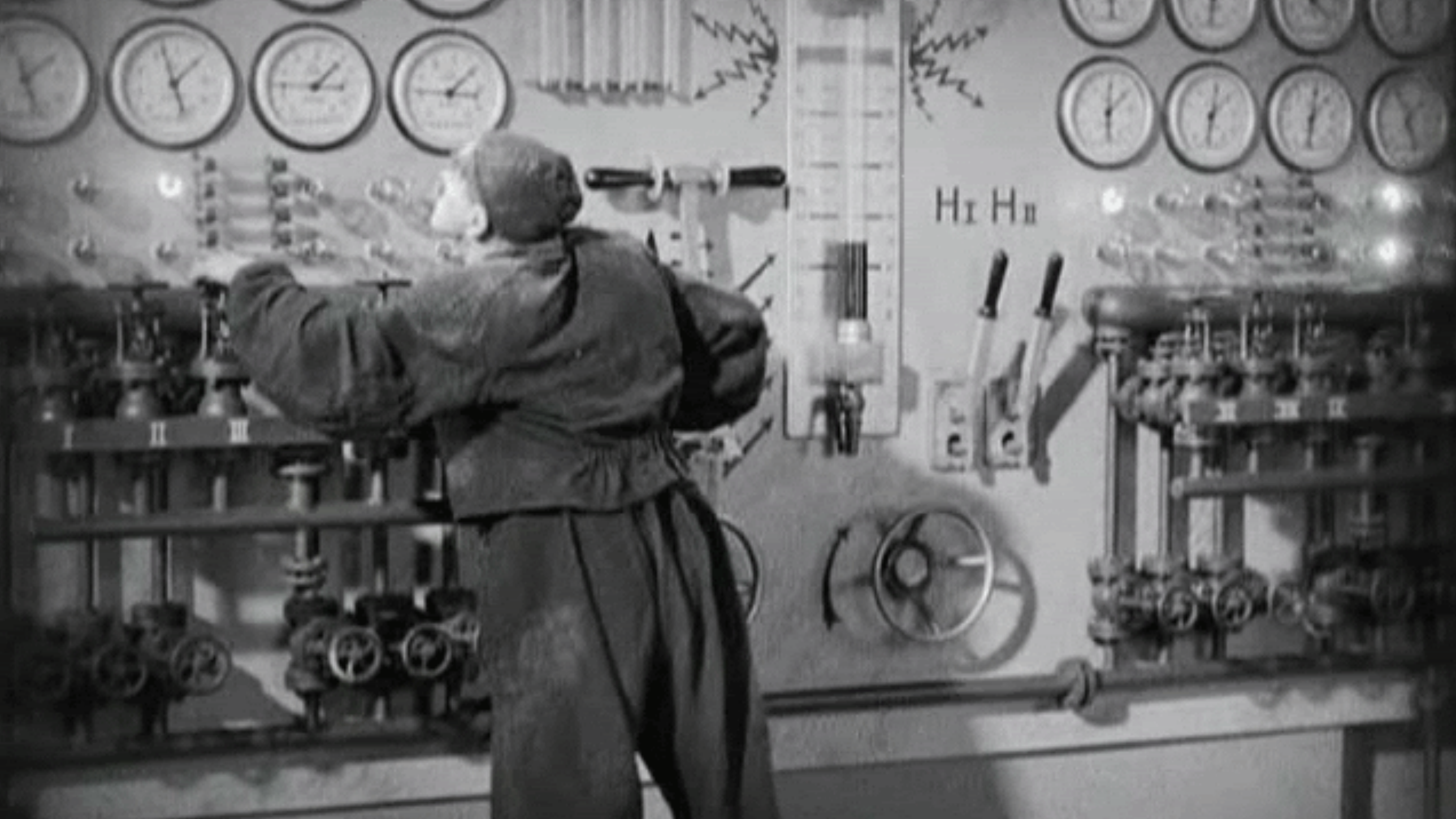
ZomerfeldN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