Designing Interactions:
In Products, Processes, and Conversations

Silicon Valley Seminar Series
Samsung Electronics
San Jose, CA
March 8, 2018

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Designing Interactions:
In Products, Processes, and Conversations

Design

“Everyone designs who devises courses of action aimed at changing existing situations into preferred ones.”

— Herbert Simon

STANFORD HCI GROUP

Cybernetics and Design 2000 – 2007
Human-Computer Interaction Program
Stanford University

with Hugh Dubberly

School of Visual Arts MFA IXD

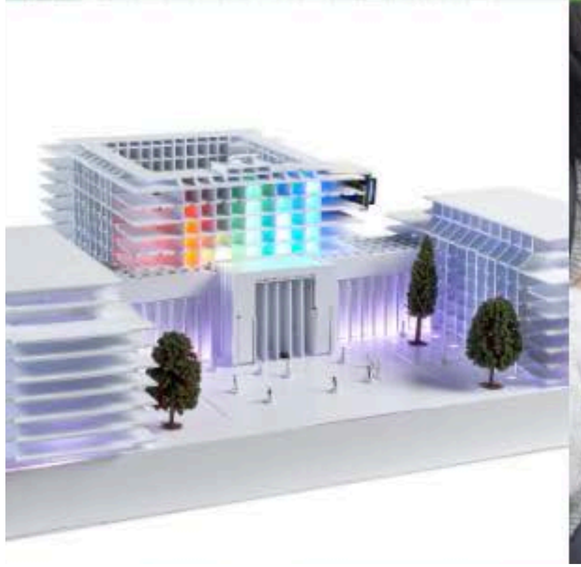
Introduction to Cybernetics and the Foundations of Systems Design

This course presents frameworks for modeling interaction in terms of structure and context, augmenting traditional discussions of form and syntax. We will collaboratively address questions that are fundamental to design practice: What is a system, and what are the different types? How do we interact with systems, and what are the different types of interaction? Systems may act independently, interact with other systems, learn, and even converse. What do such systems have in common, and how can we describe them? How can we measure their limitations? The course explores the integral structures and coherent processes for the design of effective artifacts, communications, collaborations, and services. Students will apply frameworks for steering design processes and/or design outcomes based on their own interests, encompassing domains as broad as education, health and wellness, and sustainability.

INSTRUCTOR

Paul Pangaro, Ph.D.

Amirhossein Nouri — CCS MFA IxD — 2016



CCS MFA IxD — 2018

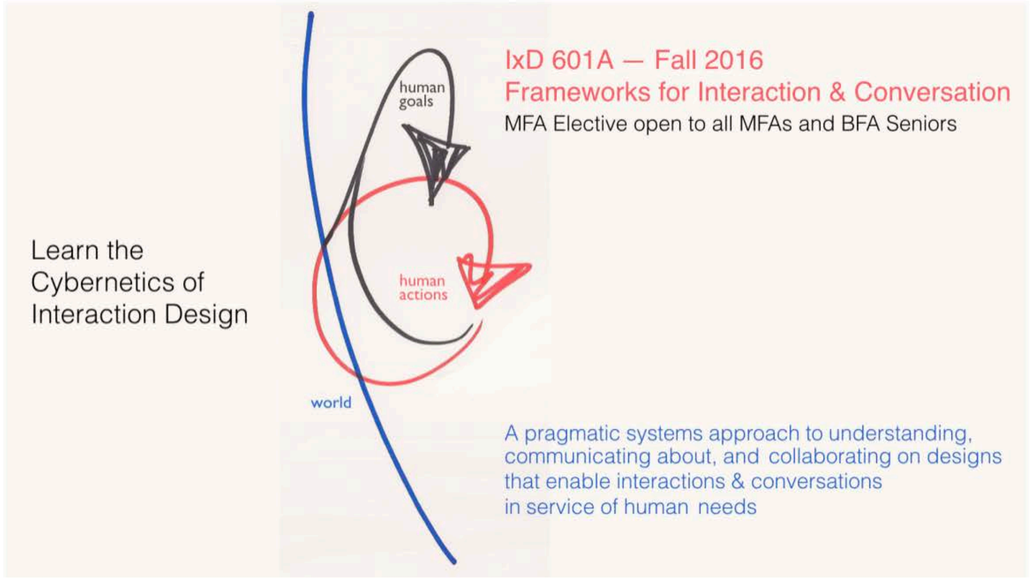
COLLEGE for Creative STUDIES

CCS MFA GRADUATE PROGRAMS

Menu

Frameworks for Interaction and Conversation

June 13, 2016



In the Fall 2016 Semester, CCS MFA Interaction Design is introducing a new elective, Frameworks for Interaction and Conversation. It's an in-depth course that explores cybernetic models of effective action that apply to design of software, services, products, entertainment, or organizations.

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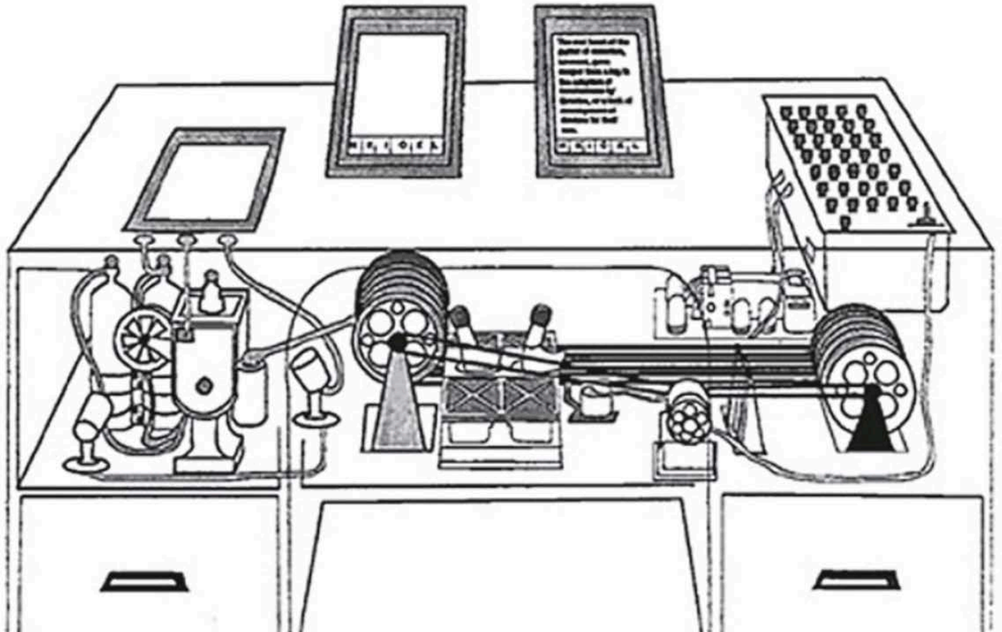
Menu

Be Part of the Evolution of Interaction Design

March 26, 2017

In Fall 2017, the MFA program at CCS is introducing a new studio course called "Interaction Design Evolution." The course invites students to riff on prior innovations in the history of interaction design and then to invent their own. Seriously.



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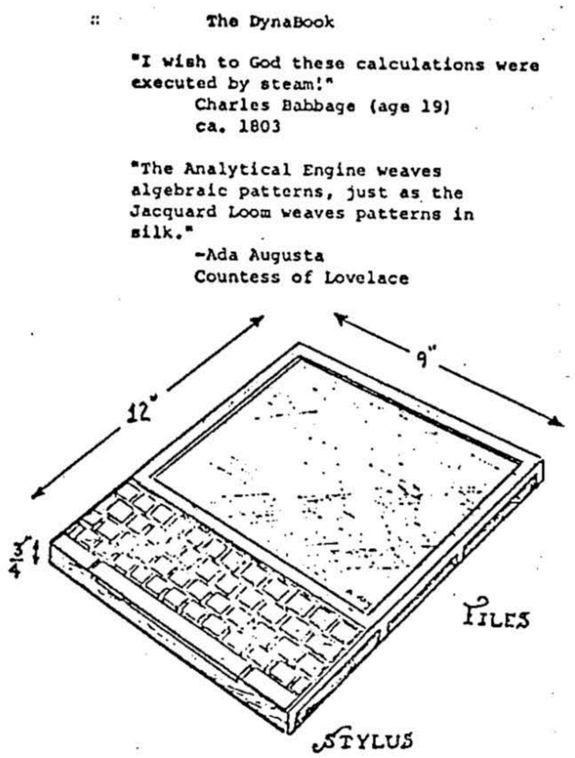
Alan Kay gives lecture to CCS IxD

October 1, 2017



From Alan Kay's "A Personal Computer for Children of All Ages", 1972

It would be tl;dr for a blogpost to explain the originality and contributions that Alan Kay has made to interaction design. We're fortunate that he delivered an extended real-time lecture by video on October 9, 2017, to grad and undergrad students, hosted by the Interaction Design Evolution course, a.k.a. Studio III in the MFA Interaction Design program at CCS.

Alan has been deeply influencing interaction design from the time he conceived what we now call the iPad—though his concept went much further and was explicitly a learning tool. And he named it more descriptively: the Dynabook (1968-1972). He had a relationship with Steve Jobs and famously said that he thought the original Mac from 1984 was "the first

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Project Velociti

a new business at the intersection of cars, money and making life easier

Paul Pangaro
Rob Murray

Growth Ventures
Citi
September 2008

Project Velociti

- We’re spending more time in cars and more money to use them. This creates greater stress and heightened expectations for drivers and passengers.
- Our hypothesis: There are big economic opportunities in reducing the time, money, and risks—while increasing convenience and pleasure—surrounding the use of cars.
- We re-conceive the car as a platform for simplicity—for financial transactions as well as staying informed about, and planing activities that involve, cars and money.
- We seek business partners to complement our worldwide banking infrastructure in co-developing prototypes and bringing new services to market.

Global Trends Summary

What's Hard

Crises of ecologies, economies, energy, food

Crushing complexity & stress of everyday life, loss of privacy

Increasing cost & stress of using cars

More time spent in cars

What's Great

yet... Increasing power of communication, computation, monitoring & control

yet... Global networks create connections across time, distance, and groups

yet... Greater ease in managing payments & activities around cars

yet... Potential to do more, including banking, from cars

Insights

WHAT WE DRAW FROM TODAY'S TRENDS

- Globally, automobiles are increasingly critical in daily life, even as they grow more expensive and stressful to use.
- As we spend more time in automobiles, they become more than just transport—they are platforms for supporting a wide range of daily human activity, e.g., planning, communicating, relaxing, transacting.
- It's easy to make a driver's time more productive when the car is parked, or a passenger's time whenever. In addition, technology— such as voice recognition, attention awareness, and personalization— can make the driver more productive for tasks that can co-exist with safe operation of the vehicle.
- As part of the "network of objects", cars can synchronize with any other location and any type of data in the real and virtual world, to save money and time, and to monitor and control remotely.
- As far as banking goes, cars are not participating (yet).

Hypothesis: The Networked Car

Creates significant customer value by greatly increasing convenience, economy, and safety for today's frequent and costly use of automobiles.

Presents a huge, untapped, and global opportunity that will leverage Citi's extensive banking infrastructure, existing partnerships, and worldwide reach.

Delivers a new and cost-efficient distribution channel, new revenue opportunities, and an ability to attract new partners to joint ventures.

Future Vision

- The automobile is a touchpoint as important as branches and ATMs, online and mobile.
  - Financial tasks are achieved securely and easily from inside the car.
  - Any transaction related to using a car is simpler, faster, and more secure.
- Consumers use their cars as a platform from which to control and plan their complex lives.
  - Dashboard screens seamlessly connect the car to the consumer's digital lifestyle, allowing control and monitoring of a range of transportation, financial, and life activities.
  - The car is a "third space" (with home and office) where consumers transact, coordinate, and plan their work, daily life, and leisure.

Axiom 1

Safety in the car is paramount.

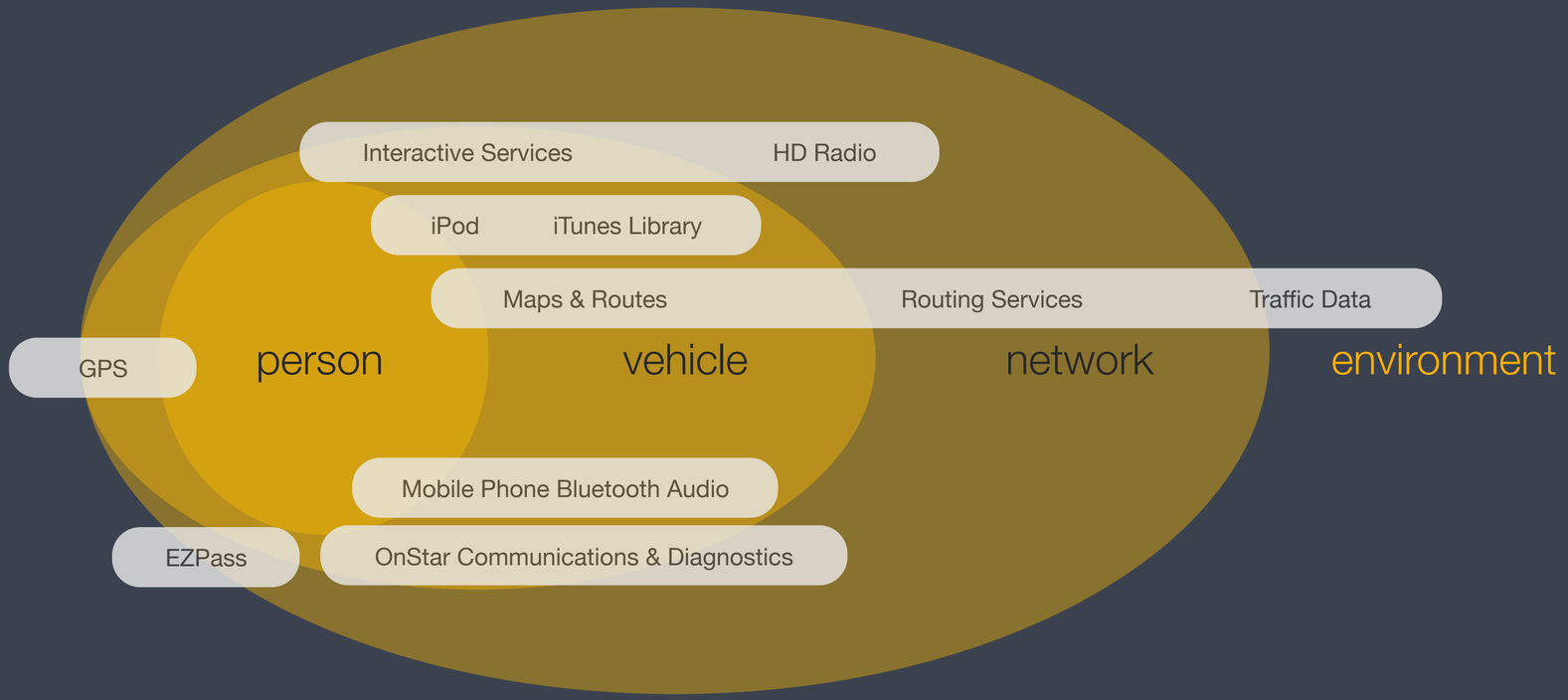
- We will not introduce new distractions to the driver.
  - Functions that distract from safe driving will be disabled when the car is moving.
  - Measures of current demand on the driver's attention will determine which functions may be enabled.
  - Voice recognition and other hands-free technologies will afford flexibility and avoid distraction.
- We will facilitate "time well spent" during waiting times, when parked, and when driver attention is available.

Axiom 2

Being in a car is different.

- The car provides a unique environment that is better than other touchpoints for performing certain tasks.
  - The car affords intimacy and comfort that is more like sitting at home or in a private office. With a large touch-screen and voice recognition, the experience can be better than with a desktop, laptop, or mobile device.
  - Vast stretches of underutilized time can afford new opportunities.
  - Unexpected events inevitably arise when we happen to be in a car. Immediate action may be necessary, and the completion of tasks will free up mental space and relieve stress.
- We can demonstrate that cars can deliver a banking experience that goes well beyond transactions.

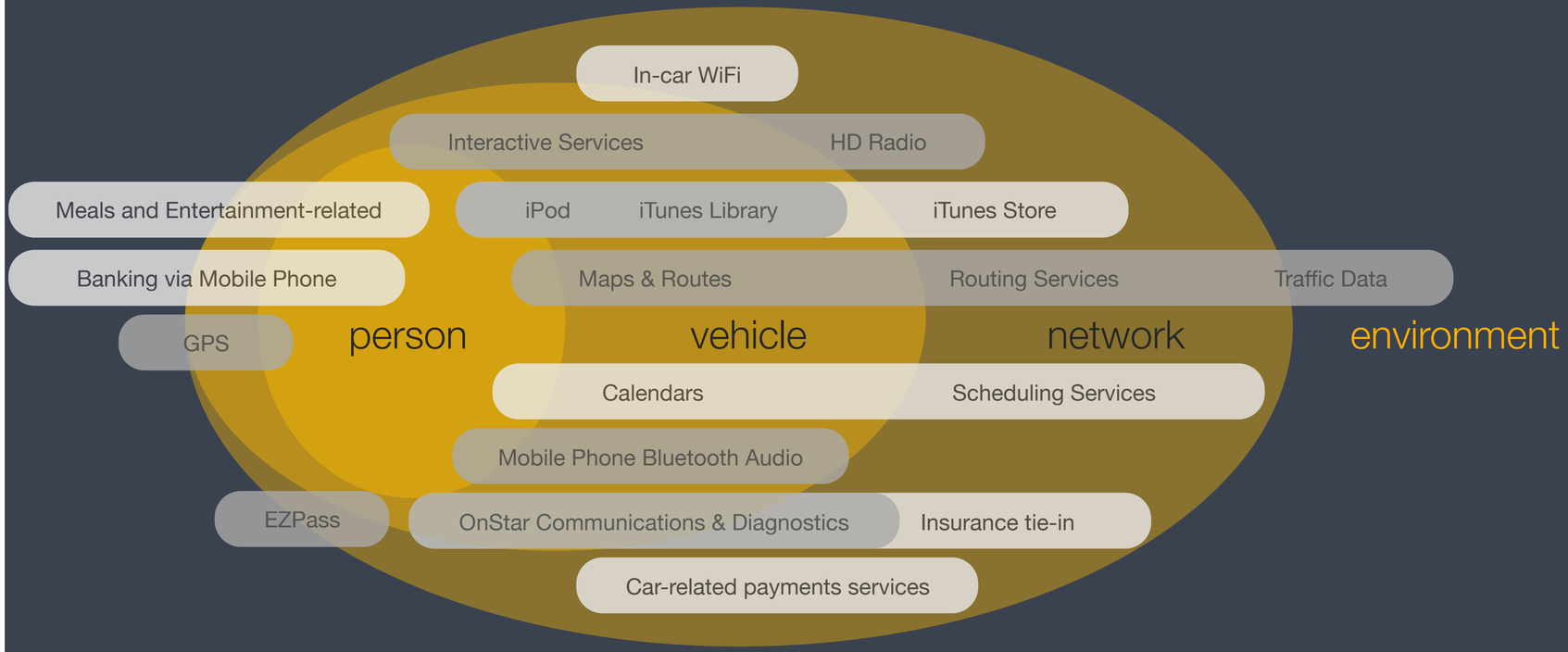
Today's networked car*



currently available in-car systems

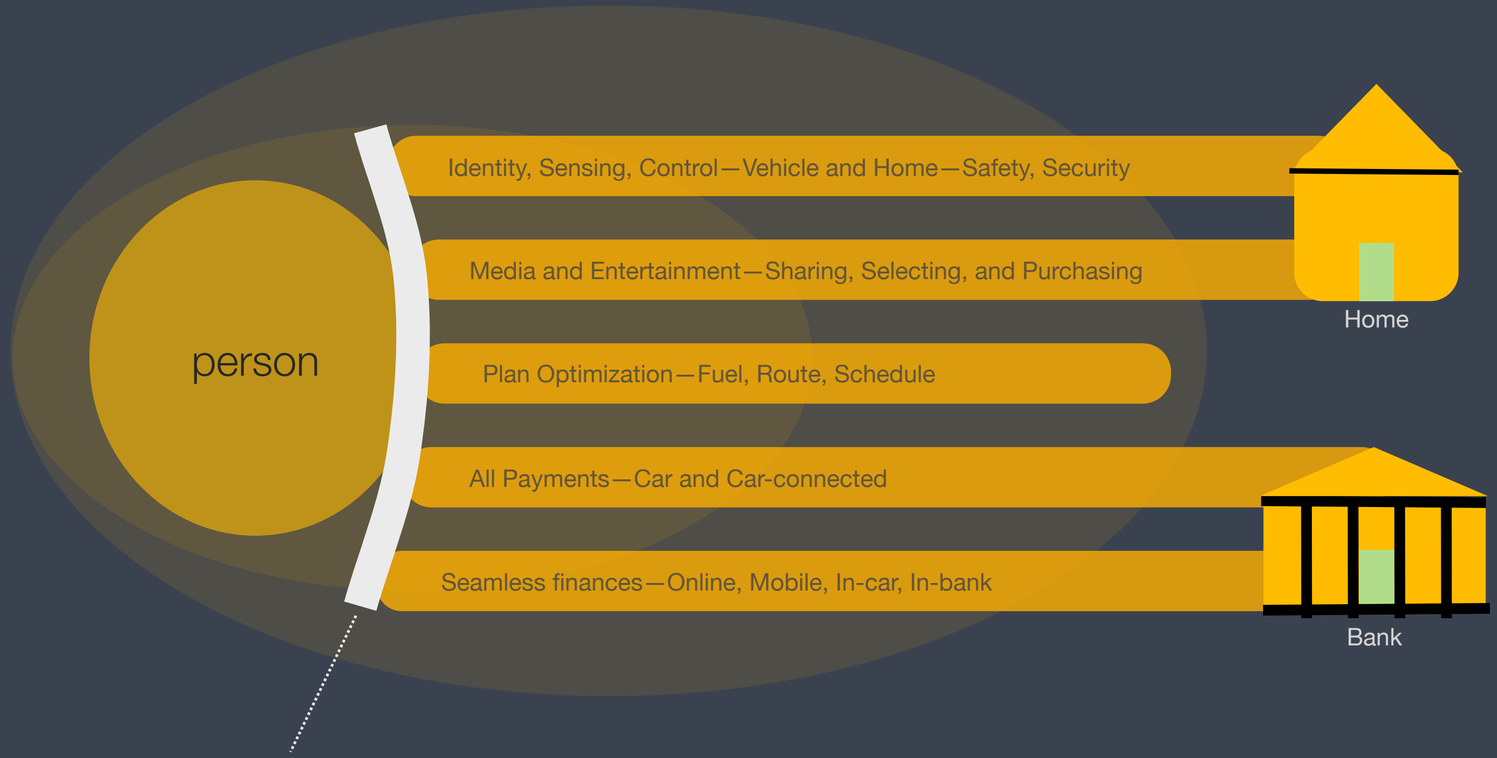
*2008

Increasingly disjointed experience

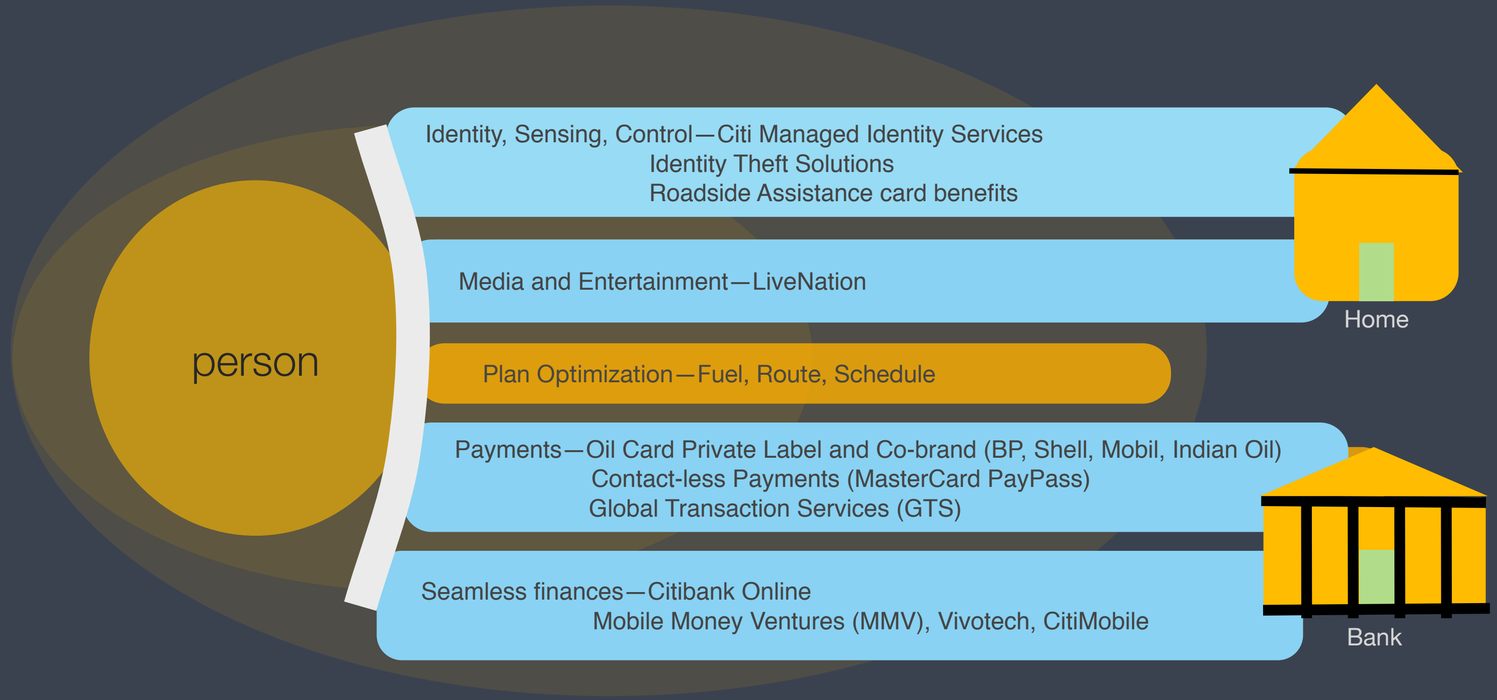


separate user interfaces—separate systems—separate payments

Tomorrow's integrated experience



Citi is already participating



Citi is well positioned to leverage its existing capabilities, to forge new partnerships, and to create compelling, integrated experiences.

Amirhossein Nouri – CCS MFA IxD – 2016

23 **HOURS** average parking time in the US per day.

25% **OF DRIVERS** have gotten into an argument over a parking space.

30% **OF TRAFFIC** in a city is caused by drivers searching for a parking spot.

$20 **BILLION** Parking ticket revenue in the US.

How do people deal with **an annoying parked car**?

call the parker

honk the horn

leave a note

wait for the parker

try to get out

move the car

call police

get revenge

I got a note on my car saying:
- First-day parking?
It really upset me for the whole day.

Rina from **Boston**

The cost of being towed, tickets and all. It costs a lot. Pretty much like buying a used car.

Janine from **Detroit**

In New York, it takes at least a day to resolve the issue [being towed], because of bureaucracy.

Tracy from **NY**

I didn't like to call the police, but I had to do it after I'd spent half an hour looking for him.

Sara from **LA**

Amirhossein Nouri – CCS MFA IxD – 2016

Findings

It's what it is!
New Yorkers set aside a ticket budget, expecting to pay fees.

Co-understanding
People tend to solve the problem rather than punishing the offender and getting revenge.

Victims of cities policy
People feel cities make money from parking fines.

Open a channel
People prefer to solve the problem with the offender rather than engaging a third party like police.

Insight

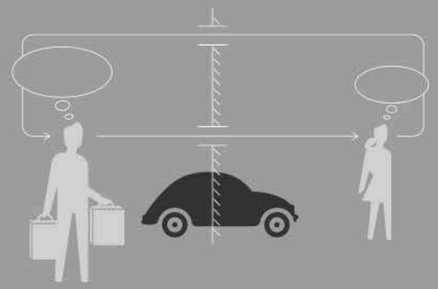
CAR OWNER'S COSTS MAY LOWERED BY CONVERSATION

Problem

Car owners are not reachable when they are away from their cars

Need

A channel to reach car owners when they are away from their cars



Solution

Providing a safe and secure way of connecting with car owners

Amirhossein Nouri – CCS MFA IxD – 2016

Persona & Scenario

Emma Anderson

Age: 37
Mother of a 3-year-old
Career: Accountant manager
Lives in New York, Brooklyn
Car: Ford Fiesta

Goals

Primary: Making life for her family as smooth as possible

Secondary: Reducing the cost of car ownership in New York

Challenges

Primary: Getting everything done by end of each day with a peace of mind

Secondary: Using her car every day without major tension and worries

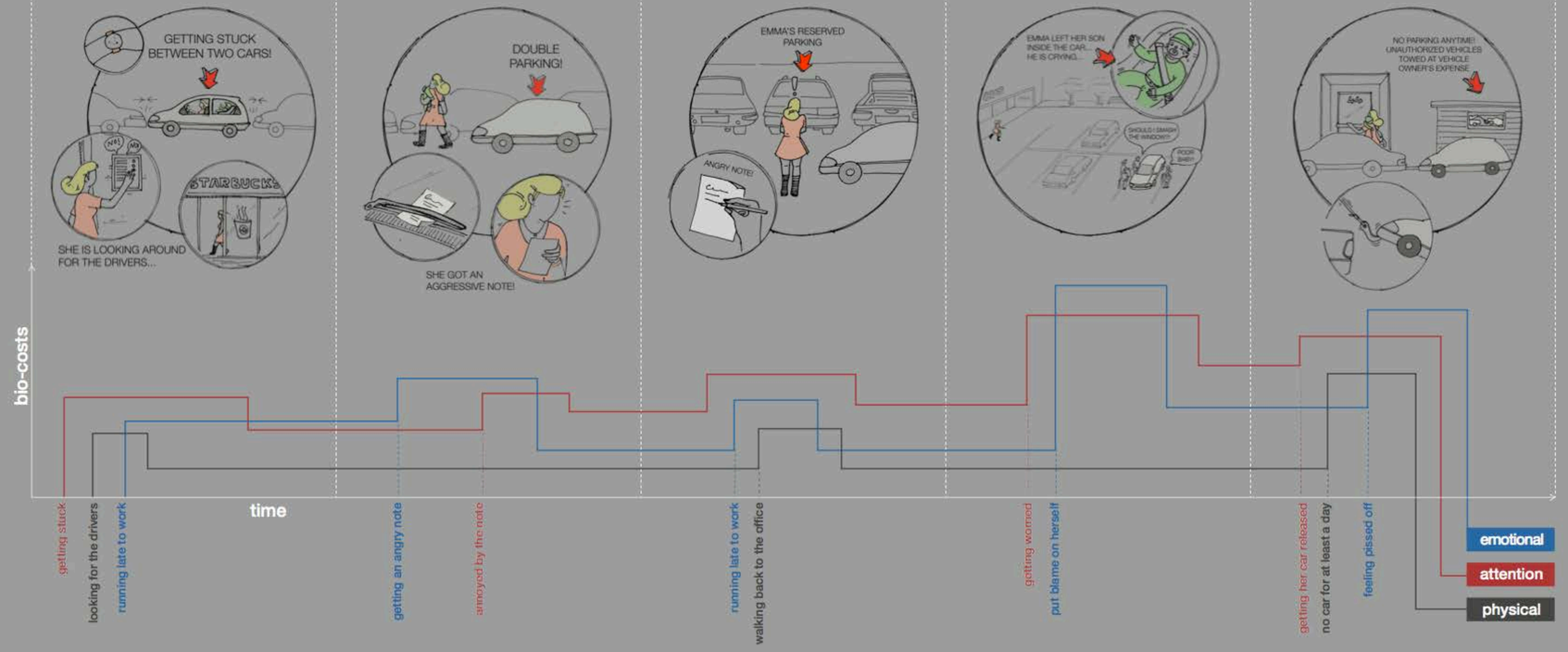
● 7:00 am
Start her day

● 8:30 am
Take the kid to the kindergarten

● 9:15 am
Park the car at work

● 6:00 pm
Pick up the kid and go shopping

● 7:15 pm
Go back to home



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Concept statement

A SOCIAL APPLICATION THAT HELPS LOCAL USERS TO CONTACT CAR OWNERS, IN A FAST SECURE WAY, WHEN THEY ARE AWAY FROM THEIR CAR.

Benefits

- THE CAR OWNER IS REACHABLE
- THE PROBLEM IS SOLVED IN A SHORTER AMOUNT OF TIME
- IT REDUCES FINANCIAL AND EMOTIONAL COSTS
- IT HELPS WITH OTHER PROBLEMS RELATED TO THE PARKED CAR AS WELL

What are the new opportunities?

The CarChat opens a channel for sharing the ownership experience such as where to go for repares.

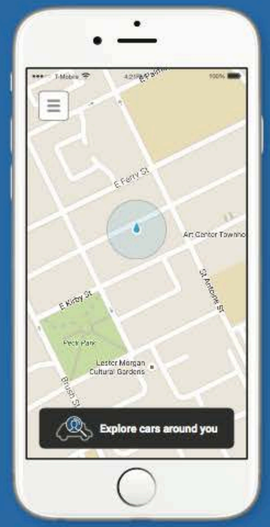
Anonymized data mining will be valuable for car manufacturers and city government.

There are wide range of unforeseen opportunities that can become possible by re-conceiving the role of a parked car by converting it to a connected device. A connected parked car has the potential to use the car as an agent to encourage a social conversation.

CarChat

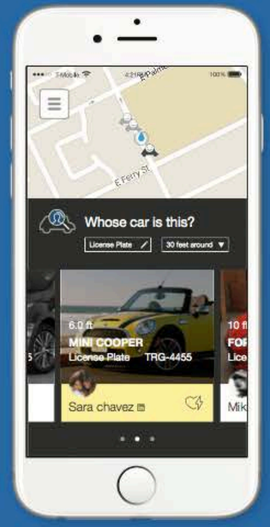
> Explore cars around you

Map shows cars around which have the application



> Find out whose car is this

By selecting each car, you can get the information about the car and car owner



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FA15 Trans + IXD Graduate Studio III

Sijia Wan, Enze Zheng, Qhase Lockhandwala and Bo Bao

2025

Simple Retreat + Commander-in-chief

OLIVER XAVIER

Nature Science Professor
Income $100,000
Lansing, MI
Age 62

2020

Passion Play

JASON SCHINDLER

Ironman Triathlete
Income $80,000
Portland, OR
Age 38

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Lansing, MI
Age 62

BENCHMARK EXPERIENCE

Desert safari
Anniversary in Cancun
Live in the wild

PERSONALITY

Scientific | Nature-oriented | Organised | Persistent | Efficient | Subjective

CORE EXPERIENCE

Reading and preparing lectures
Meditating, Freeing up mind
Drive-in theater
Camping

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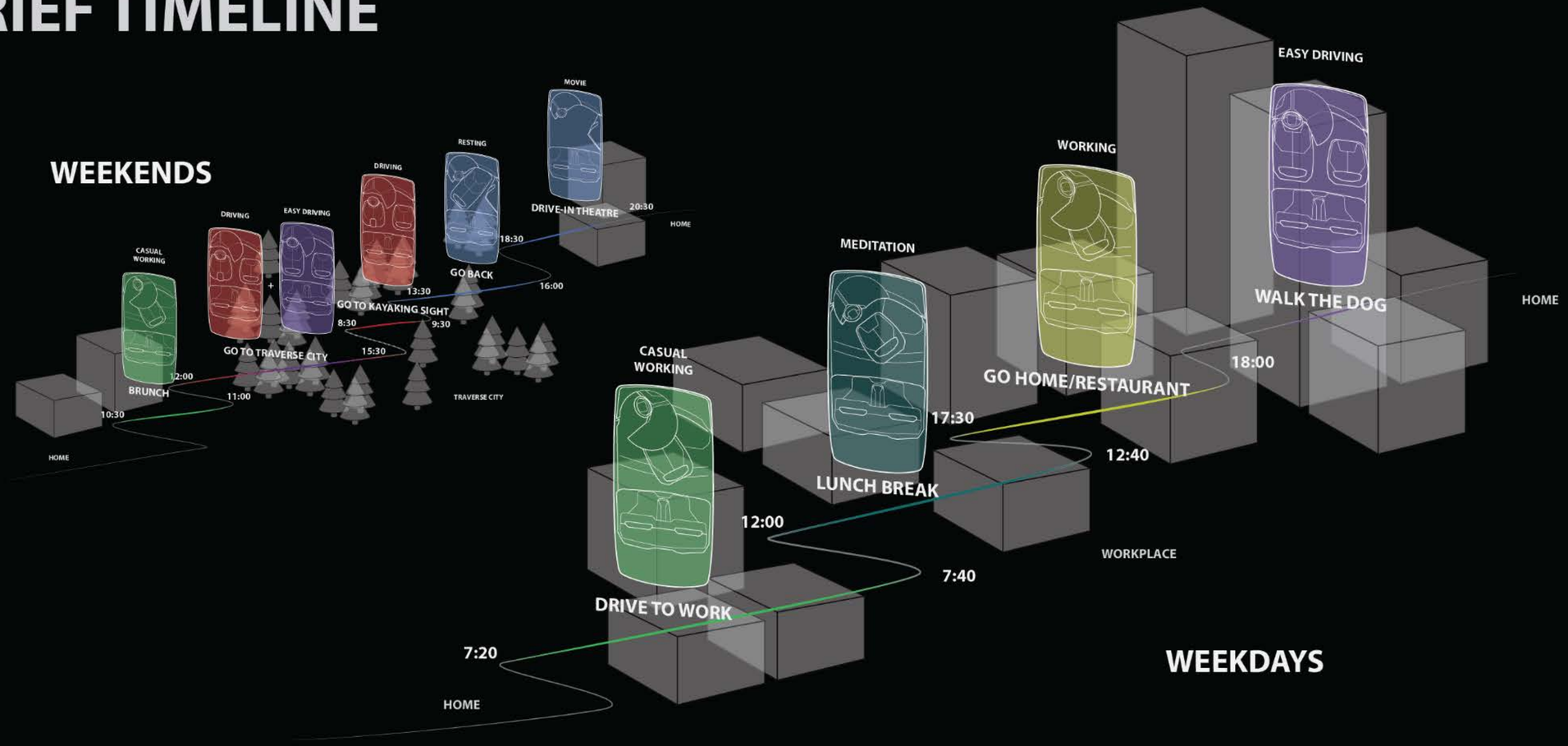
Age 62

BRIEF TIMELINE



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OPTIMIZED WORKING

Efficient
Inspired

MEDITATING

Relaxed
Concentrating
Inspired

CASUAL WORKING

Inspired
Relaxed

OPTIMIZED DRIVING

Focused
Better Performance

EASY DRIVING

Relaxed
Entertained

OPTIMIZED RESTING

Regain Energy

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AUTONOMOUS INTERIOR MODE

Interior is adjusted through human data collected by sensors

α wave
inspiration
intuition

EEG Sensor

β wave
focusing
attention

θ wave
hyper-suggestibility
trigger memory

δ wave
deep sleep

Other
Sensors

Camera

Oliver's Body Data
EEG Sensor
Camera (gesture, motion, skin)
Temperature/Humidity Sensors
Microphone
Light Sensors

Interior
Adjustment

Lighting
brightness
color tone

Audio
musics
white noises
sound effect

Temperature
Humidity

Airflow

Scent

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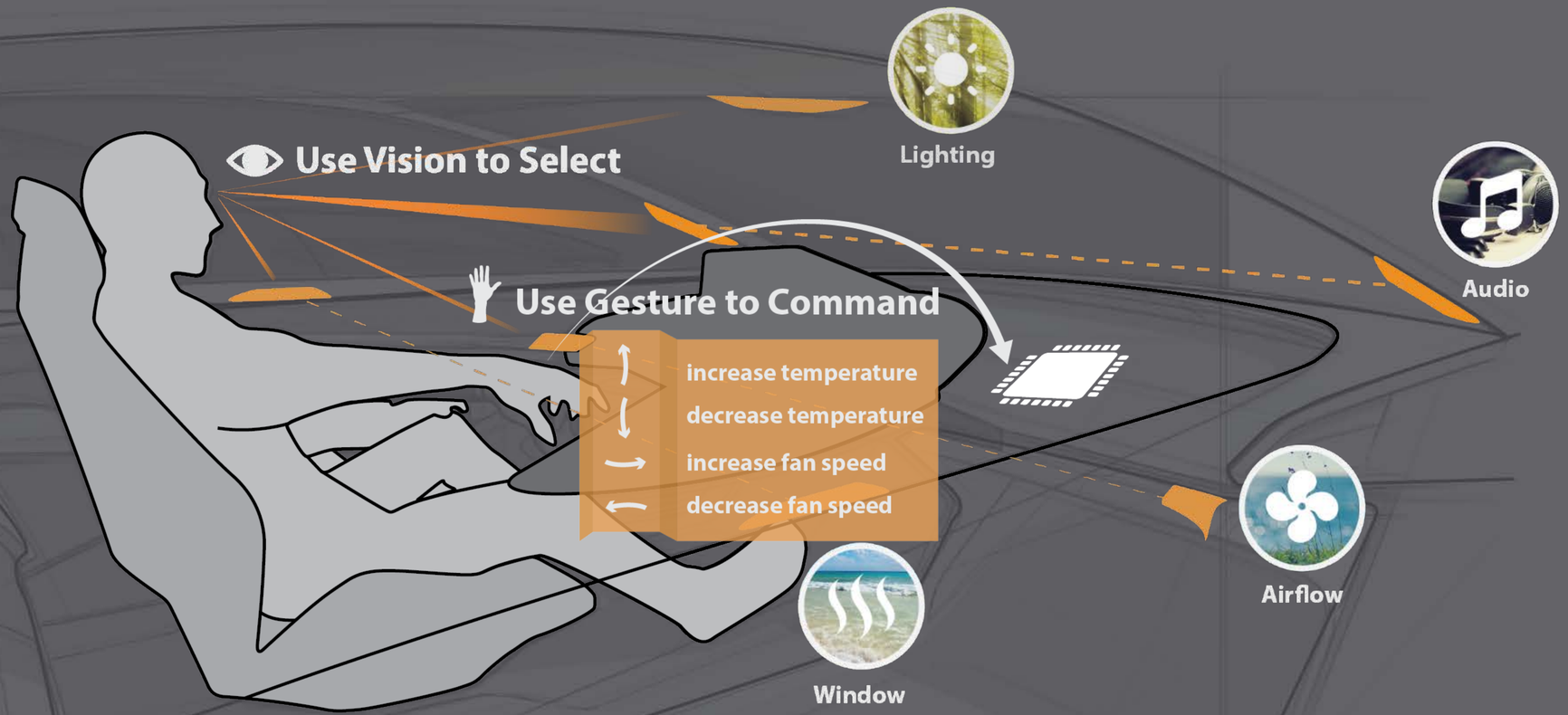
OVERRIDE CONTROL MODE

Interior is adjusted through hand and body gestures



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1ST DRIVE
04-25-2025

100th DRIVE
06-25-2025

Camera
Oliver's Body Data
Big Data
EEG Sensor
Upload
Other Sensors
Interior Adjustment
Oliver's Data

AUTONOMOUS INTERIOR MODE

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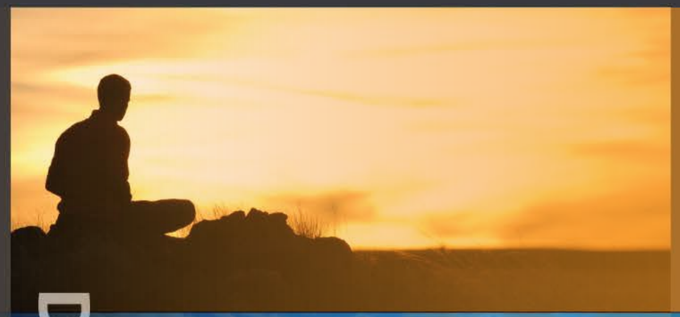
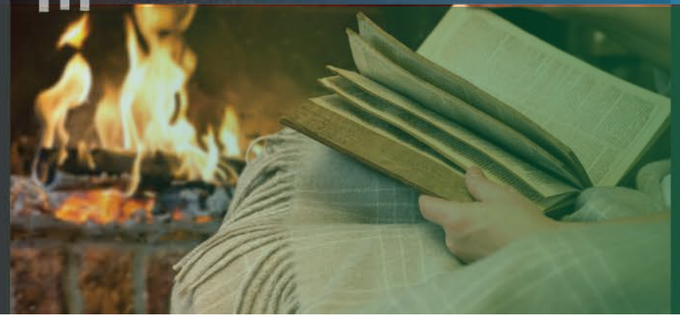
ELEVATED EXPERIENCE

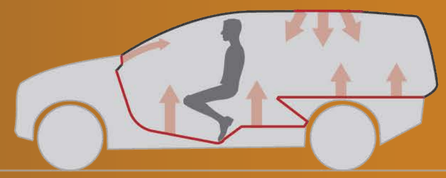
Reproducing benchmark environments into daily life
Not only sound are stereo, heat, airflow, scent, and lighting are stereo too

DAILY LIFE

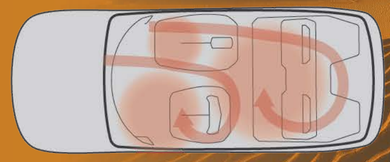
BENCHMARK EXPERIENCE

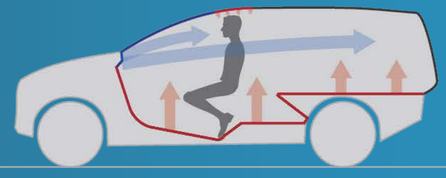




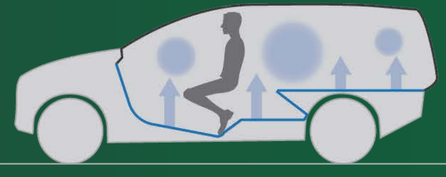


Desert Environment





Beach Environment



Forrest Environment

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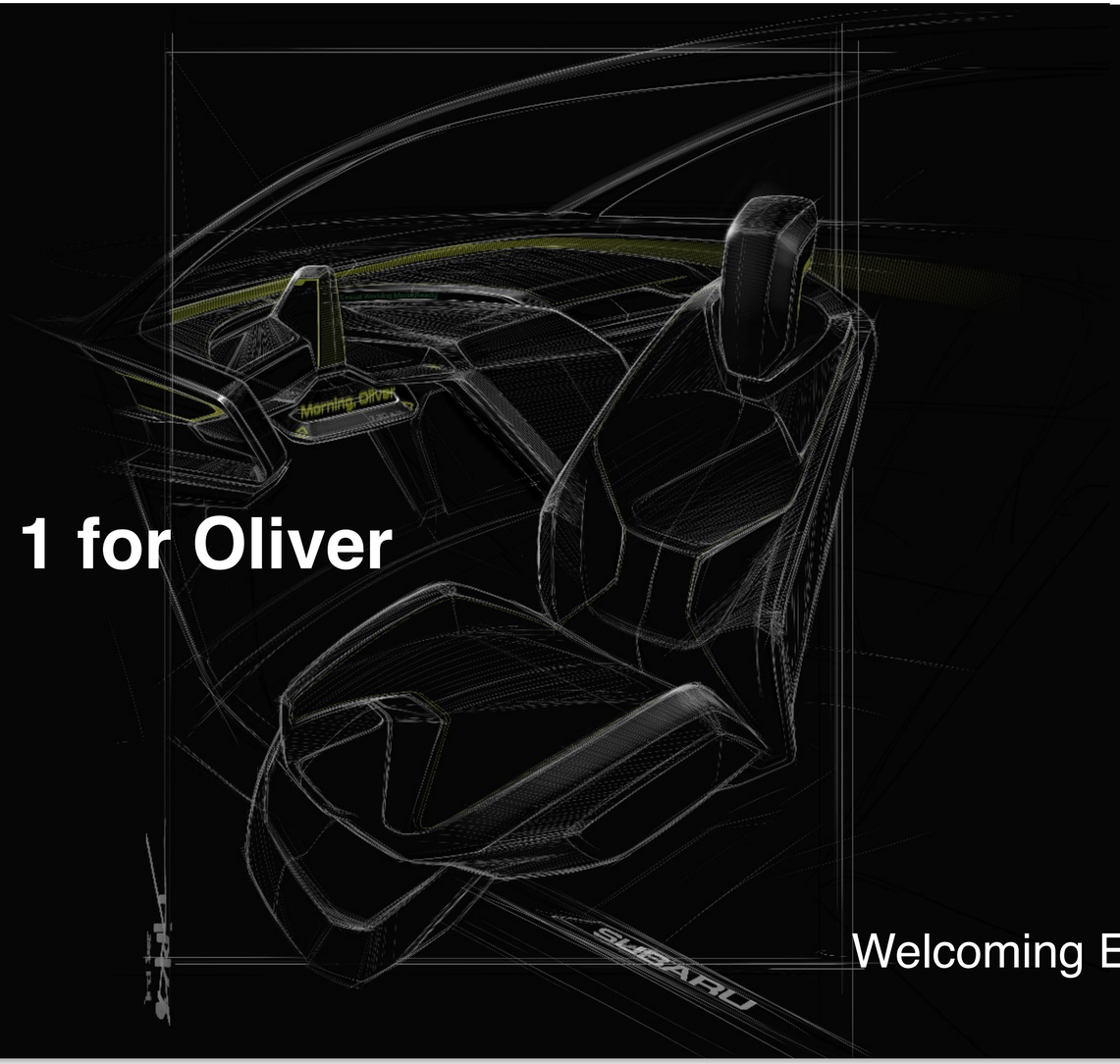
Concept 1 for Oliver



Welcoming Entrance

Key Sketches

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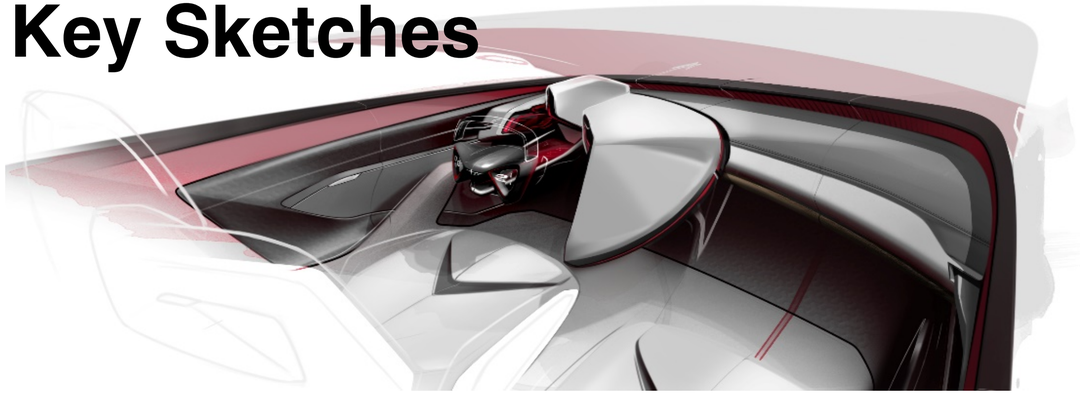

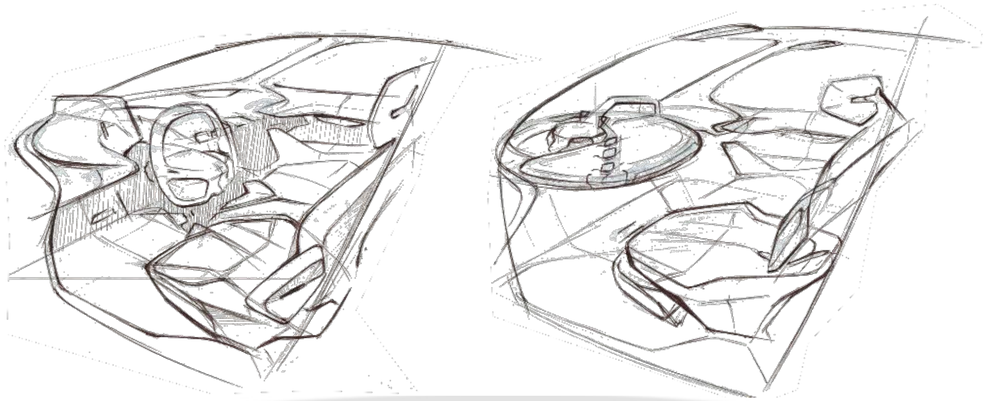

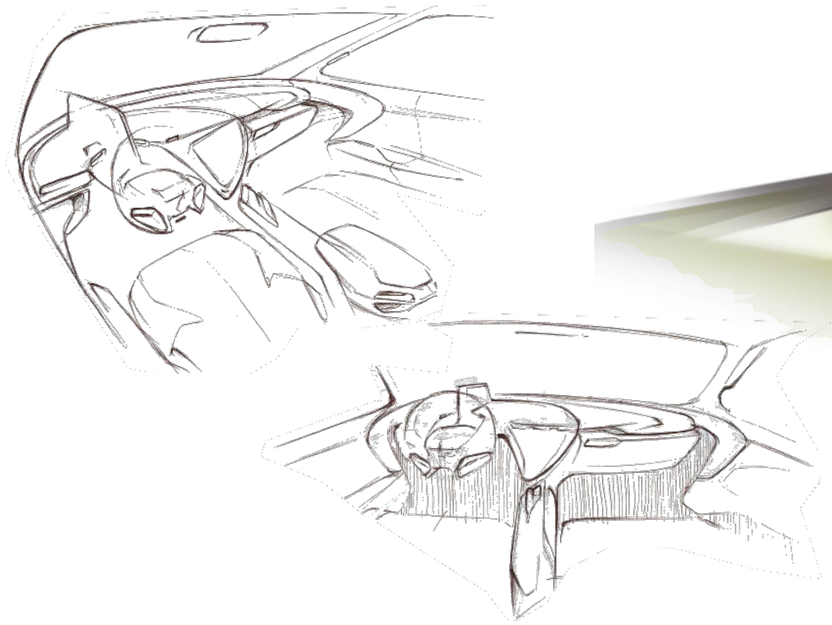

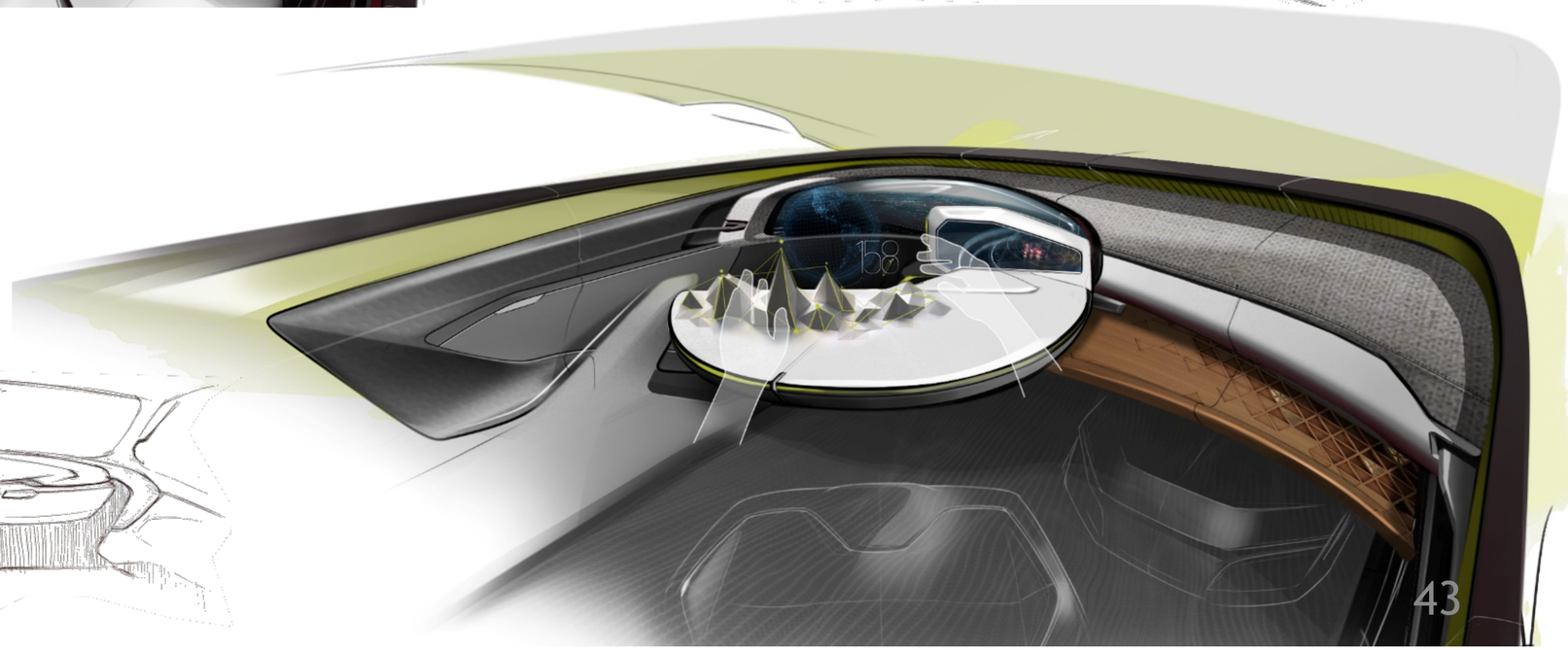

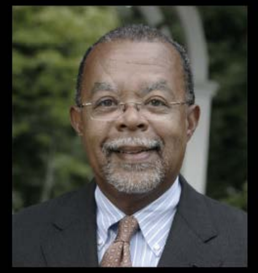

Morning Music
Morning Light

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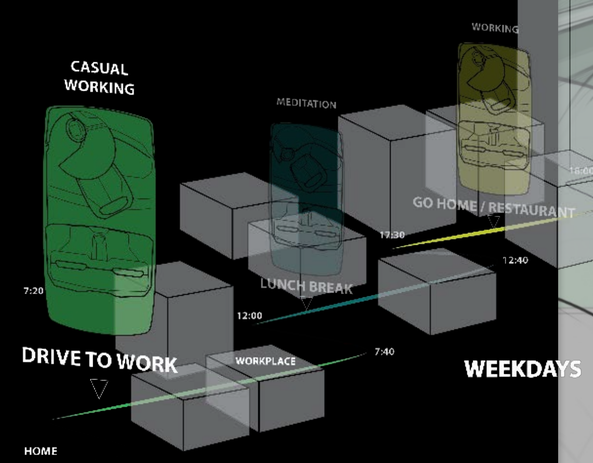
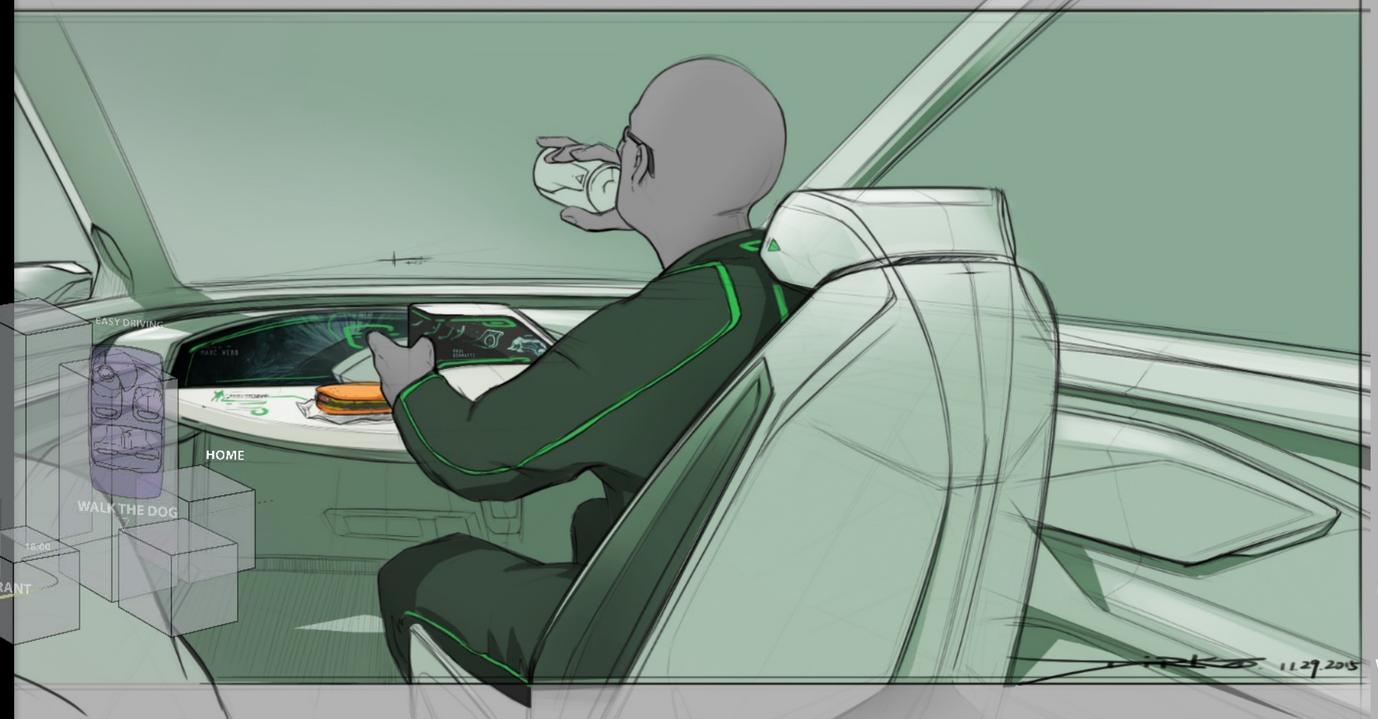
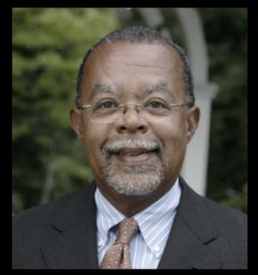




Casual Working

Watch Morning News
Have Breakfast
Inspired, Relaxed



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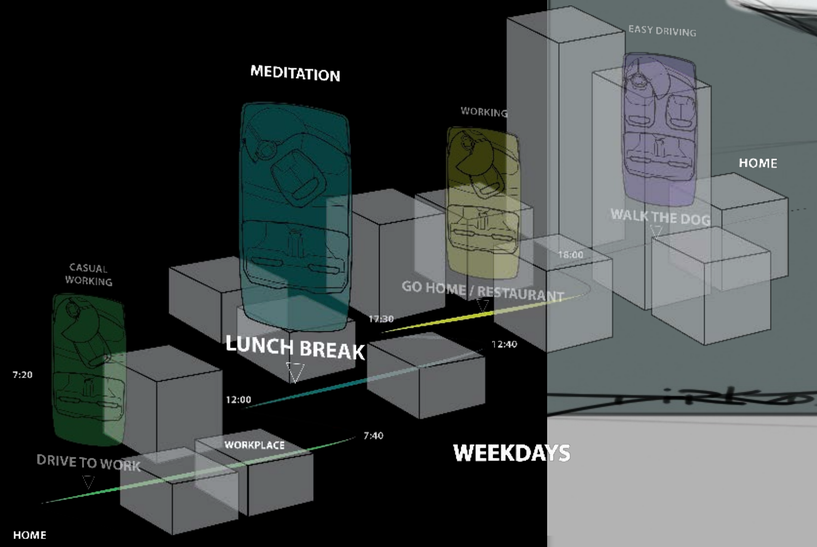
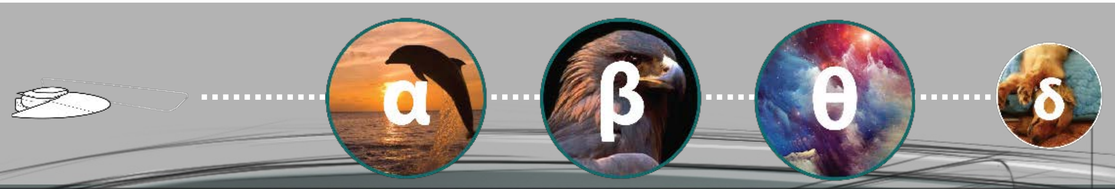
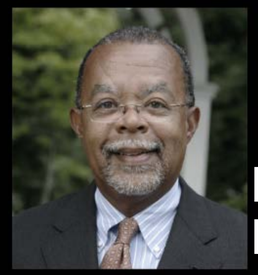
Rustling Leaves Sound
Breeze with
Mud Smell after Rain





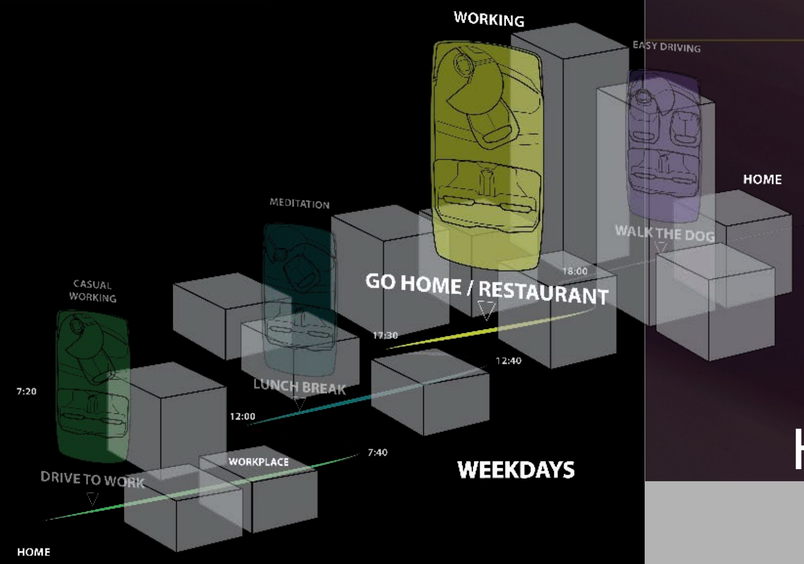
Meditation Mode

Short Break after Lunch
Minimum Distraction
Calm, Focused, Relaxed



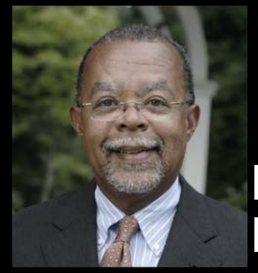
OLIVER XAVIER
2025
Simple Retreat + Commander-in-chief
Nature Science Professor
Income $100,000
Lansing, MI
Age 62

Lighting Focus on Table
No Distraction from Other
Interior Elements



Holographic Display + Smart Surface Interface

Working Mode
Efficient, Inspired



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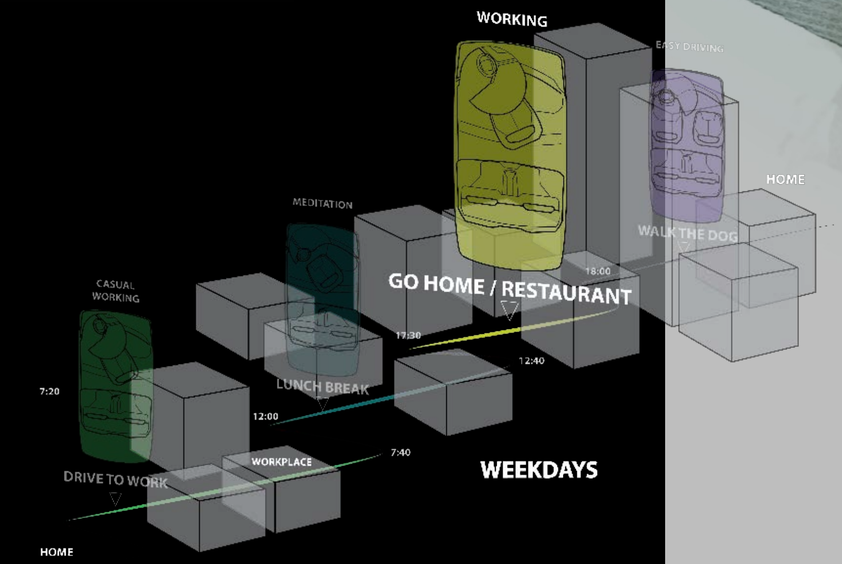
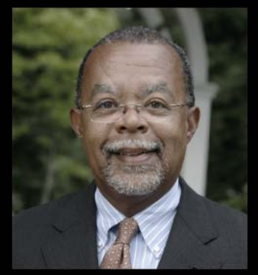
Age 62

Lighting focus on table
No distraction from other interior elements



Working Mode

Finish up the work



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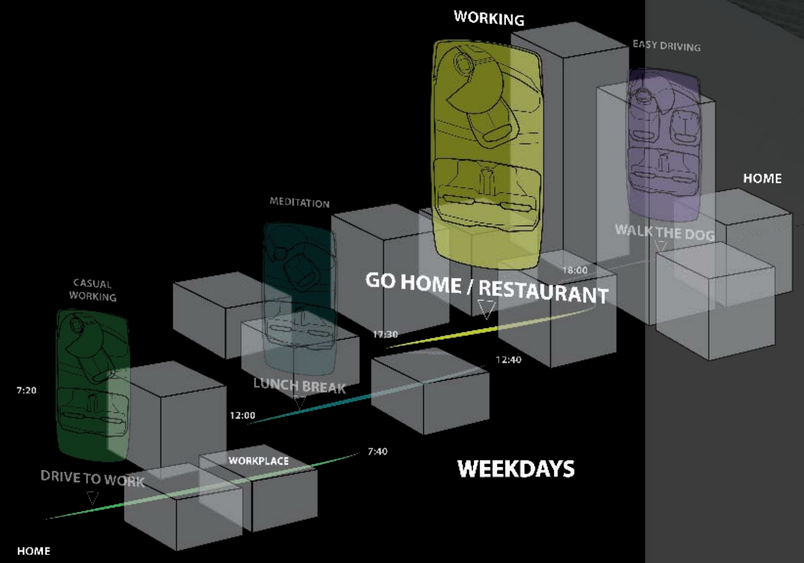
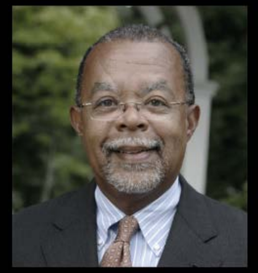


Material Detail

Recycle Paper Texture

Sculptured Wood Surface

Embedded Copper Buttons



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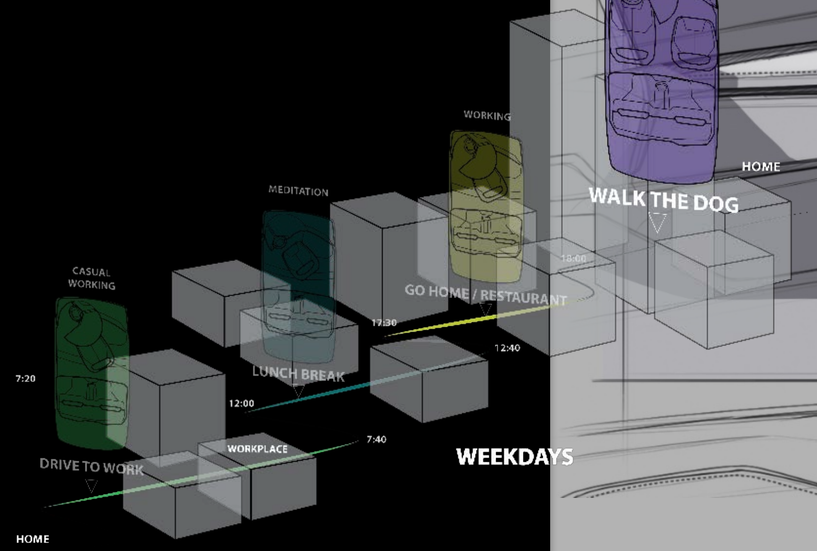
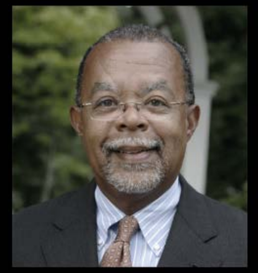
Enjoyable Music
Benchmark Environment



Command from Bird's Eye View with Hand Gestures

Easy Driving Mode

Relaxed
Entertained



Benchmark Environment

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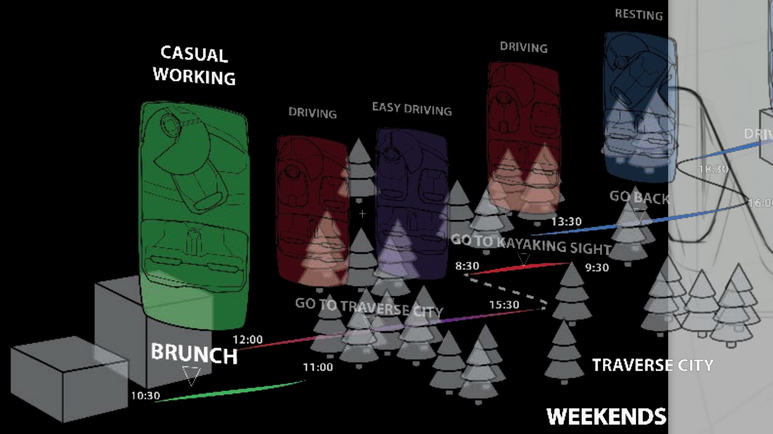
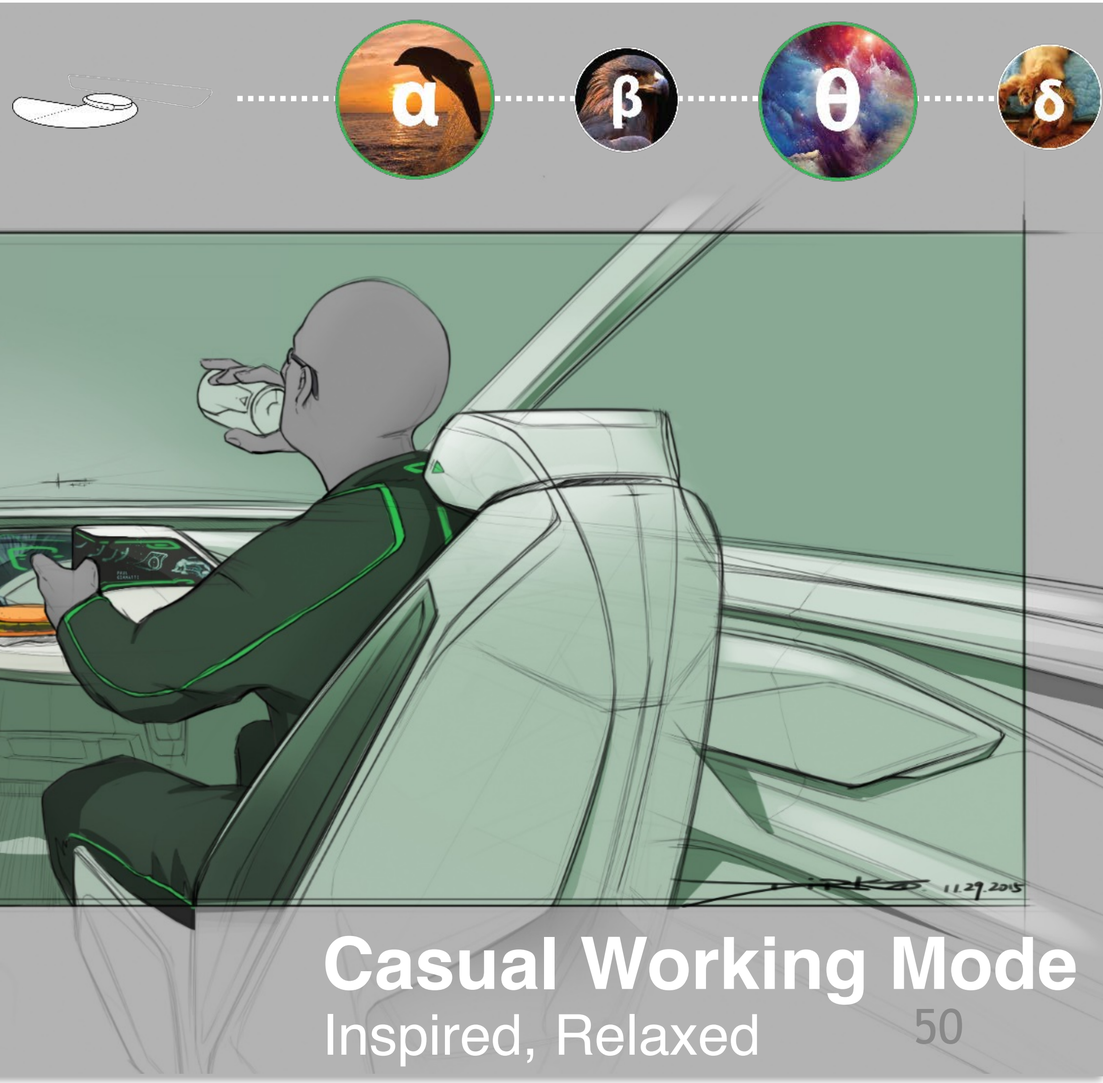
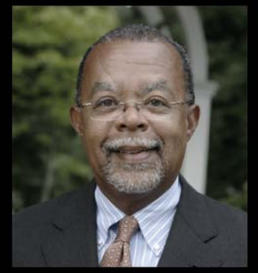




Casual Working Mode

Inspired, Relaxed



Race Car Engine Sound
Energetic Music

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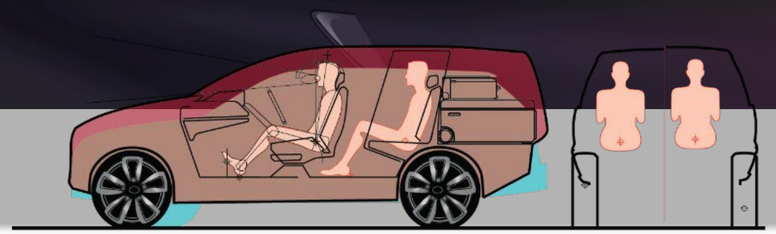
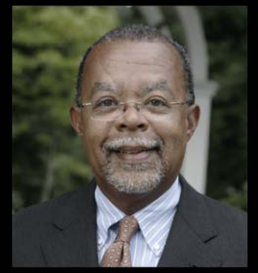


Driving Mode
Focused
Better Performance



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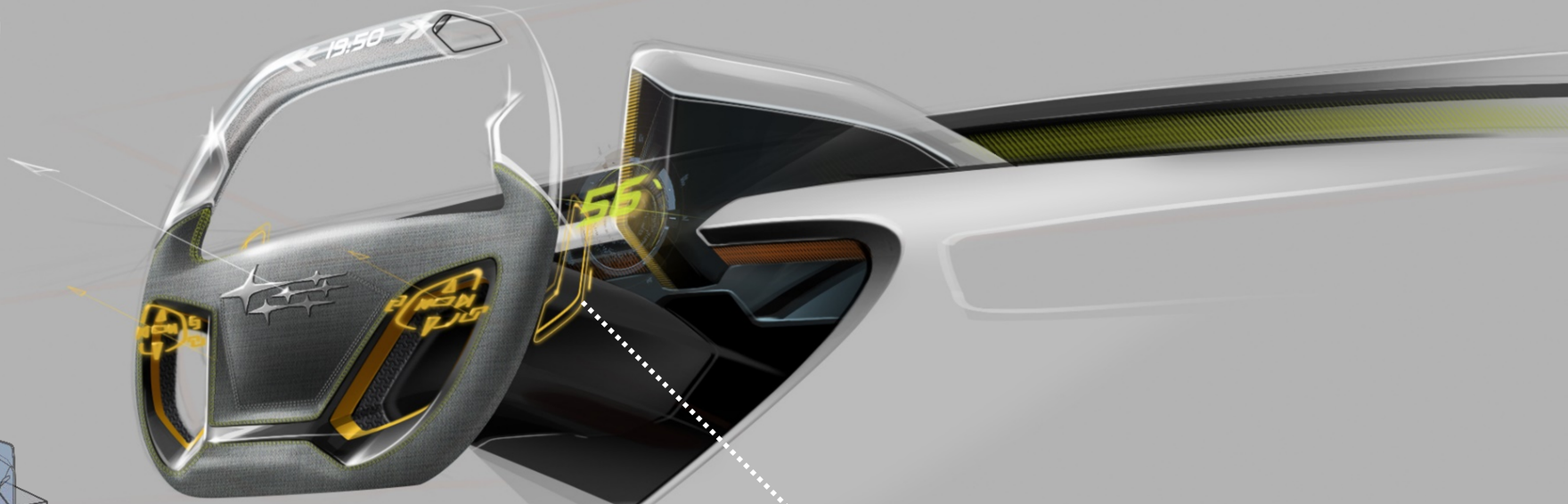
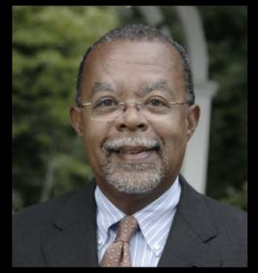


Ultrasonic Haptics Interface
with Holographic Display



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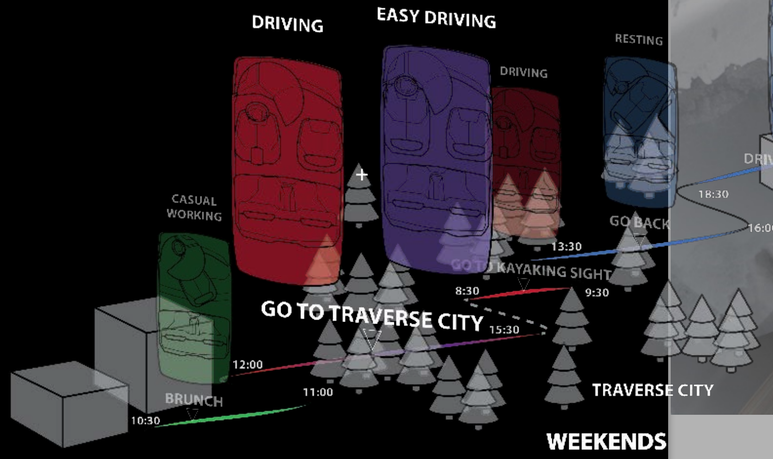
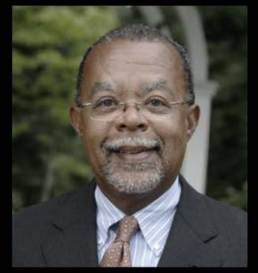


Material Scheme



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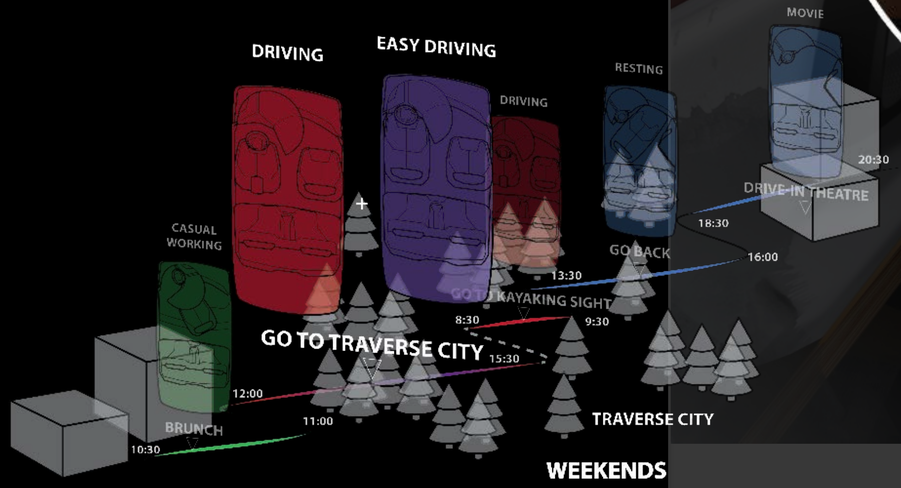
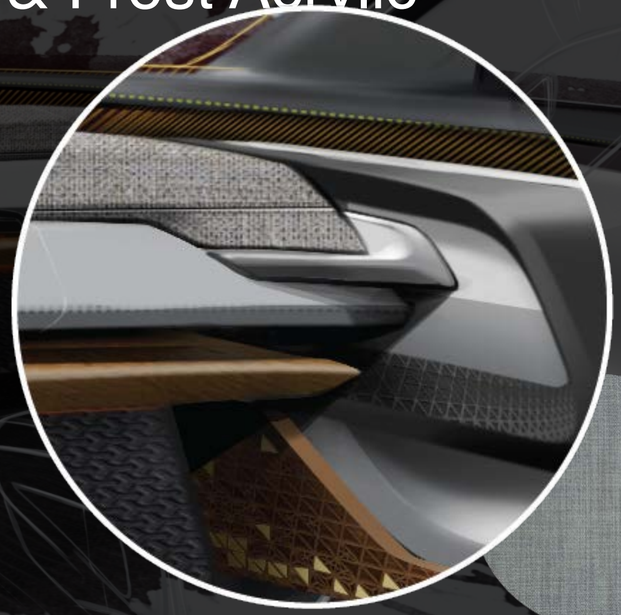


Clear & Frost Acrylic



Linen, Texturized Rubber, Wood with Copper Inlay

Race Car Engine Sound
Energetic Music

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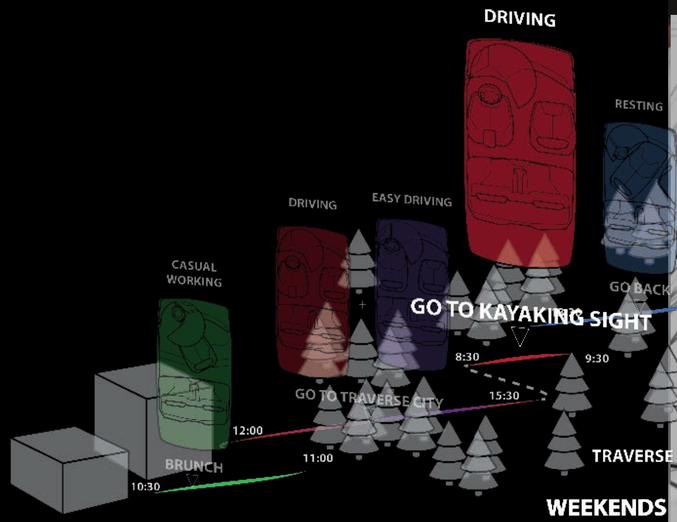

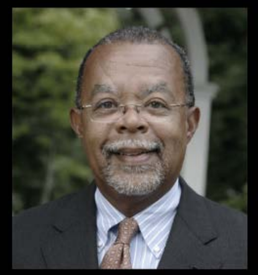

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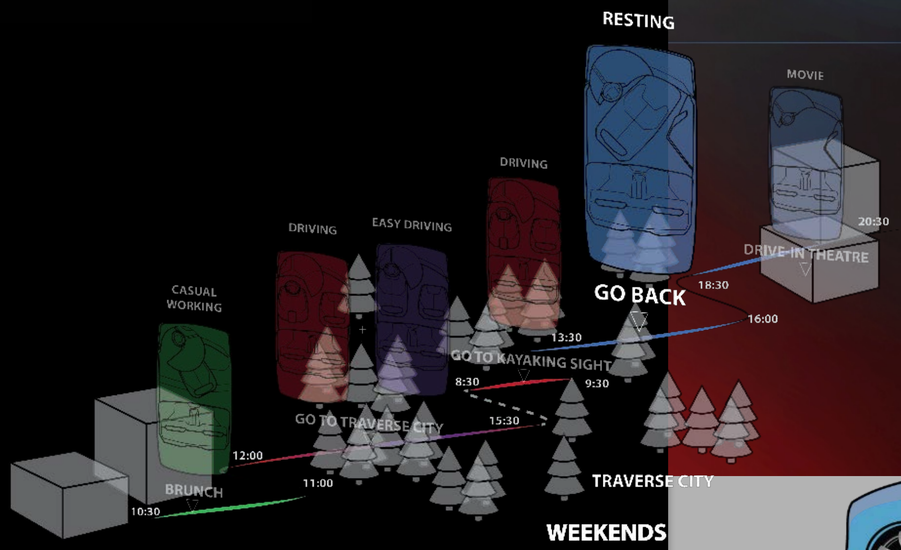
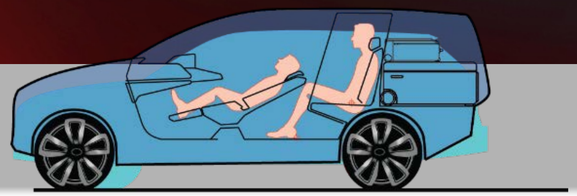
White Noise
Suitable Temperature
Soft Lighting



Door Panel Turns into a Nightstand



Resting Mode

Regain Energy

OLIVER XAVIER
2025
Simple Retreat + Commander-in-chief
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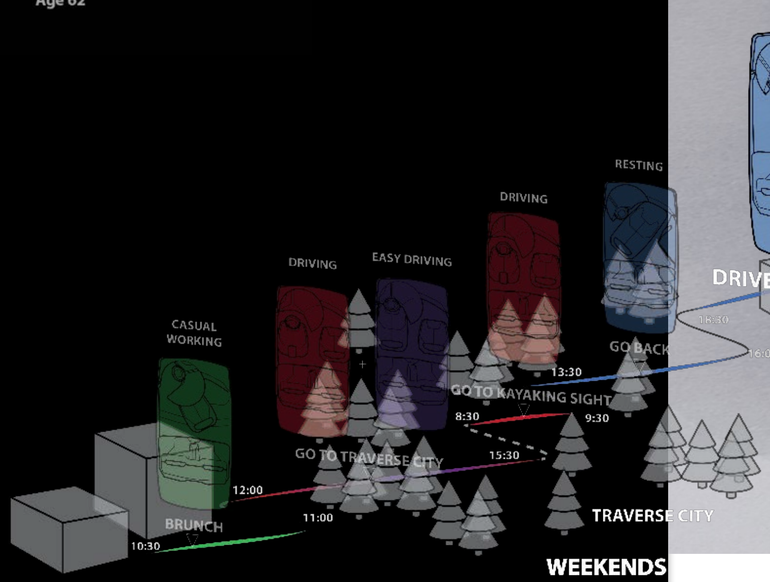
Lansing, MI
Age 62

Movie Scene Environment

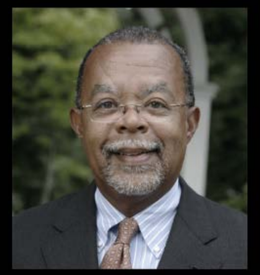
Main Screen

Bonus Clips



Trigger Memories of the Good Old Days
Bring the Experience back and Enhance it

Drive in Theatre Mode



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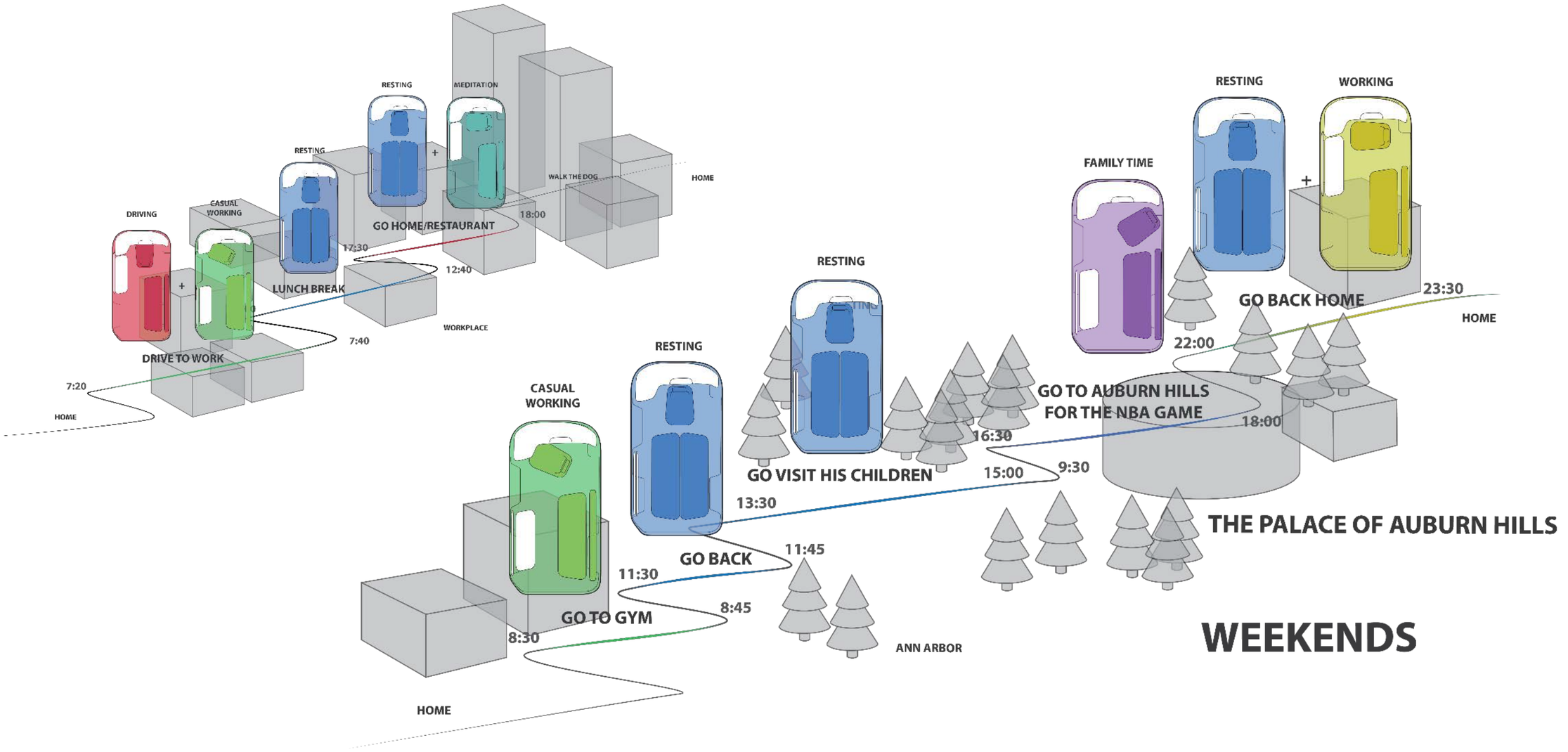


Min young Lee, Sol You, Junyu Chen
and Amirhossein Nouri

Fall 2015

PERSONA

Commander-in-Chief

Kirk Peterson Environmental Engineer

Age	Location	Income	Family status
54	**Denver**	**$70K**	**Married**

PERSONA

Autopilot

Clara Hong Food Academy Instructor

Age	Location	Income	Family status
55	**New York**	**$80K**	**Married**

PERSONA

Commander-in-Chief

Kirk Peterson
Environmental Engineer

Persona

IDX models

Key concepts

Final Renderings

Environmental service

SCENARIO

Needs spacious vehicle

Kirk is a senior environmental services tech engineer. He lives in Denver and he likes his job because he spends time outdoors with great landscape views of the mountains. He and his wife live togeth ear school, an dog. Kirk's job requ bring a lot of equipment every day for use in different weather conditions as he tests and takes his family a spacious vehicle with all wheel drive. Kirk works full ay. On weekends Kirk and ty with their dog and enjoy the more natural scenery. He often travels with his wife and dog to the mountain areas around Breckenridge because they hope t there someday.

Different environmental conditions

Has lots of equipment

Lives in the mountains

Core Experiences

- Fishing at Rocky Mountain National Park
- Driving between Denver and the mountains every day for work
- Camping at the Eleven Mile State Park in Colorado
- Hiking at Rocky Mountain National Park with his wife and dog on weekends
- Building a mountain dream home

Benchmark Experiences

- Own a Luxury RV and travel all around the world
- Camp with his family in Iceland under the northern lights

PERSONA

Commander-in-Chief

Kirk Peterson
Environmental Engineer

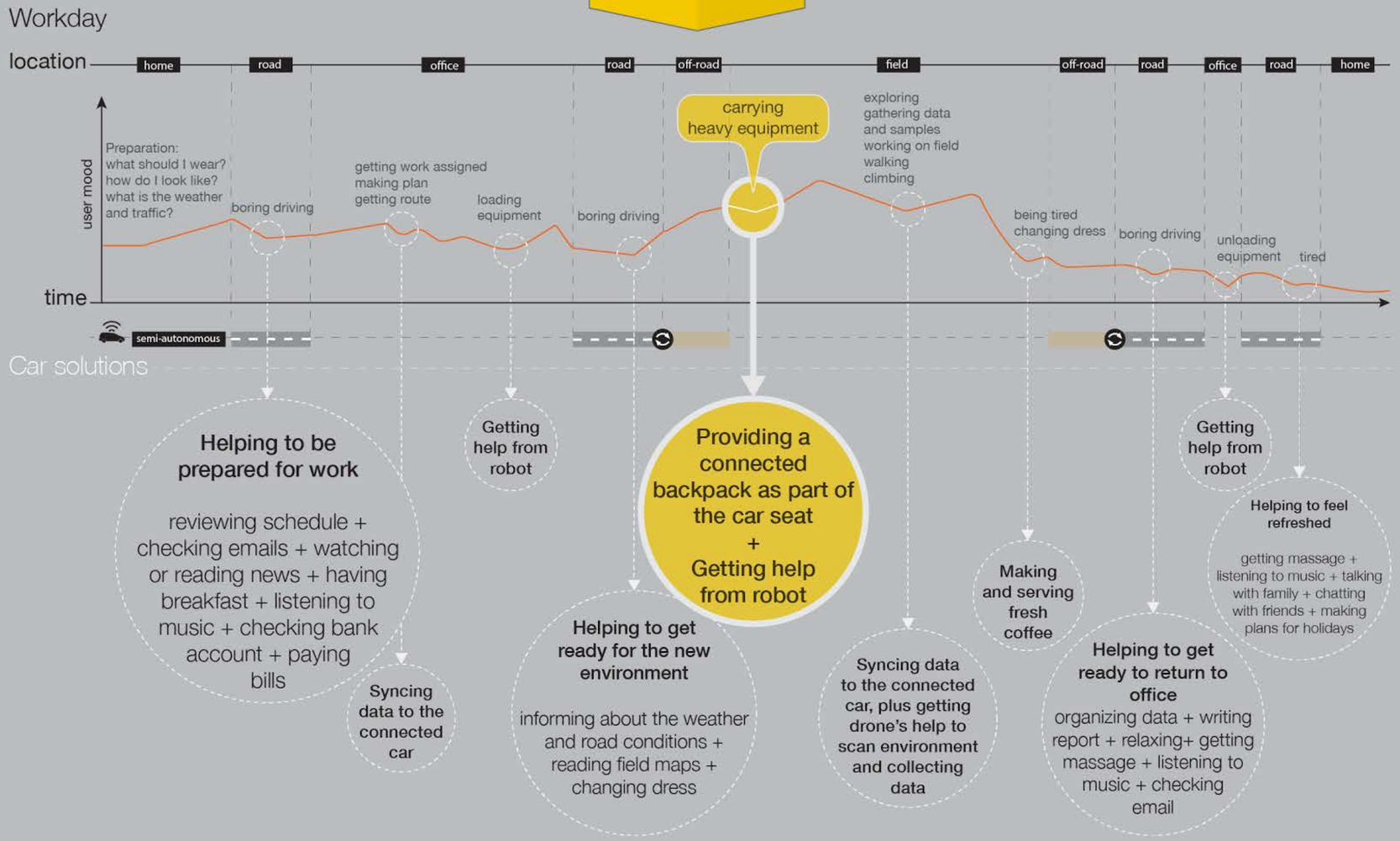
Persona

IDX models

Key concepts

Final Renderings

TIME-FRAME



PERSONA

Commander-in-Chief

Kirk Peterson
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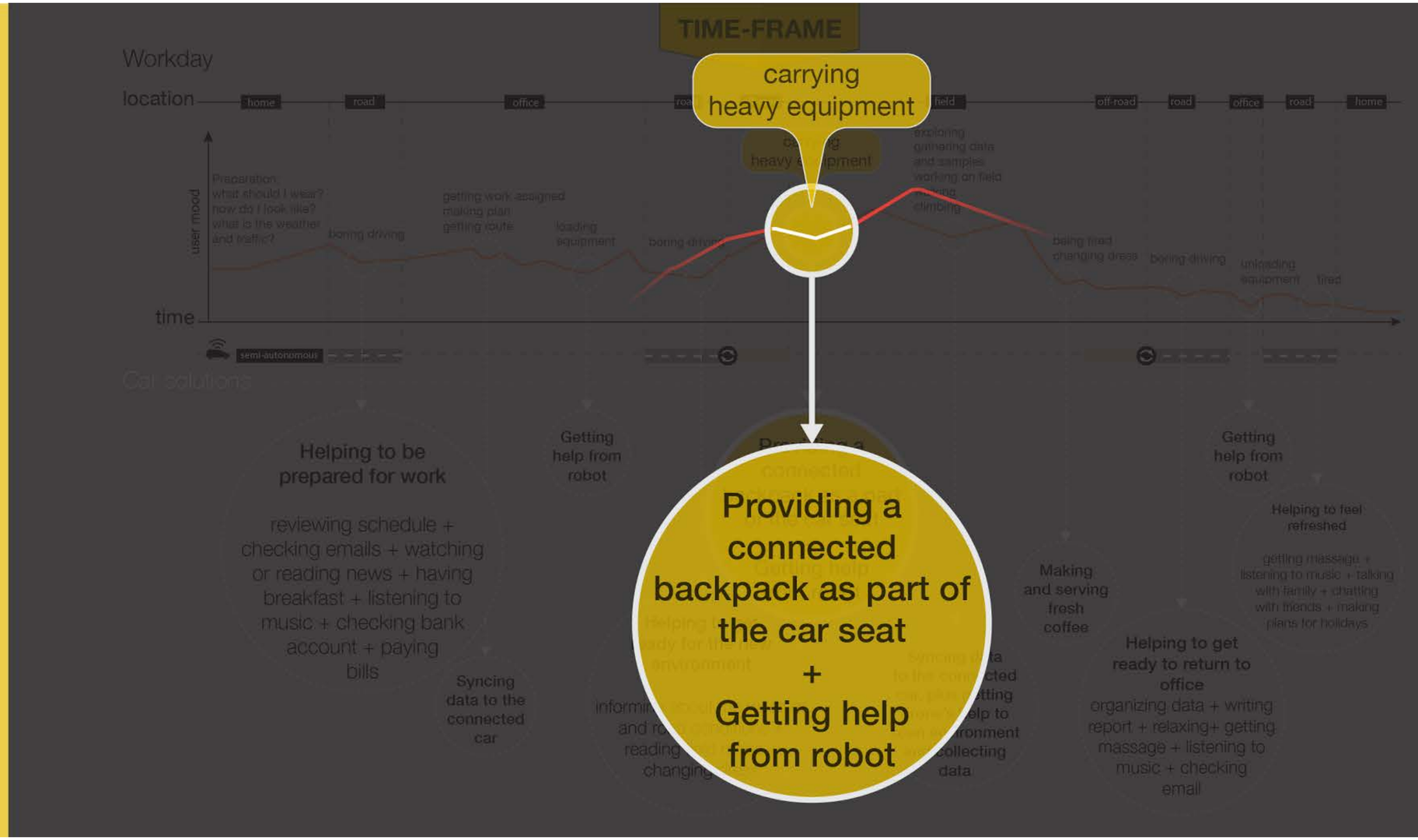

PERSONA

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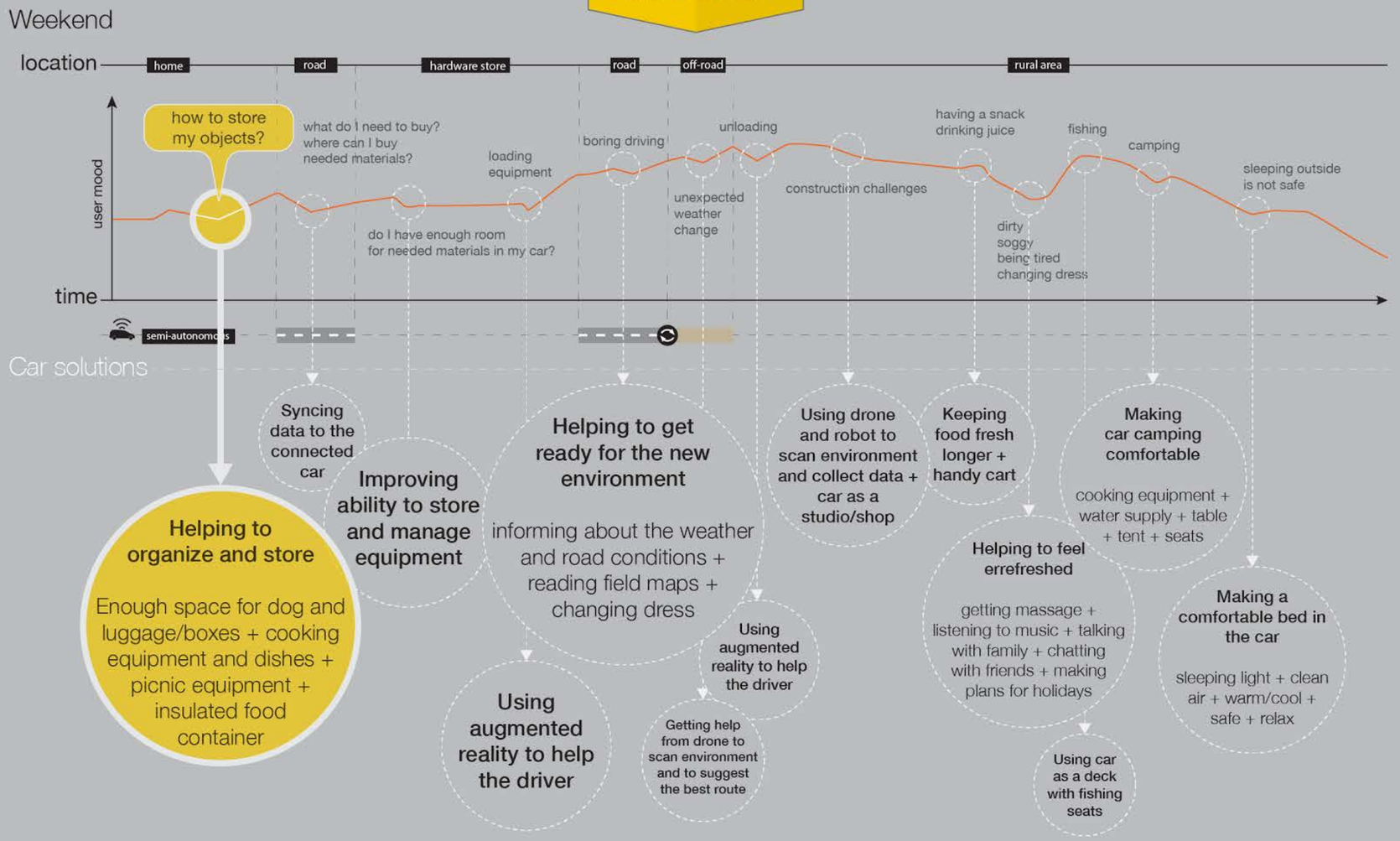
TIME-FRAME



PERSONA

Commander-in-Chief

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Key concepts

Final Renderings

TIME-FRAME

how to store my objects?

hardware store | road | off-road | rural area

time

Helping to organize and store

Enough space for dog and luggage/boxes + cooking equipment and dishes + picnic equipment + insulated food container

Helping to get ready for the new environment

informing about the weather and road conditions + reading field maps + changing dress

Using drone and robot to scan environment and collect data + car as a studio/shop

Keeping food fresh longer + handy cart

Making car camping comfortable

cooking equipment + water supply + table + tent + seats

Helping to feel errefreshed

getting massage + listening to music + talking with family + chatting with friends + making plans for holidays

Making a comfortable bed in the car

sleeping light + clean air + warm/cool + safe + relax

Using augmented reality to help the driver

Using augmented reality to help the driver

Getting help from drone to scan environment and to suggest the best route

Using car as a deck with fishing seats

PERSONA

Commander-in-Chief

Kirk Peterson
Environmental Engineer

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GOAL

Taking care of the driver while working outside the car

PERSONA

Commander-in-Chief

Kirk Peterson
Environmental Engineer

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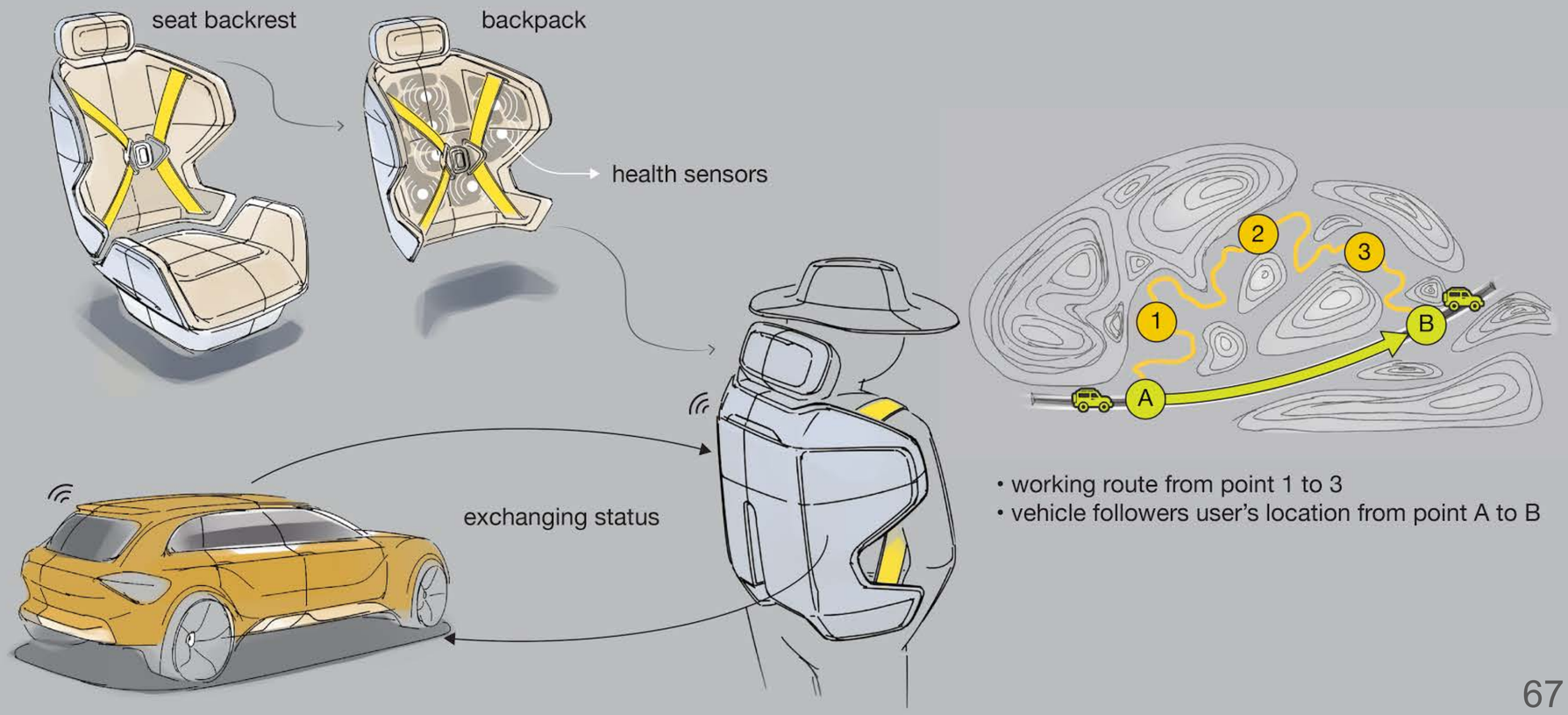
IDX models

Key concepts

Final Renderings

CONCEPT

Providing a connected backpack as part of the car seat



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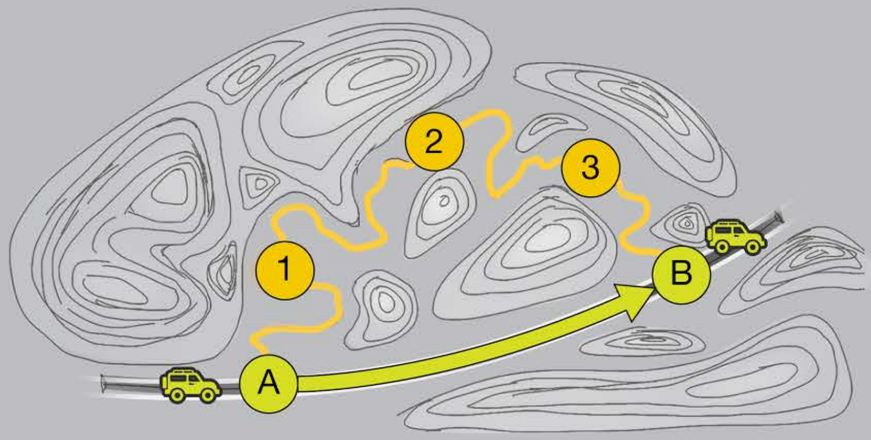
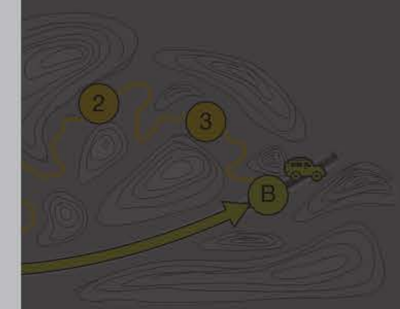


- working route from point 1 to 3
- vehicle followers user's location from point A to B



m point 1 to 3
user's location from point A to B

PERSONA

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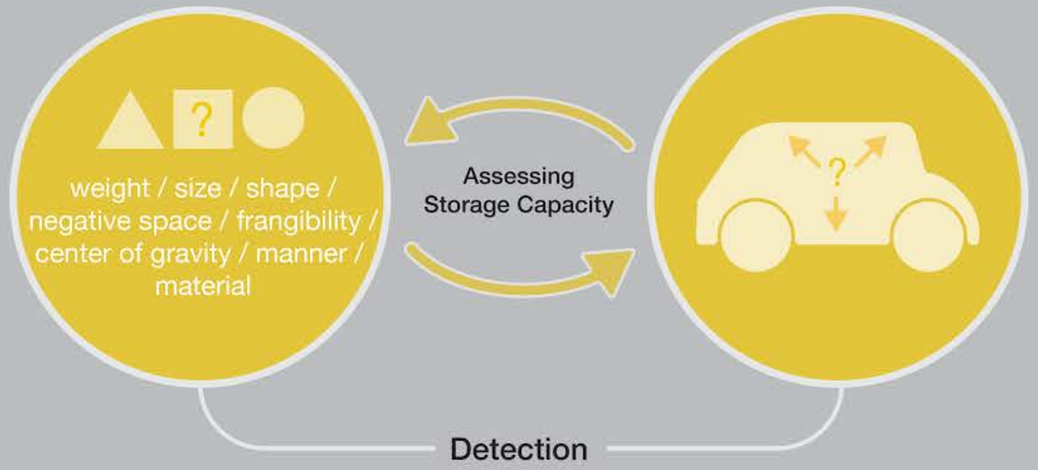
Final Renderings

GOAL

Providing predictive cargo management

What are the features of the selected object?

How much room does the car have?



Existing data
barcode
etc.

+

Sensor data
3D scanner
material detector
weight measurement
etc.

PERSONA

Commander-in-Chief

Kirk Peterson
Environmental Engineer

Persona

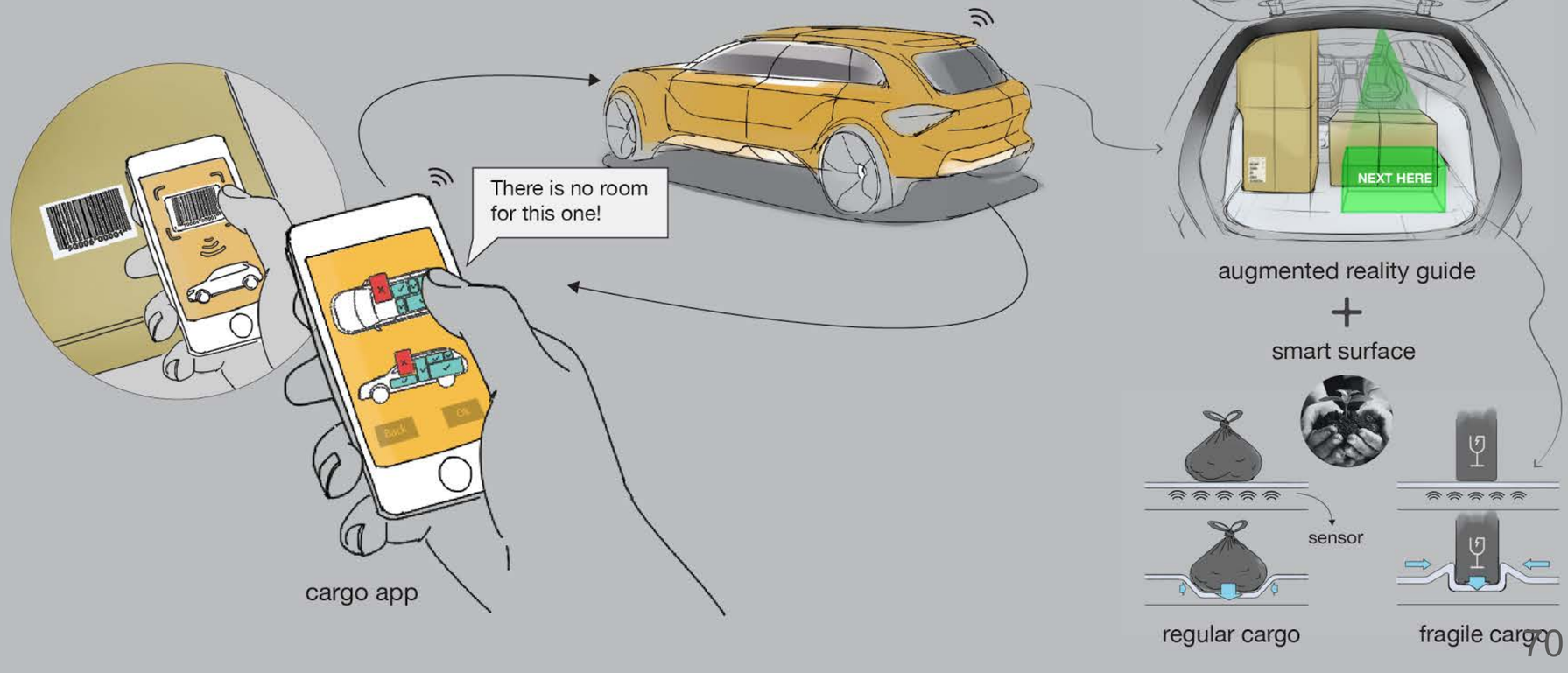
IDX models

Key concepts

Final Renderings

CONCEPT

Improving ability to store and manage equipment



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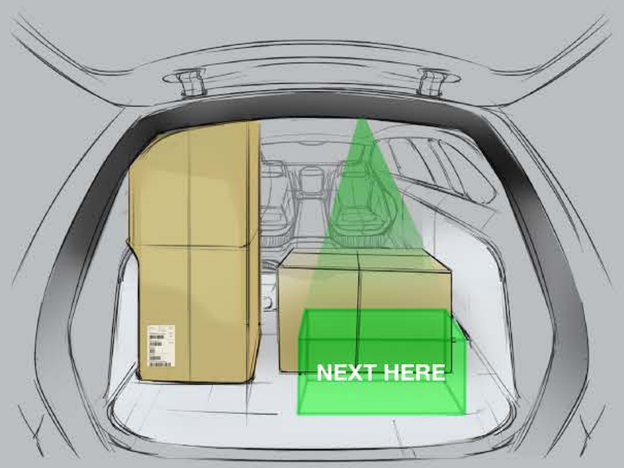
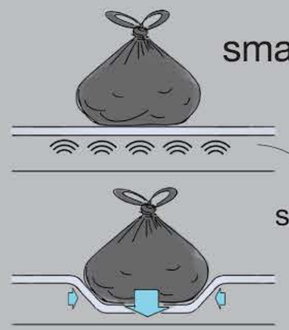
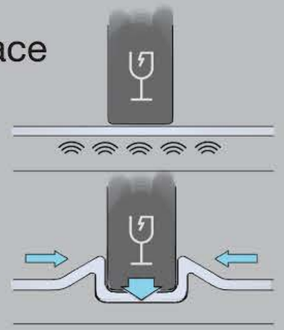


augmented reality guide

smart surface





regular cargo

fragile cargo

cargo app

regular cargo

fragile cargo

PERSONA

Commander-in-Chief

Kirk Peterson
Environmental Engineer

Persona

IDX models

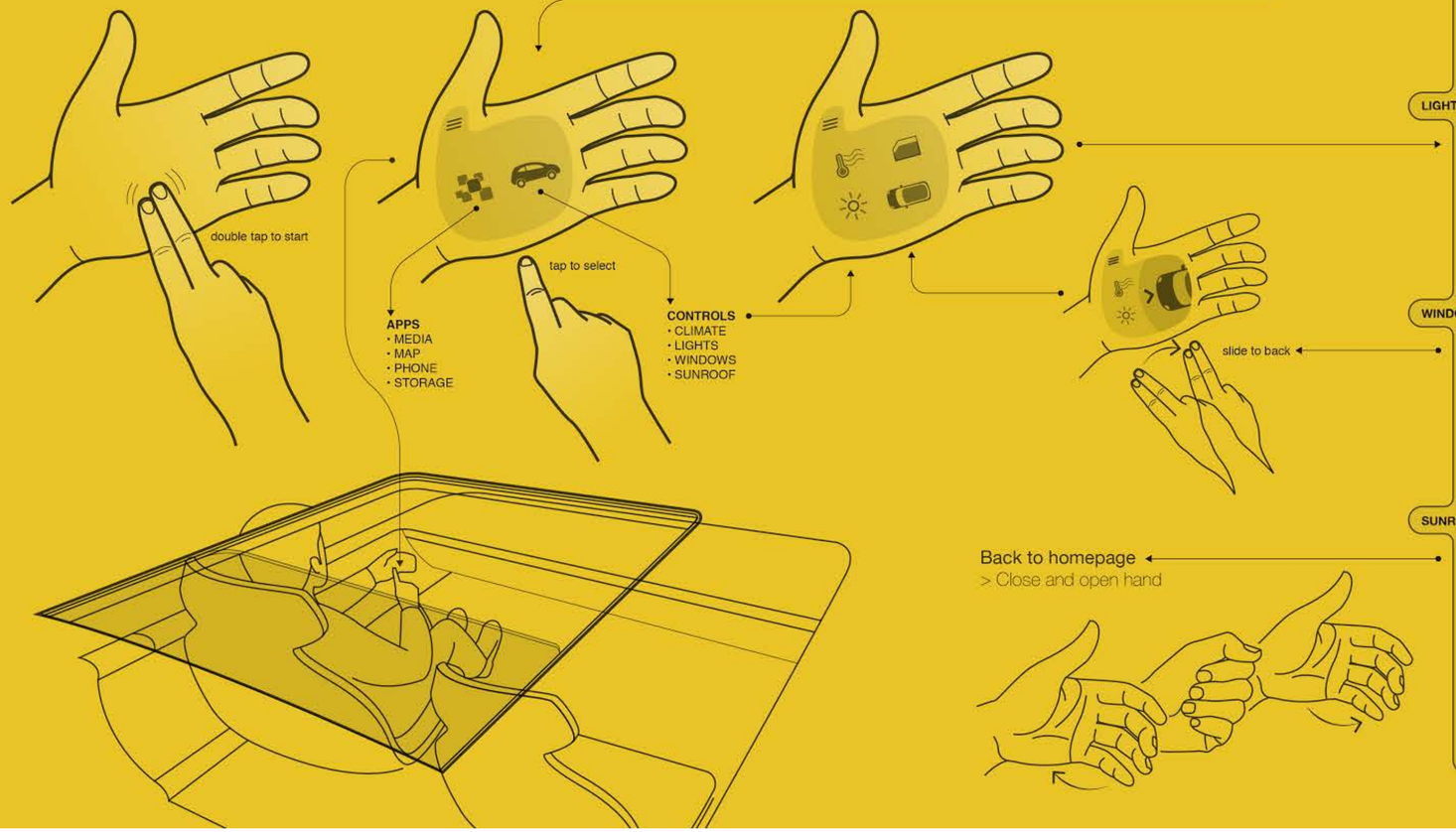
Key concepts

Final Renderings

INTERACTION DESIGN FOR CAR INTERIOR

Kirk is a **commander-in-chief**
He wants to take control of gadgets with his hands

On-hand menu
Provides a new way for control and interaction inside the car



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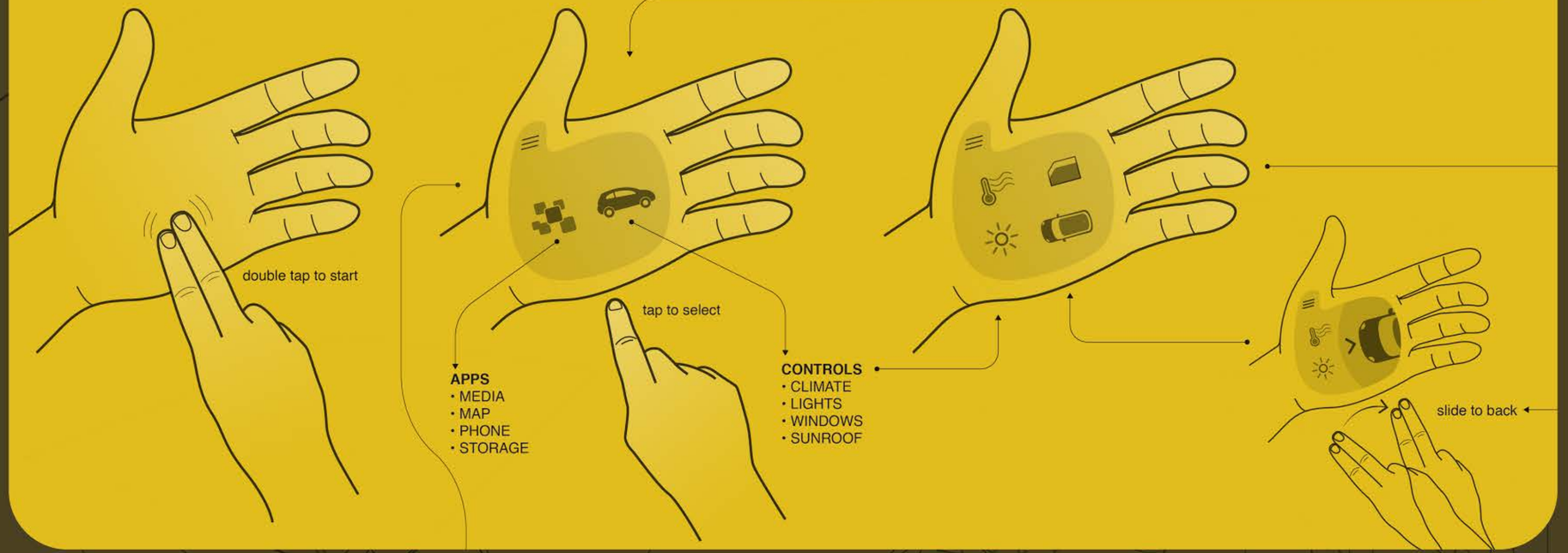

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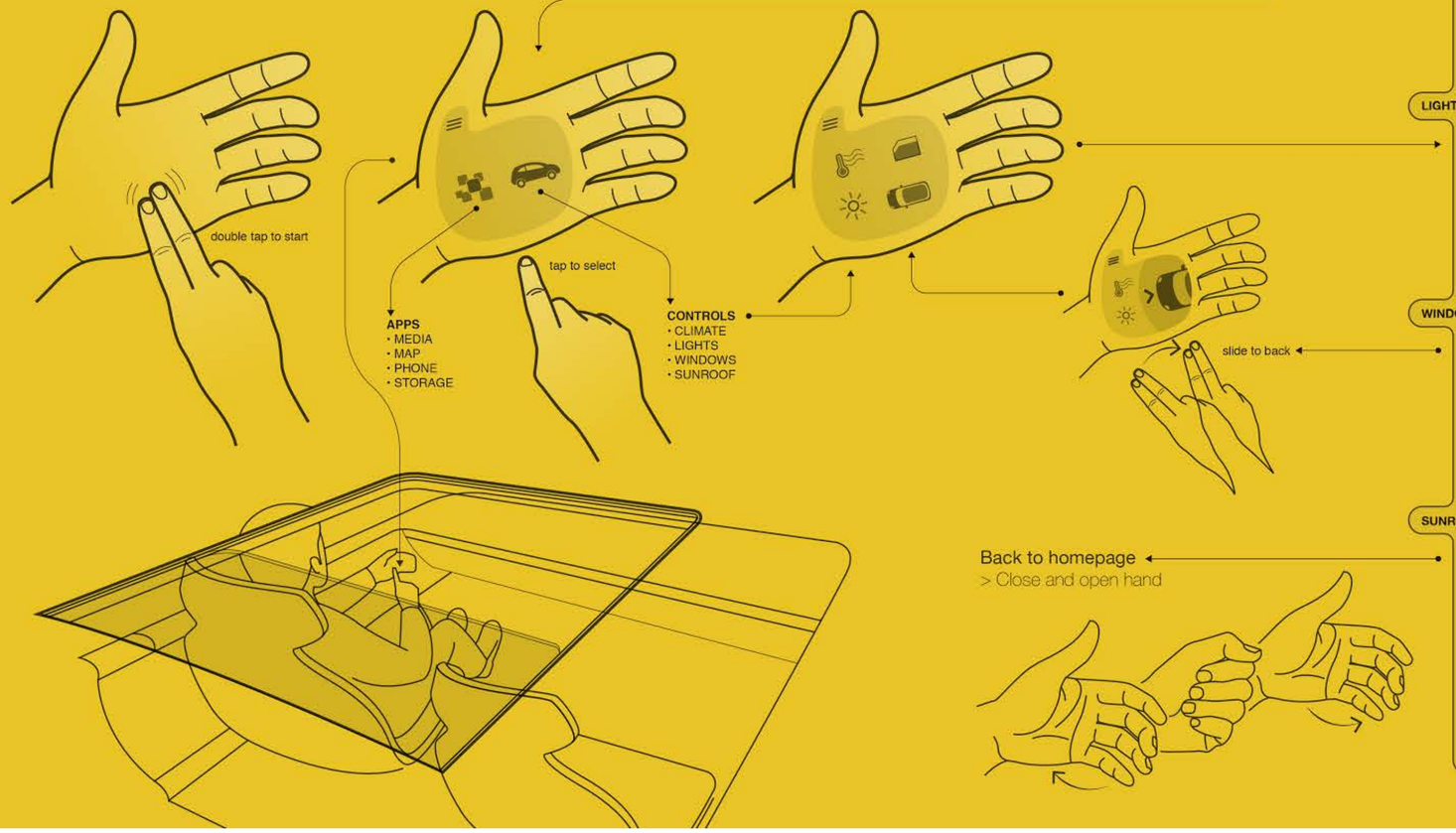
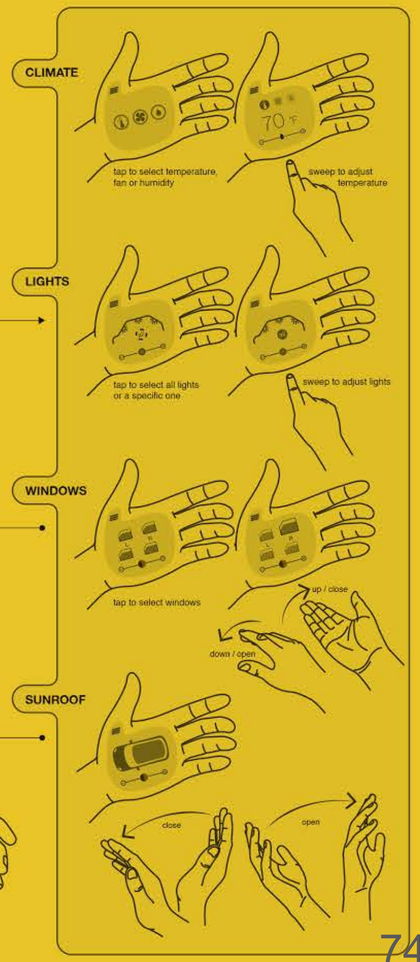
Provides a new way for control and interaction inside the car





PERSONA

Commander-in-Chief

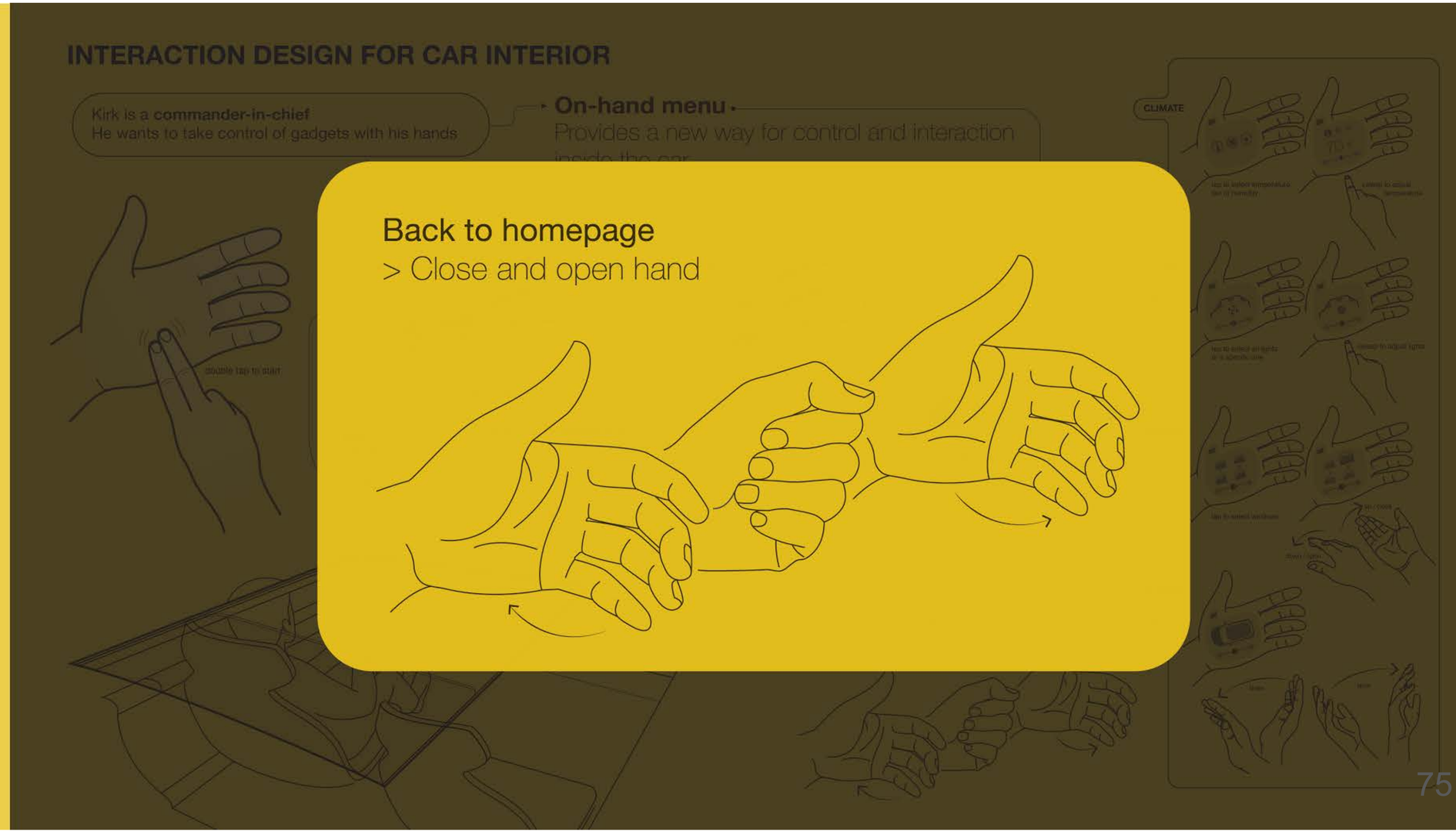
Kirk Peterson
Environmental Engineer

Persona

IDX models

Key concepts

Final Renderings



PERSONA

Commander-in-Chief

Kirk Peterson
Environmental Engineer

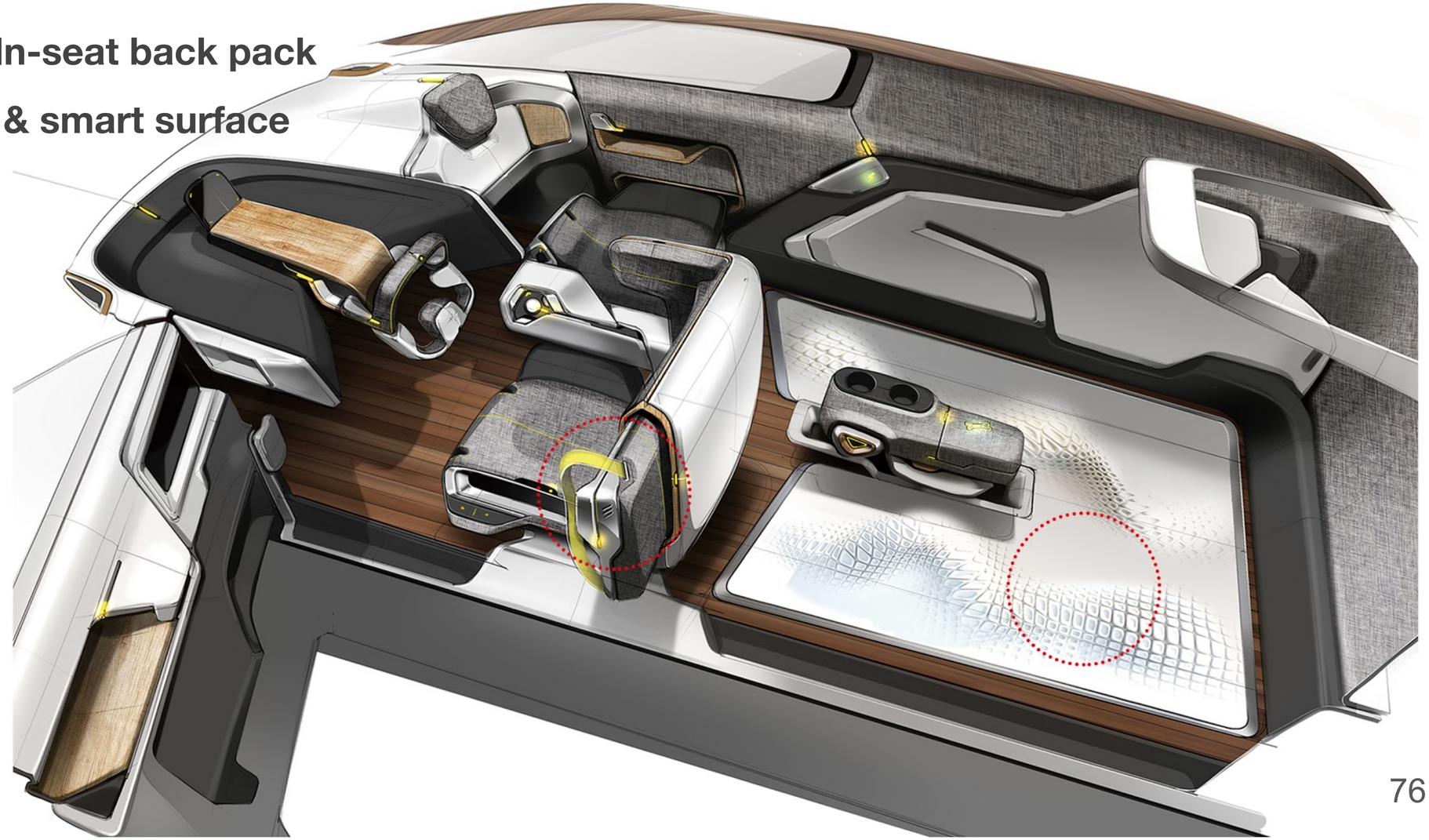
PERSONA

Autopilot

Clara Hong
Food Academy Instructor

In-seat back pack

& smart surface



PERSONA

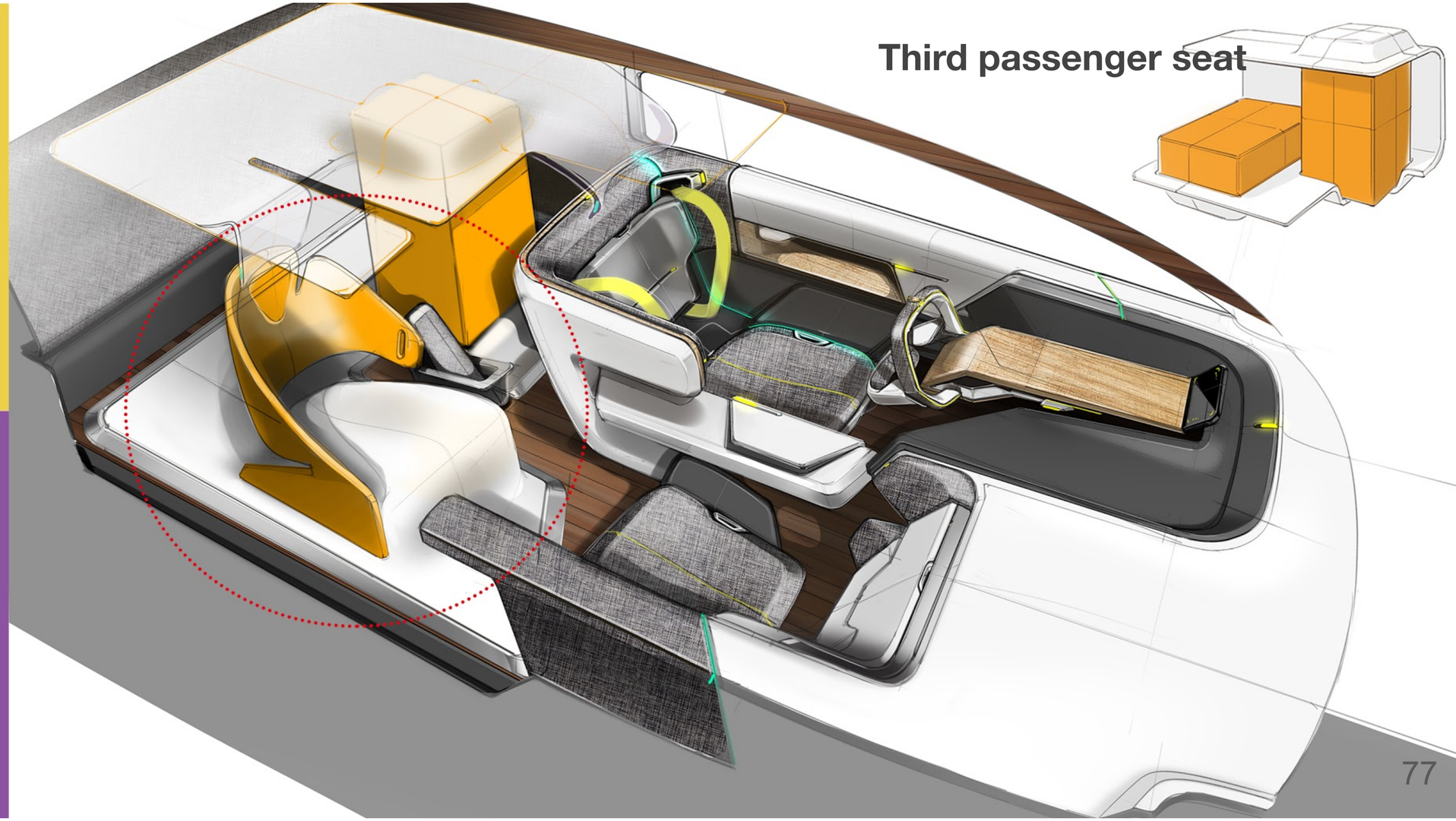
Commander-in-Chief

Kirk Peterson
Environmental Engineer

PERSONA

Autopilot

Clara Hong
Food Academy Instructor



Third passenger seat

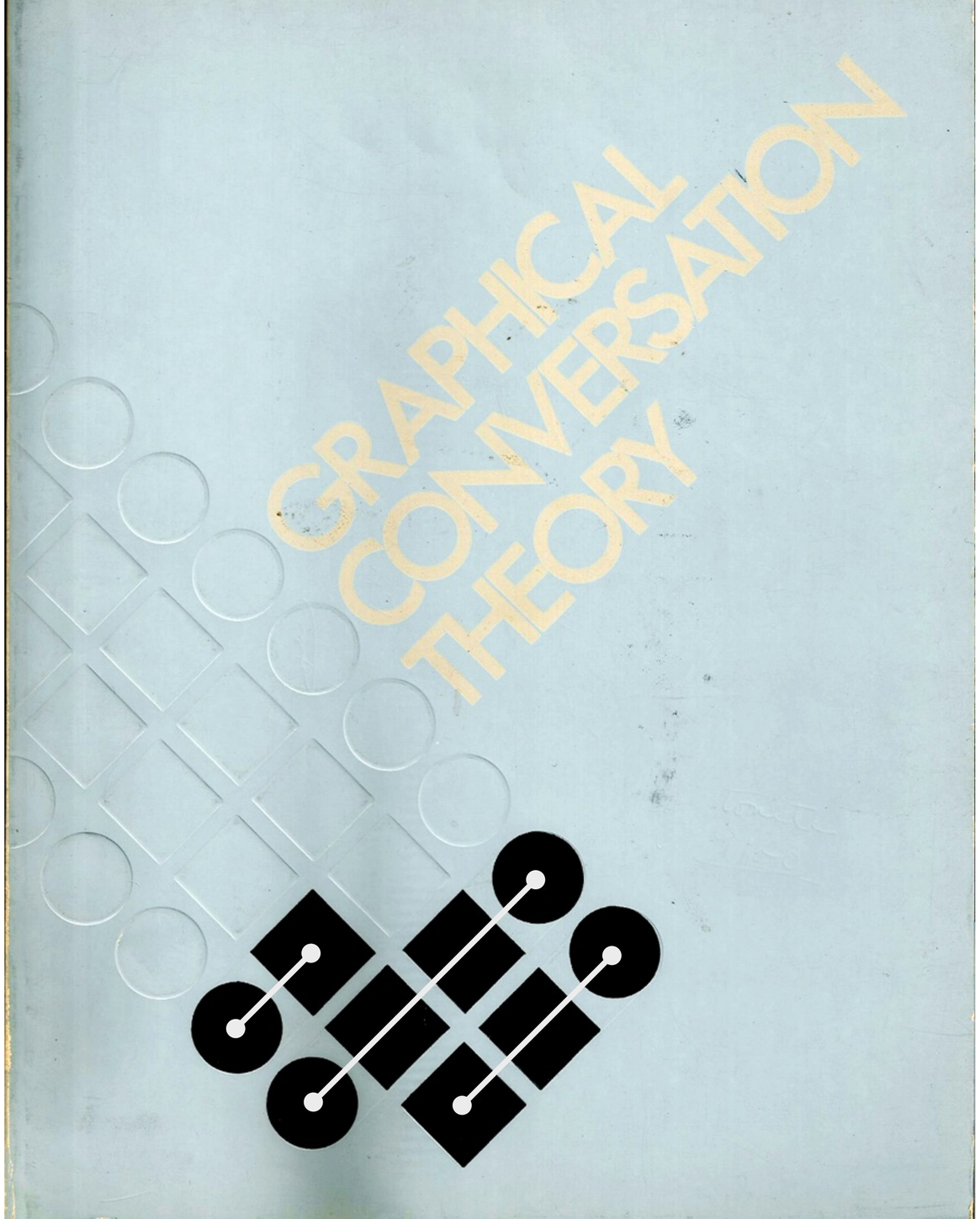
Paul Pangaro, Ph.D.

MFA Interaction Design Program

Architecture Machine Group
1976

NSF Proposal

Architecture Machine Group
1976




Soft Architecture Machines
Negroponte
Soft
Archi
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Ma
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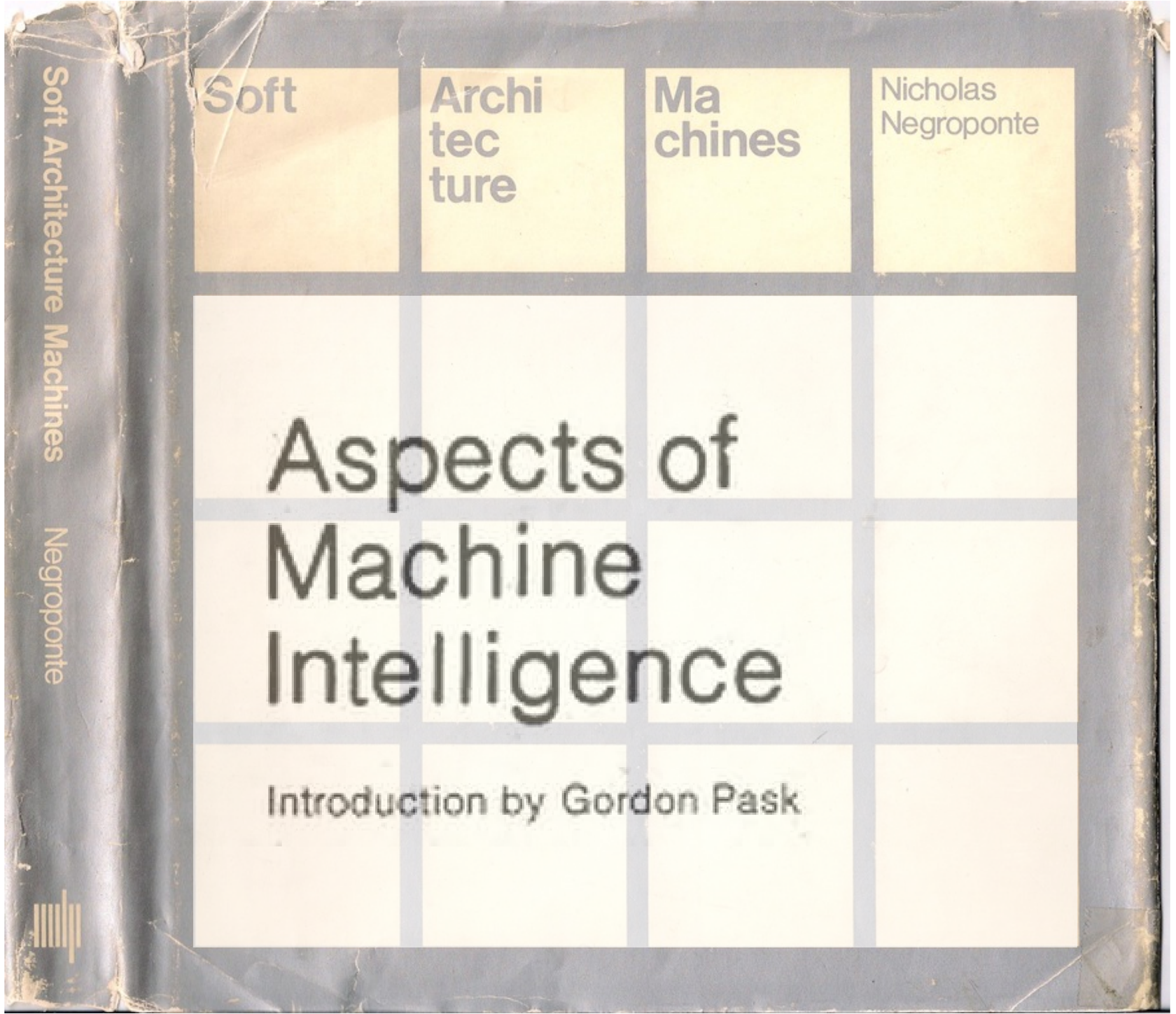
Nicholas
Negroponte


Soft Architecture Machines
Negroponte
Soft
Archi
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Ma
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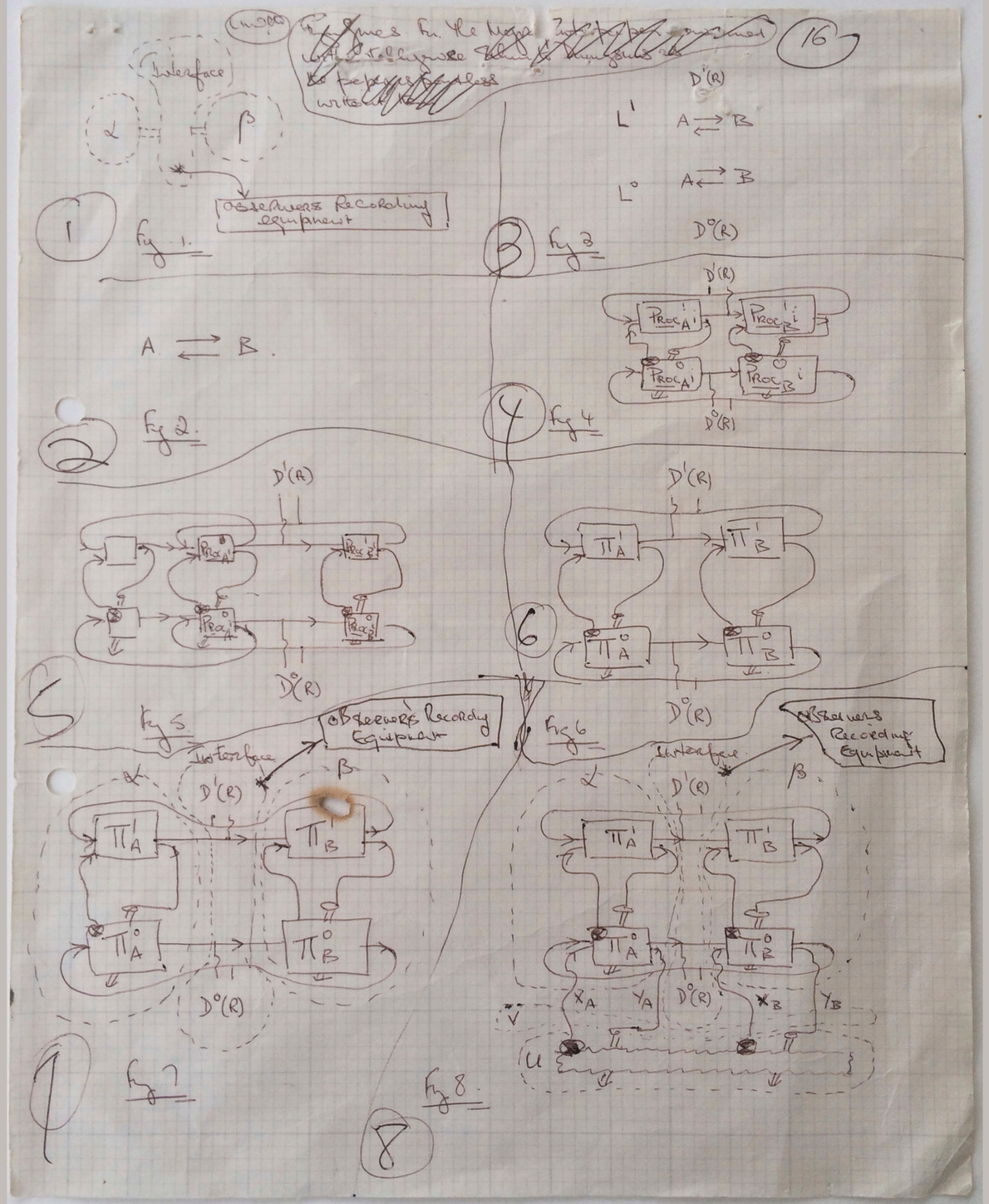
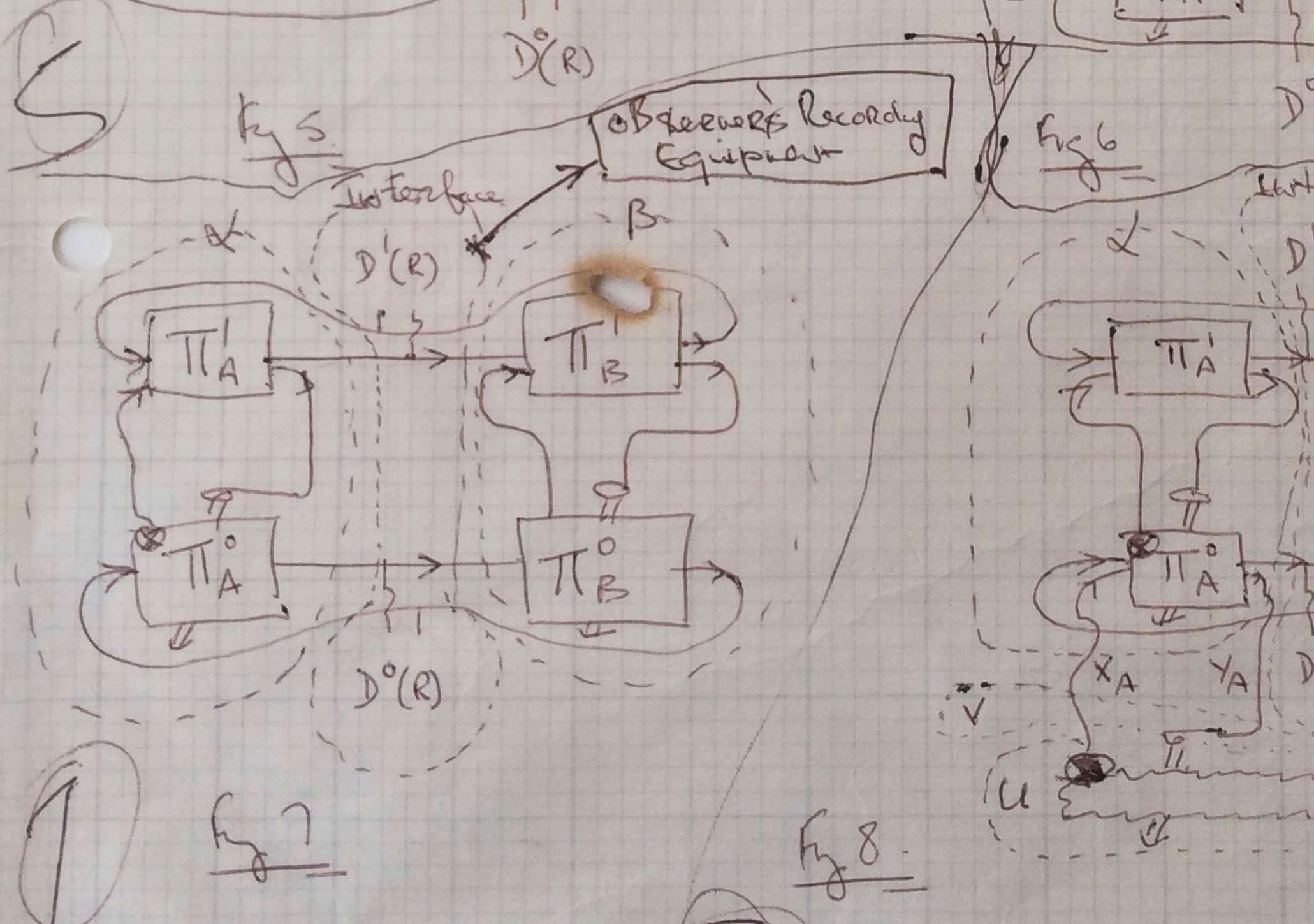
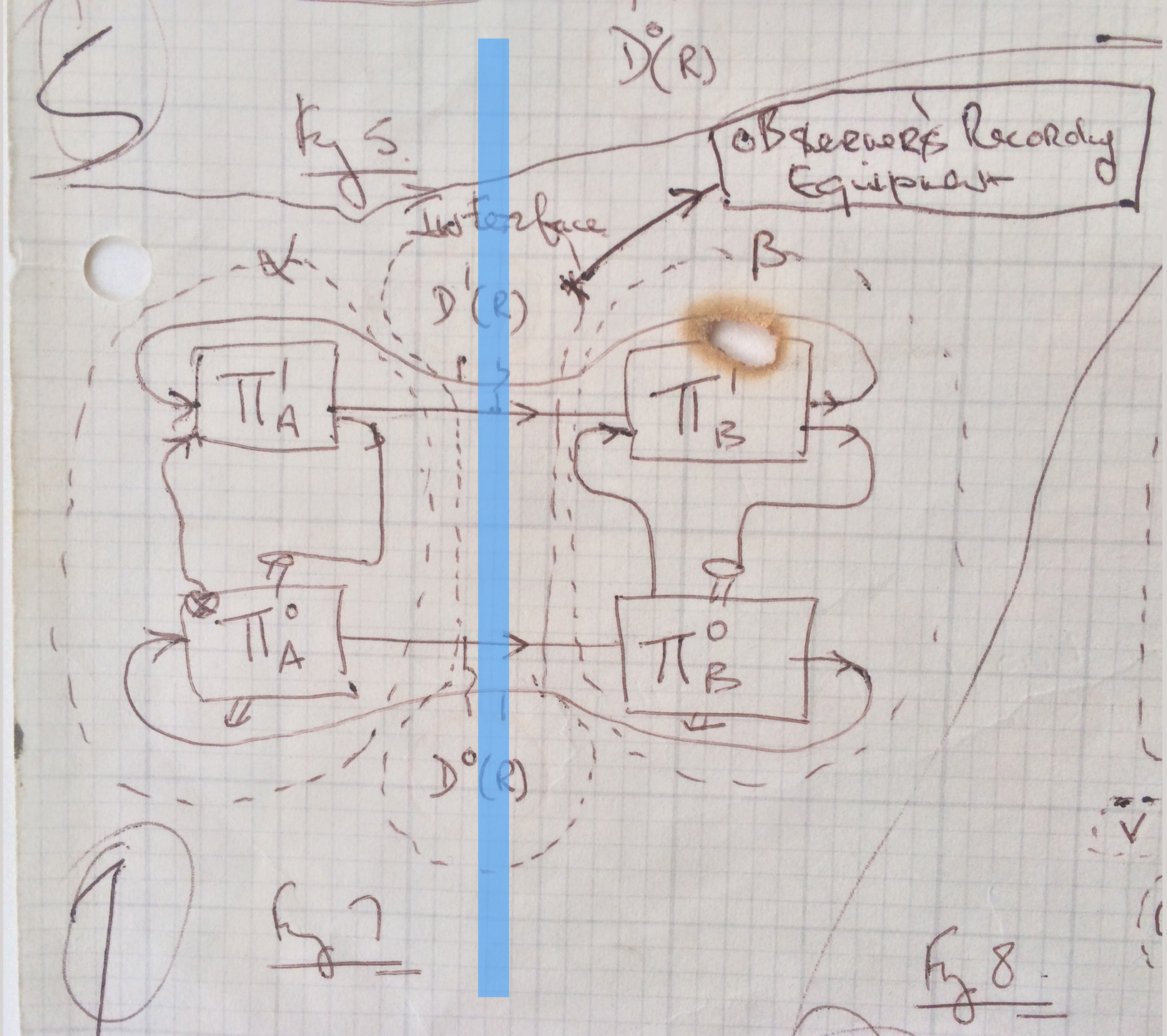
Nicholas
Negroponte
Aspects of
Machine
Intelligence
Introduction by Gordon Pask

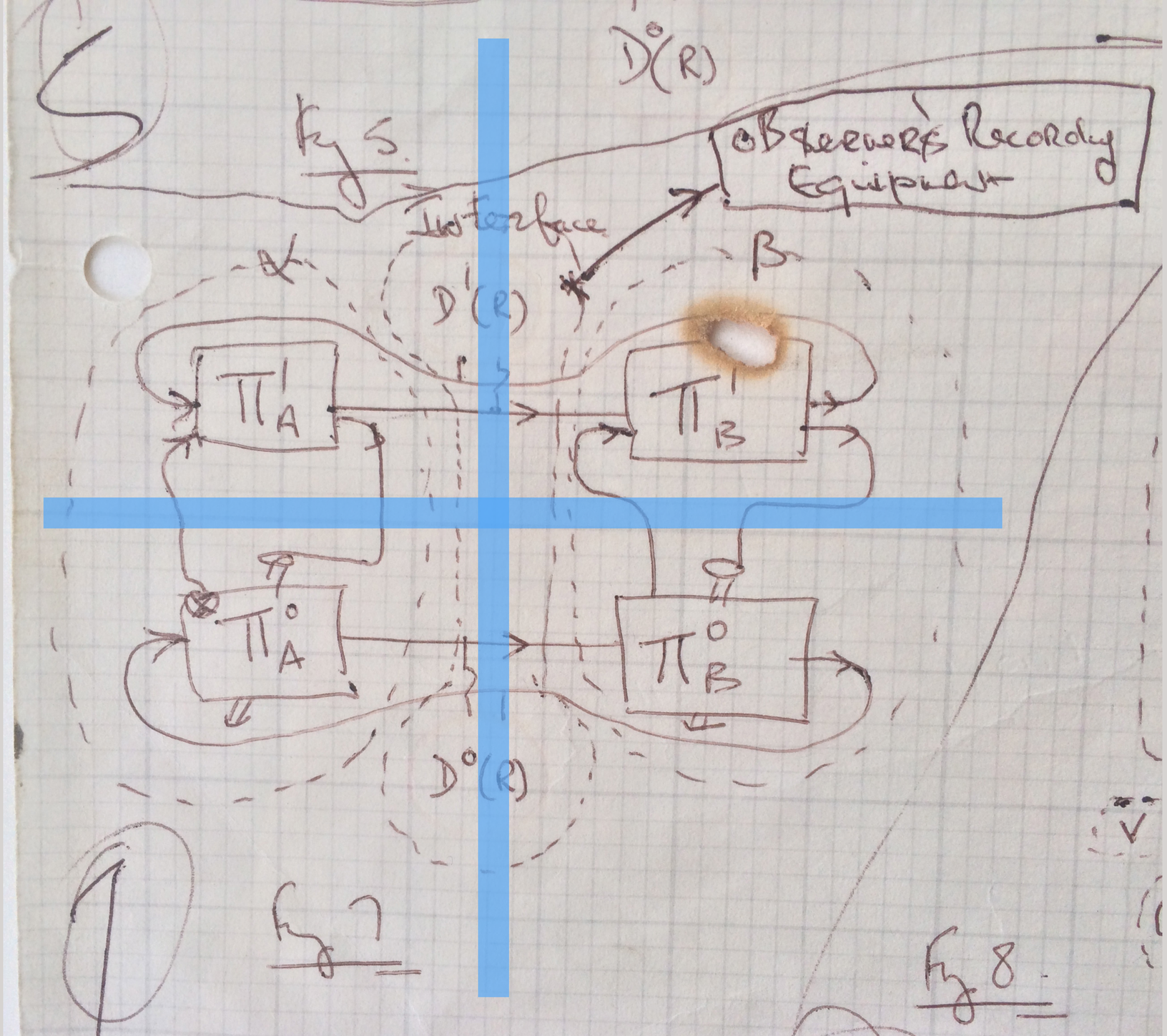
Aspects of Machine Intelligence

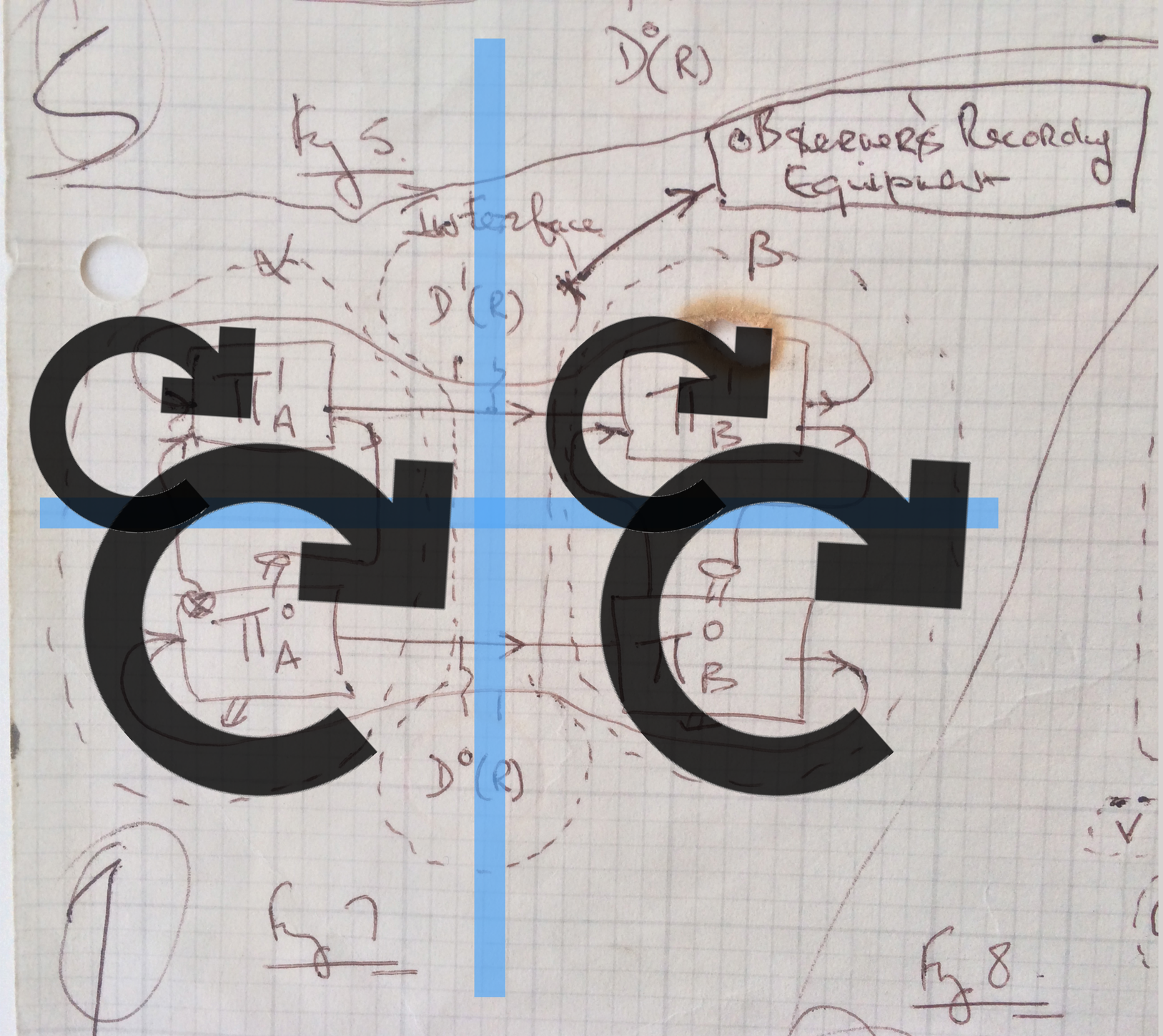
Introduction by Gordon Pask


16
Interface
α
β
Observers Recording equipment
1
Fig 1.
A ⇄ B
2
Fig 2.
D'(A)
D°(A)
3
Fig 3
L'
L°
D'(R)
D°(R)
4
Fig 4
Proc A'
Proc B'
Proc A°
Proc B°
5
Fig 5
Observers Recording Equipment
Interface
D'(R)
D°(R)
6
Fig 6
Observers Recording Equipment
Interface
7
Fig 7
8
Fig 8
u
v

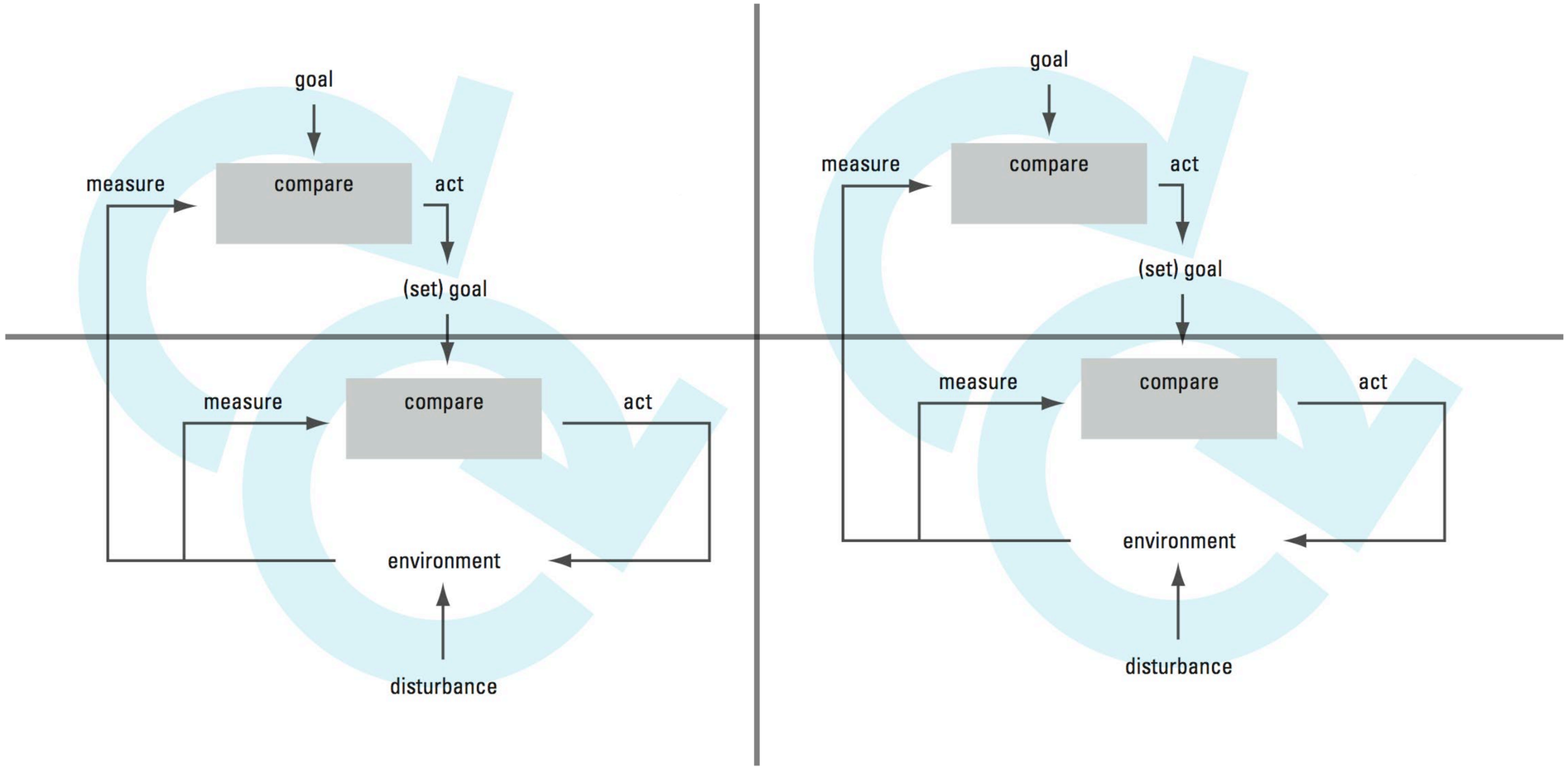

D°(R)
Fig 5
Observers Recording Equipment
Interface
D'(R)
α
β
Π'_A
Π'_B
Π°_A
Π°_B
D°(R)
Fig 6
Fig 7
Fig 8
X_A
Y_A
V
U

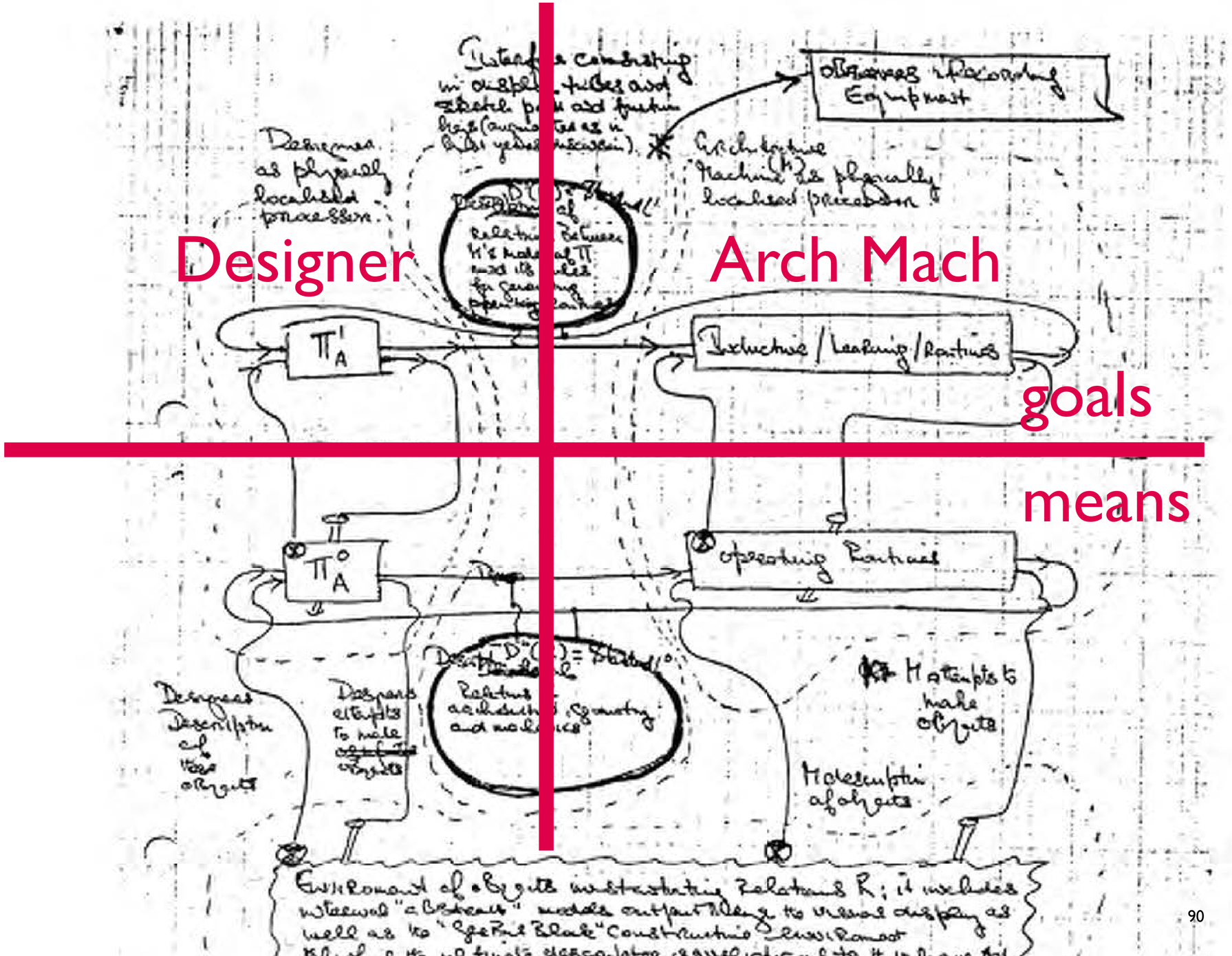

D°(R)
Fig 5.
Observers Recording Equipment
Interface
A
B
D'(R)
Π'A
Π'B
Π°A
Π°B
D°(R)
Fig 7
Fig 8.

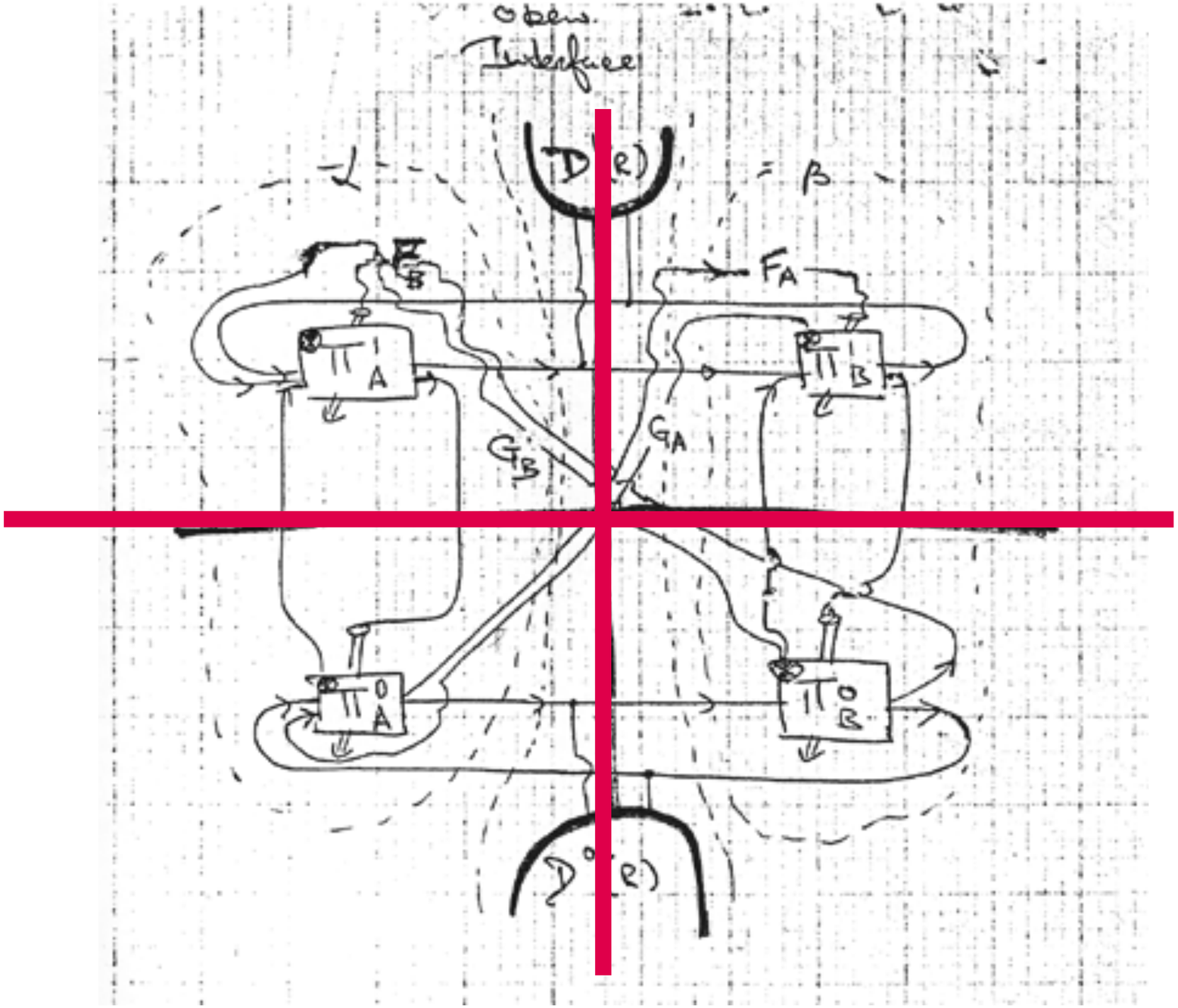

D°(R)
Fig 5.
Observers Recording Equipment
Interface
A
B
D'(R)
Π'A
Π'B
Π°A
Π°B
D°(R)
Fig 7
Fig 8.


D°(R)
Fig 5.
Observers Recording Equipment
Interface
D'(R)
A
B
Π_A
Π_B
Π^0_A
T^0_B
D°(R)
Fig 7
Fig 8.

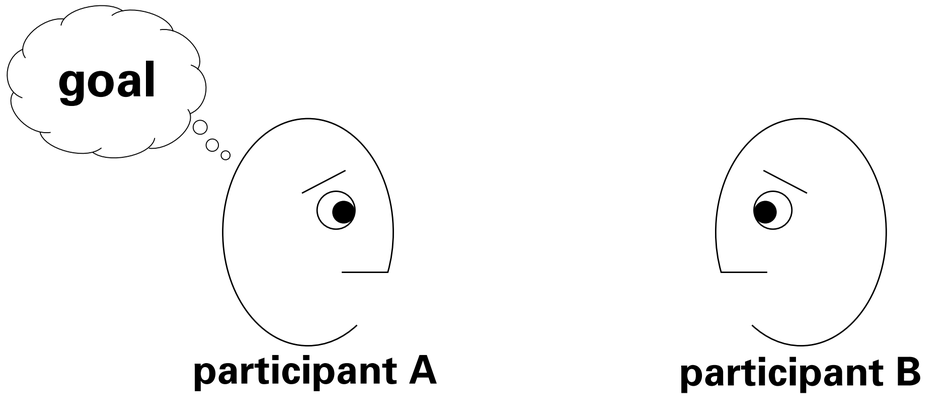
Cybernetics of Conversation



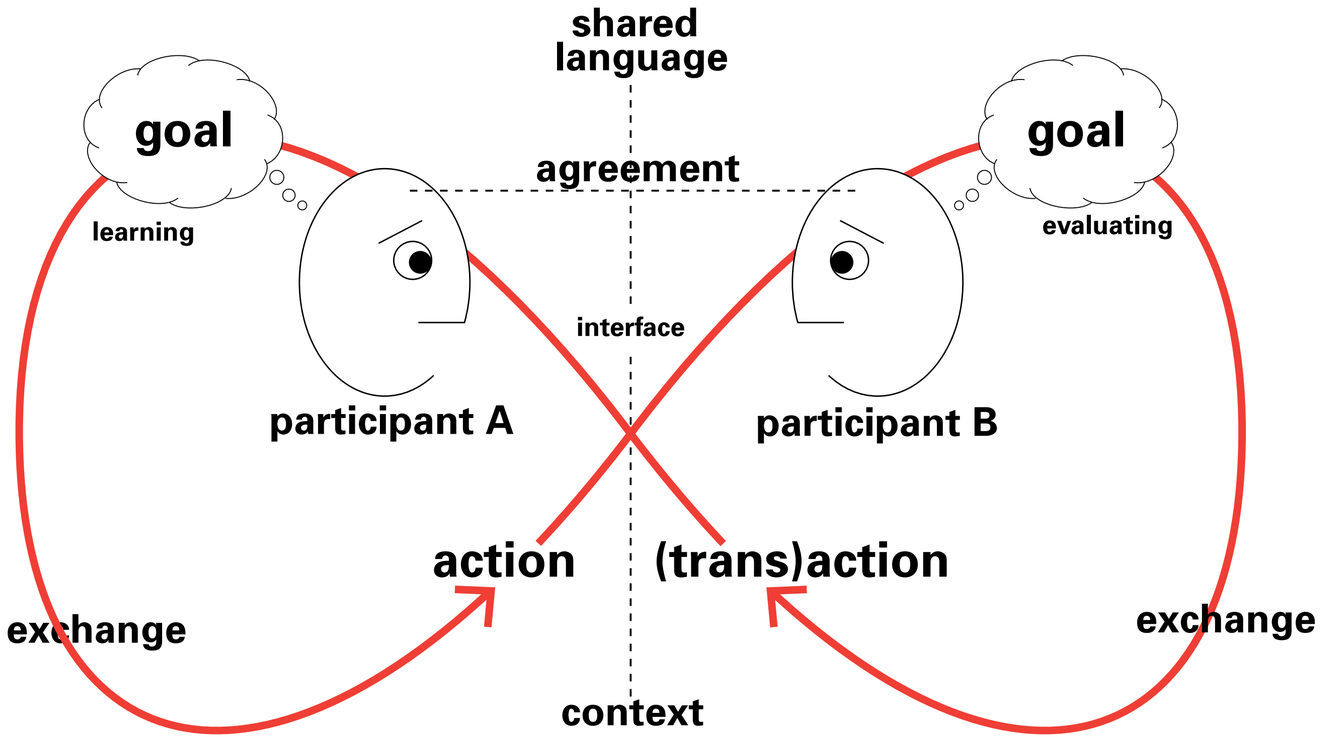

Designer
Arch Mach
goals
means


Obus.
Interface
D (R)
B
F_B
F_A
A
B
G_B
G_A
0
A
0
B
D° (R)

Conversational Frame

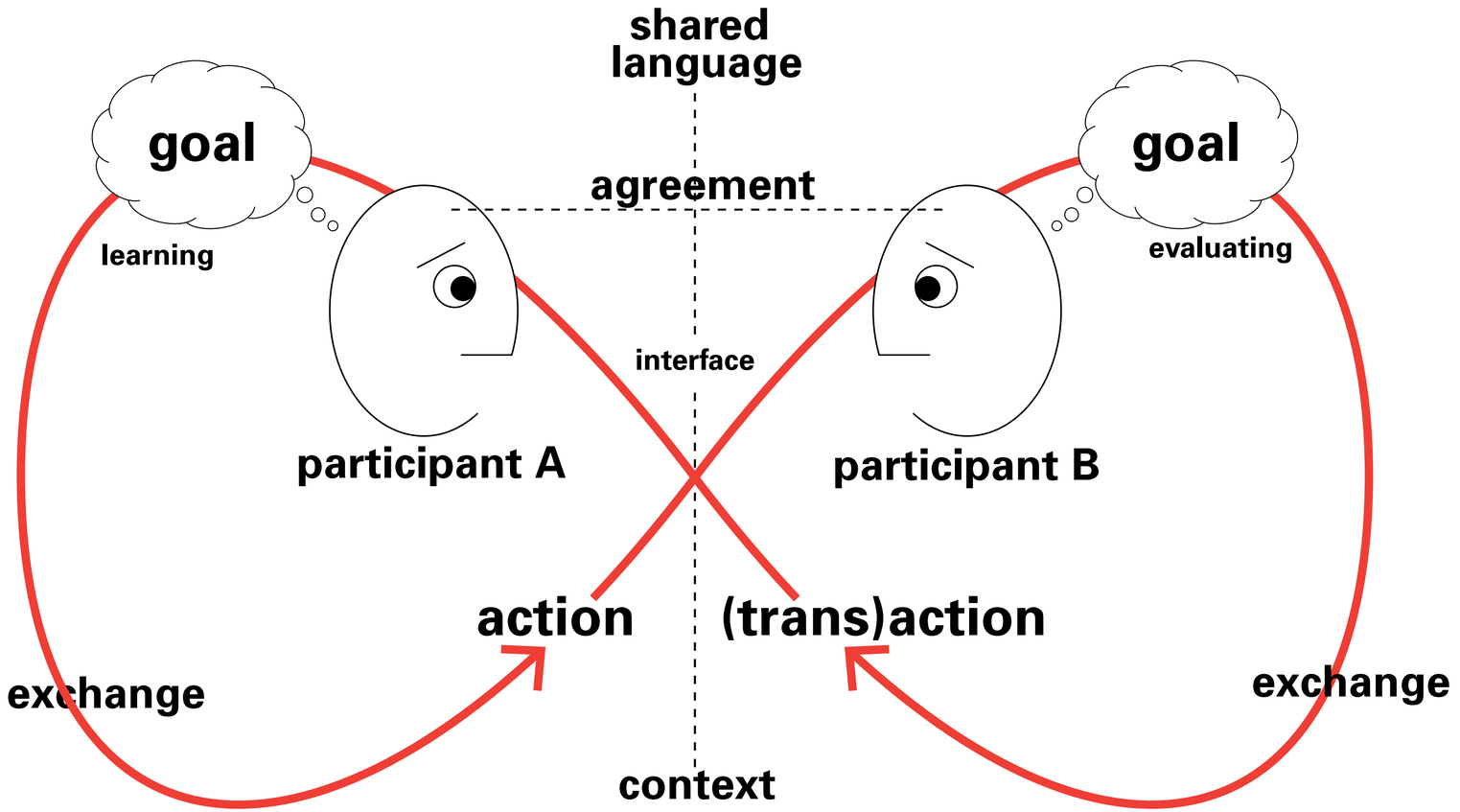


Conversation Redux



Conversation Redux — C-L-E-A-T

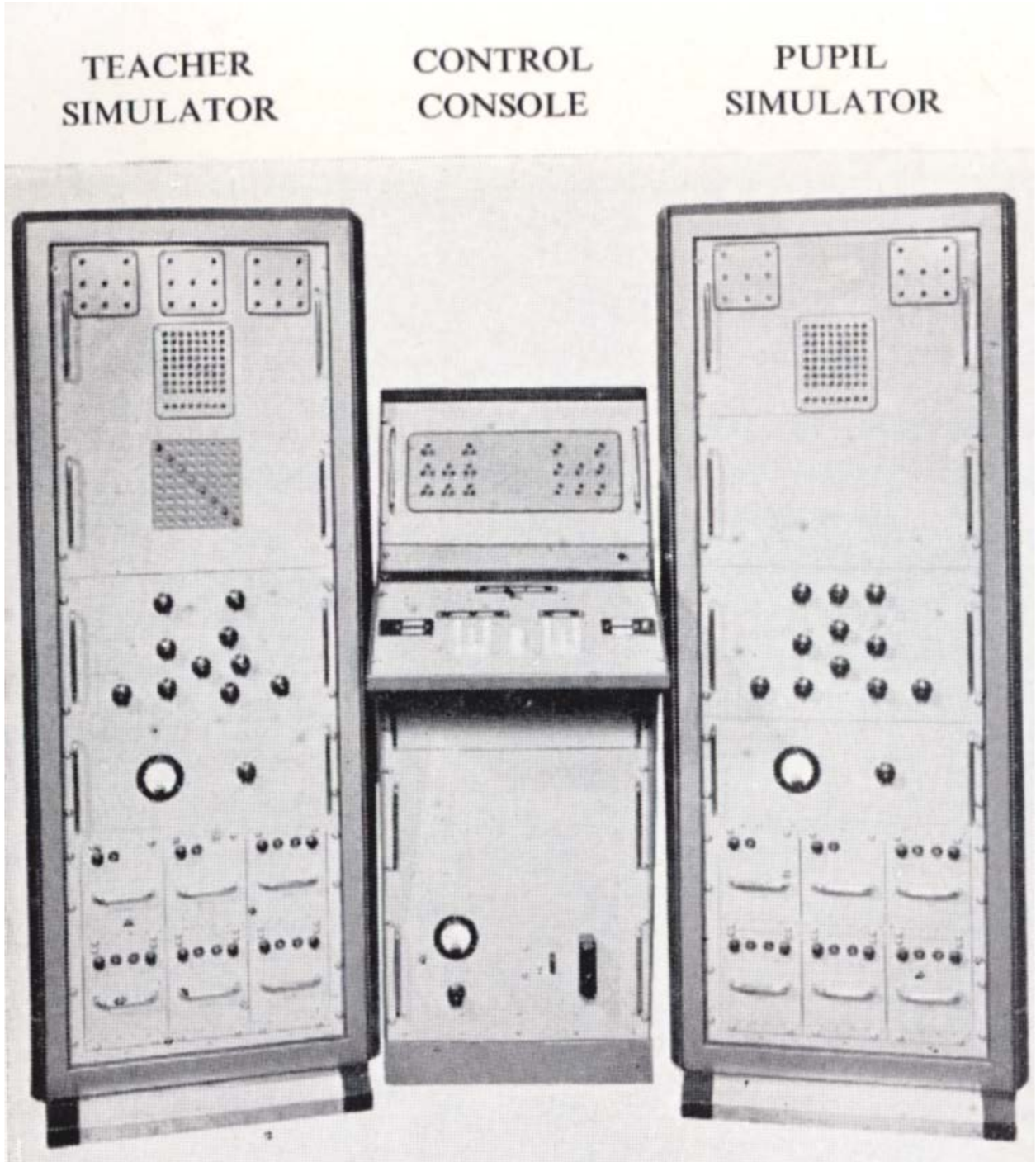
C – Context
L – Language
E – Engagement
A – Agreement
T – Transaction



Examples of Conversational Machines

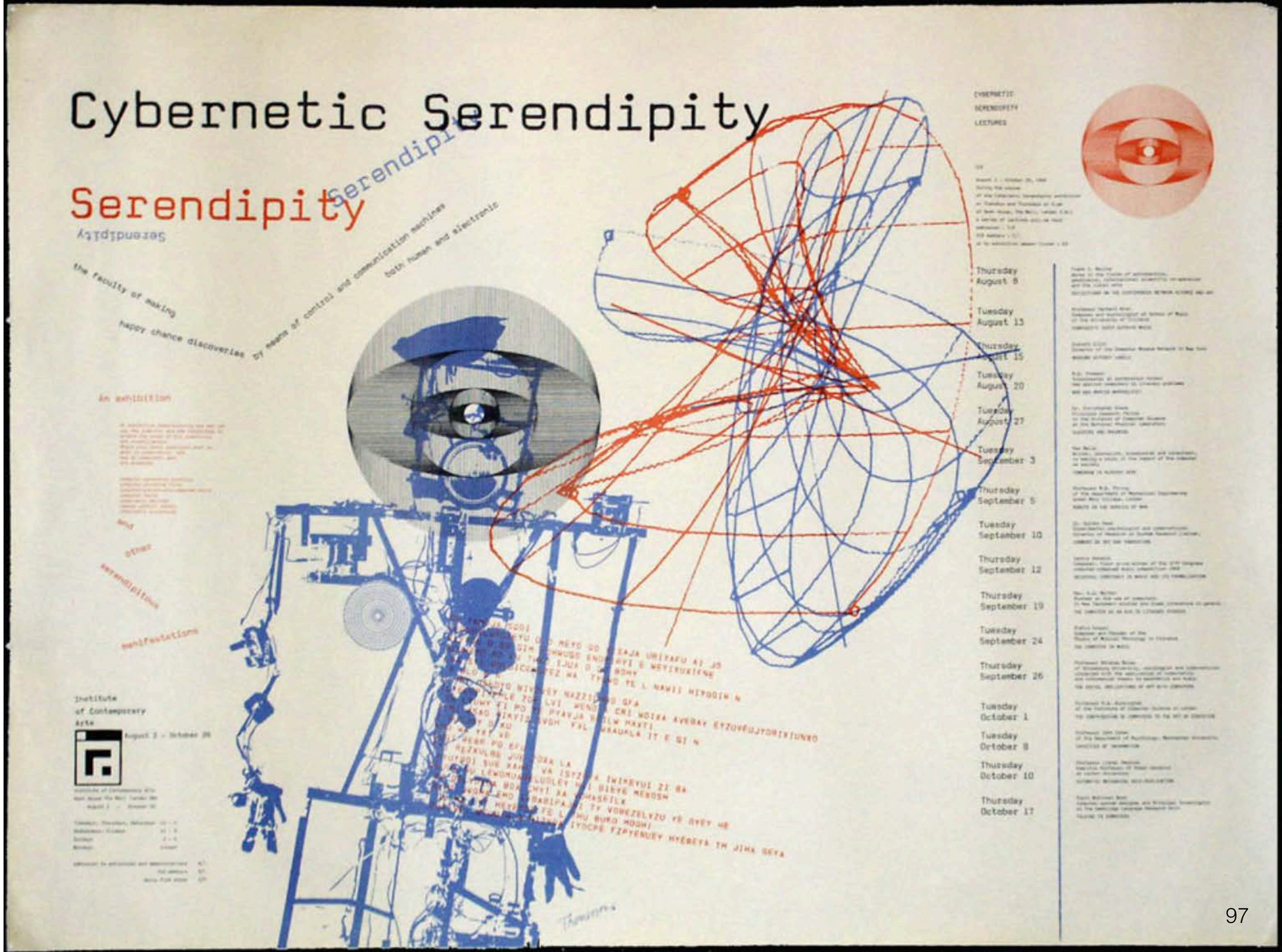
Gordon Pask's Eucrates

1958



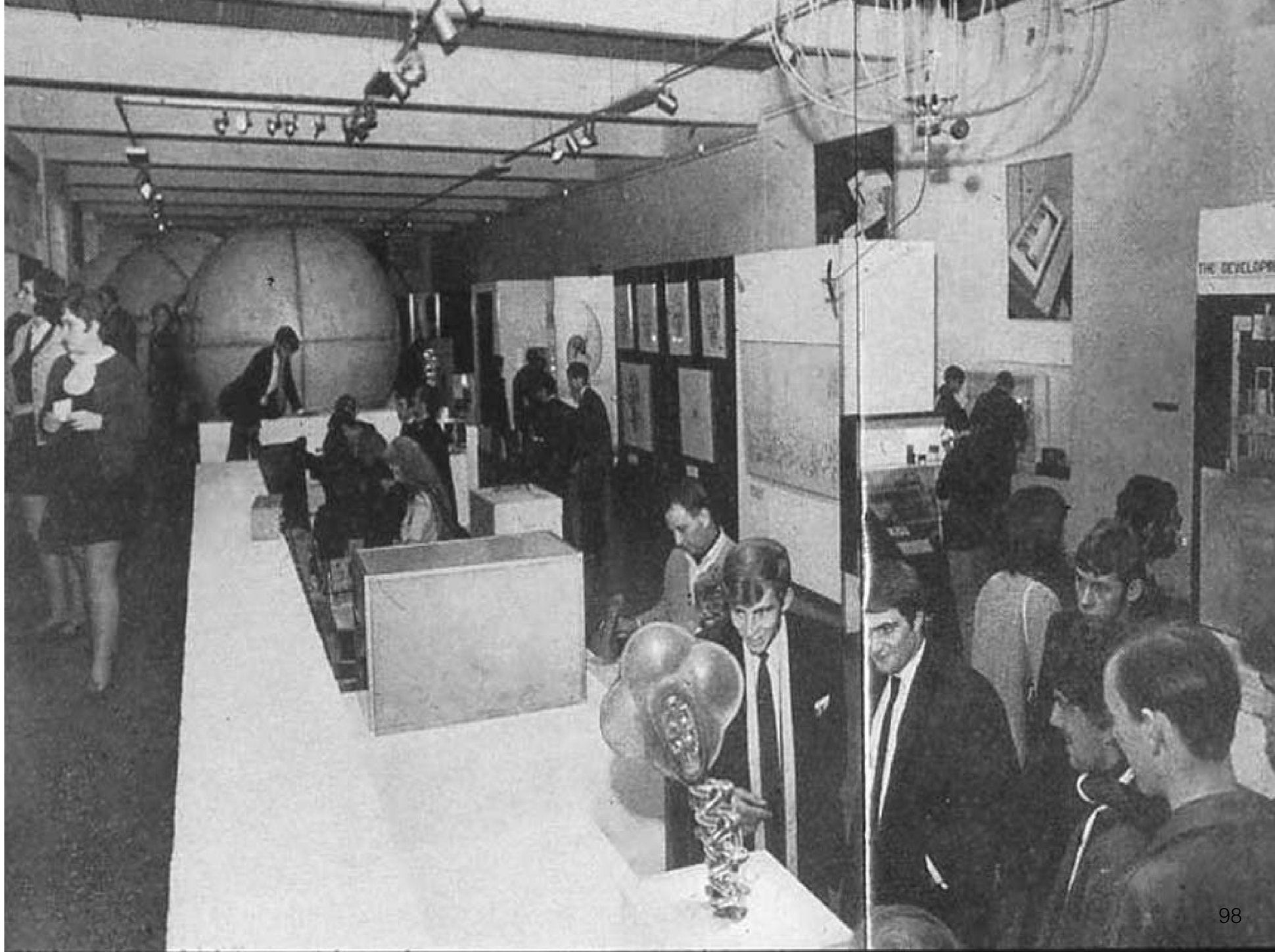
Cybernetic Serendipity Exhibition

London 1968



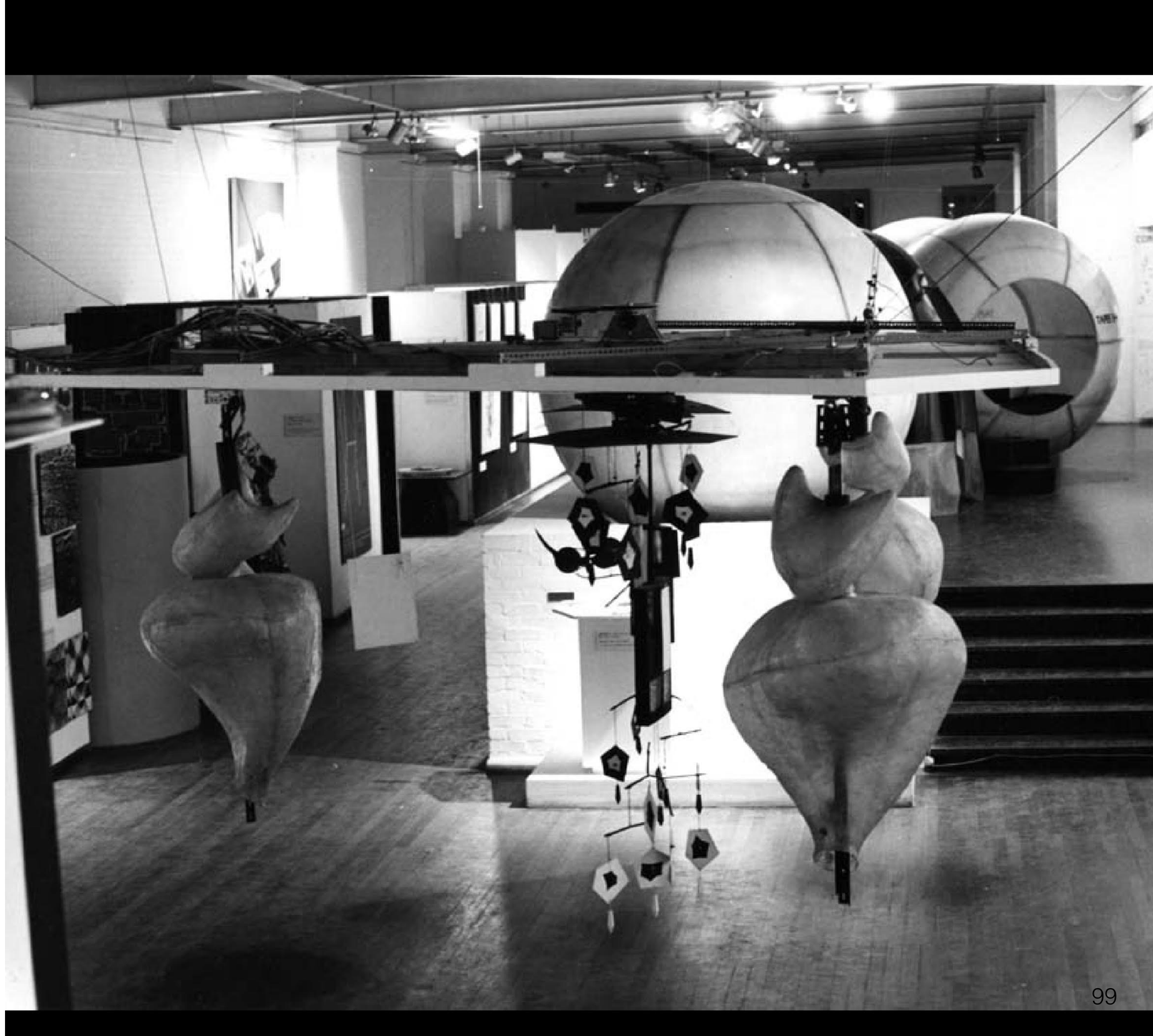
Cybernetic Serendipity Exhibition

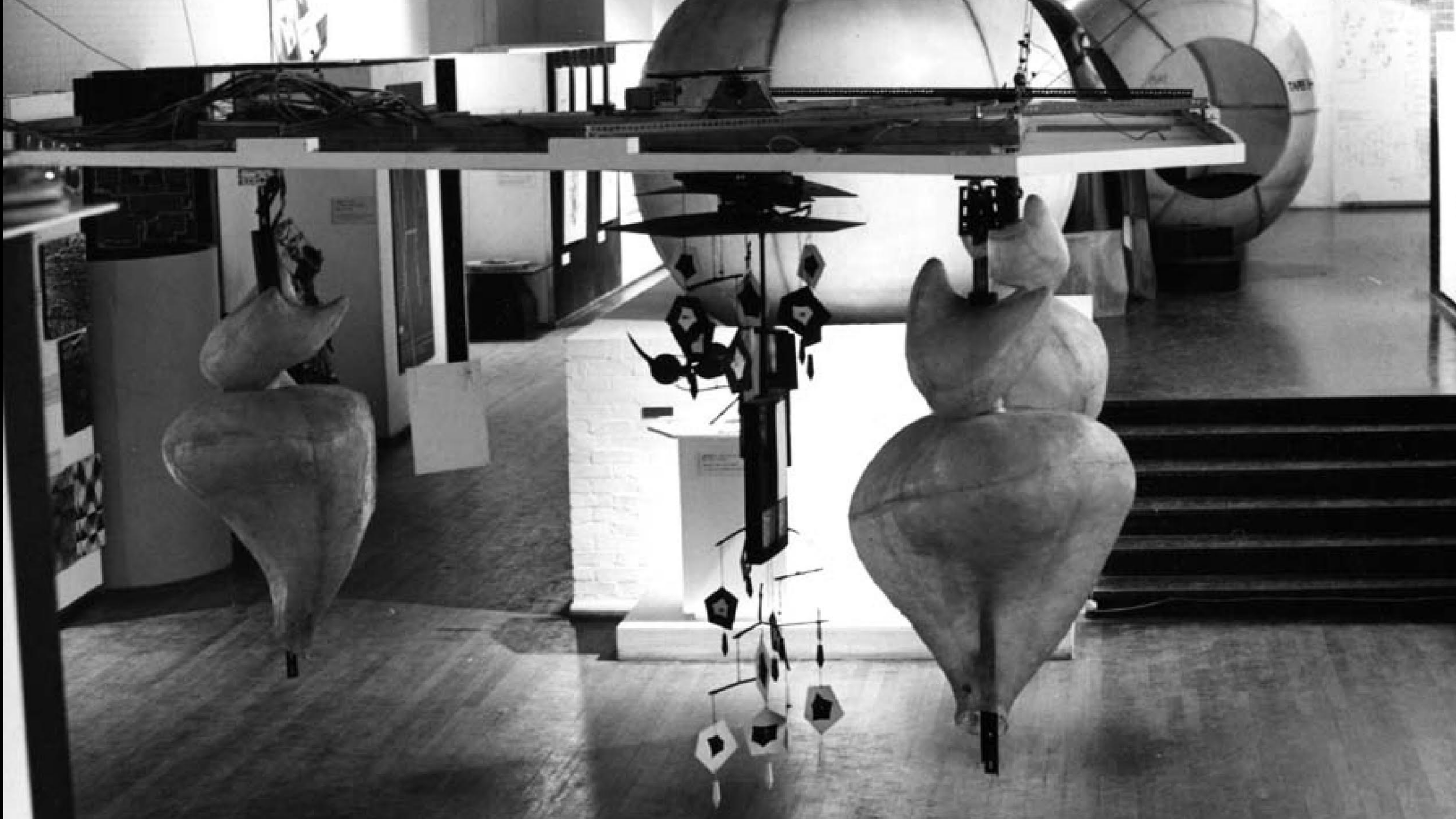
London 1968

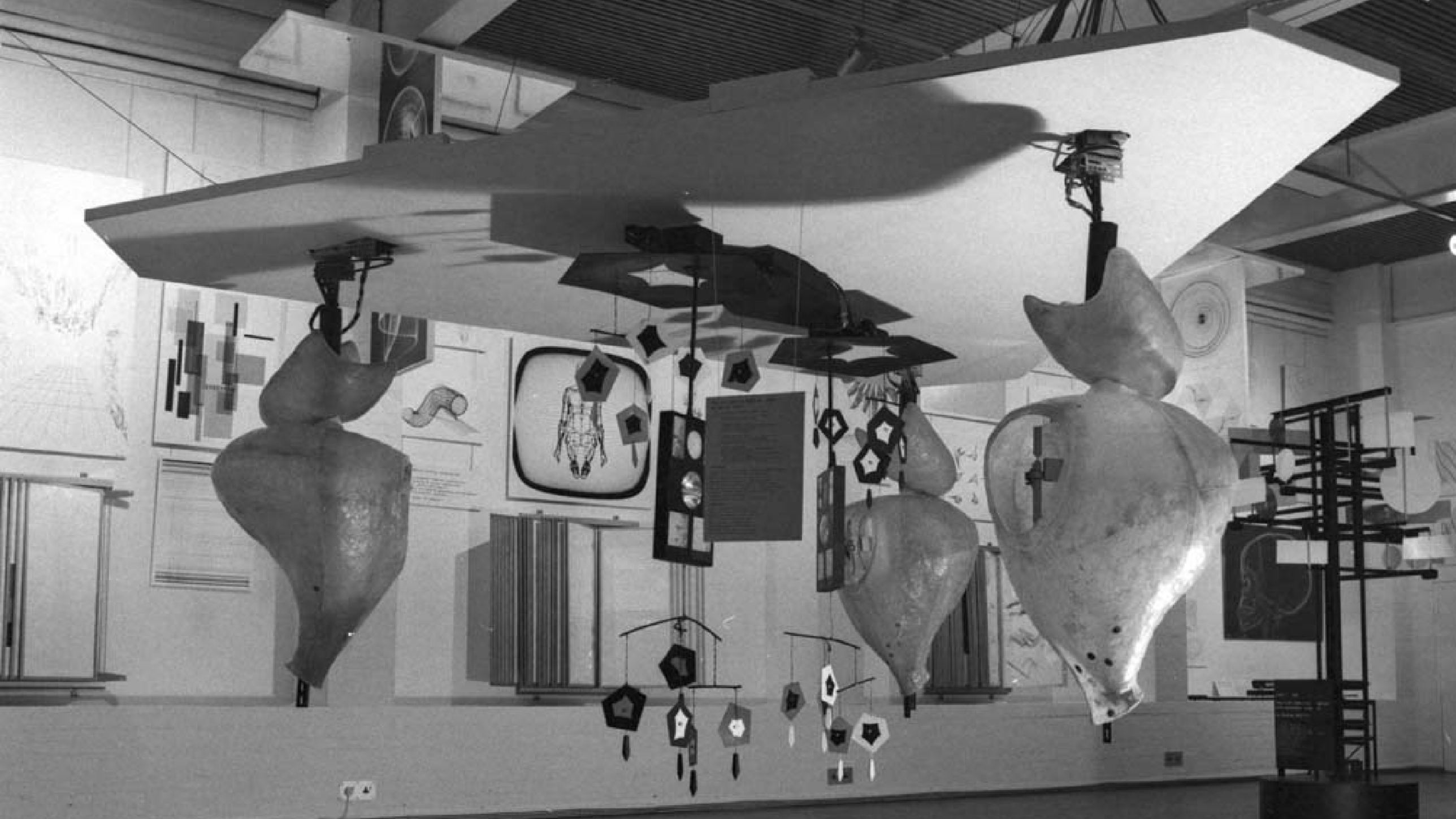


Gordon Pask's COLLOQUY OF MOBILES

London 1968

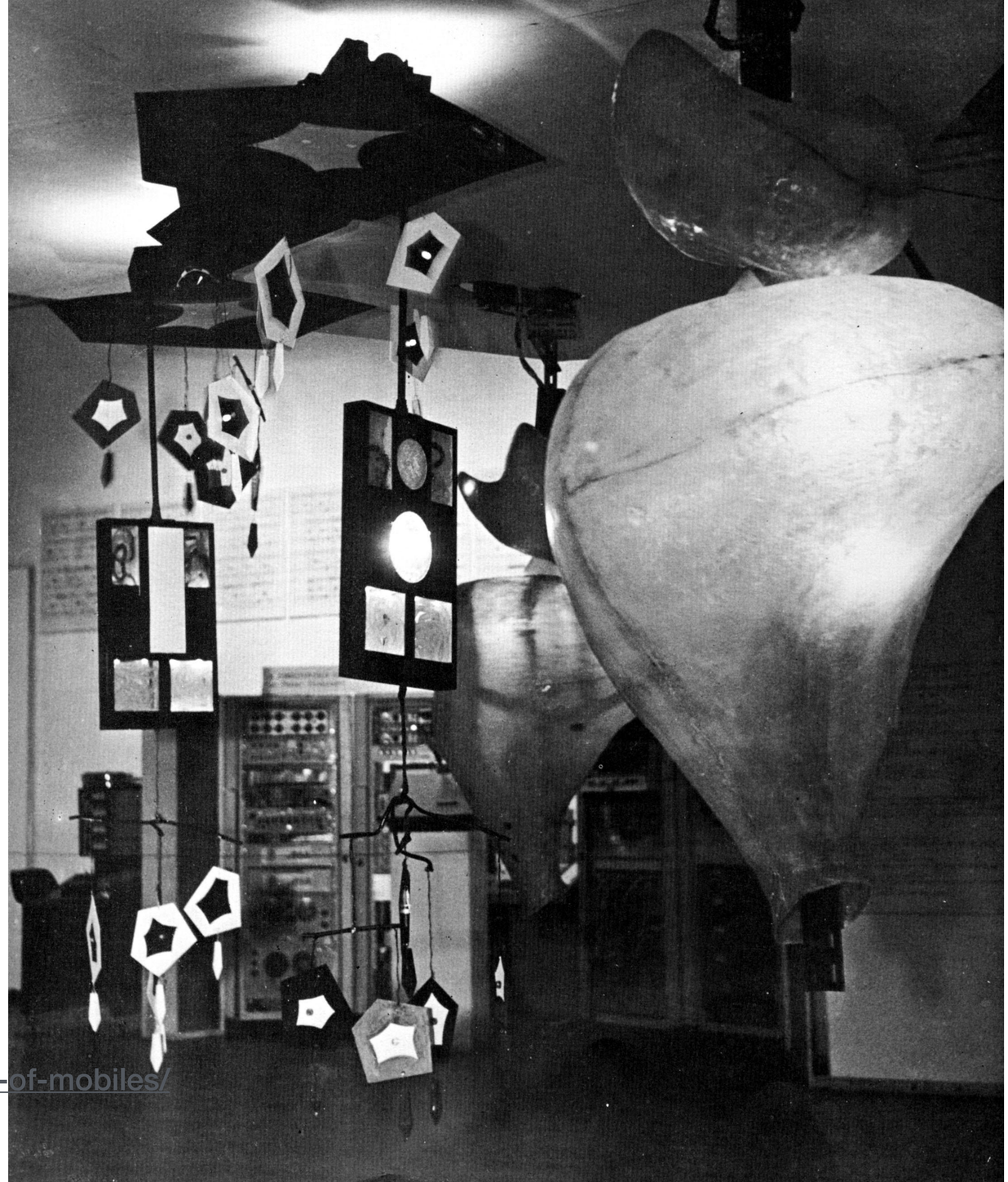






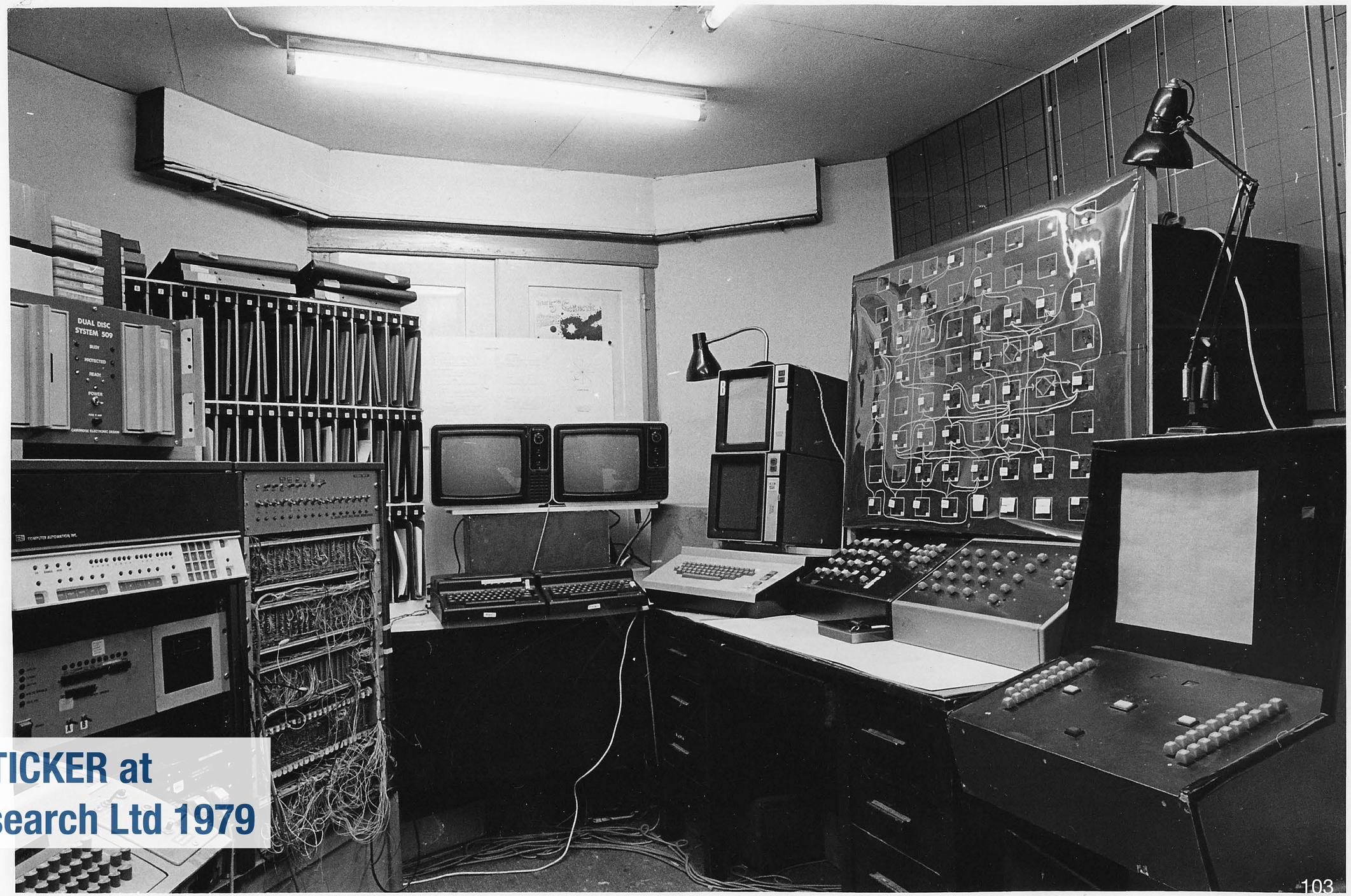
COLLOQUY 2018 Project
College for Creative Studies

May 2018

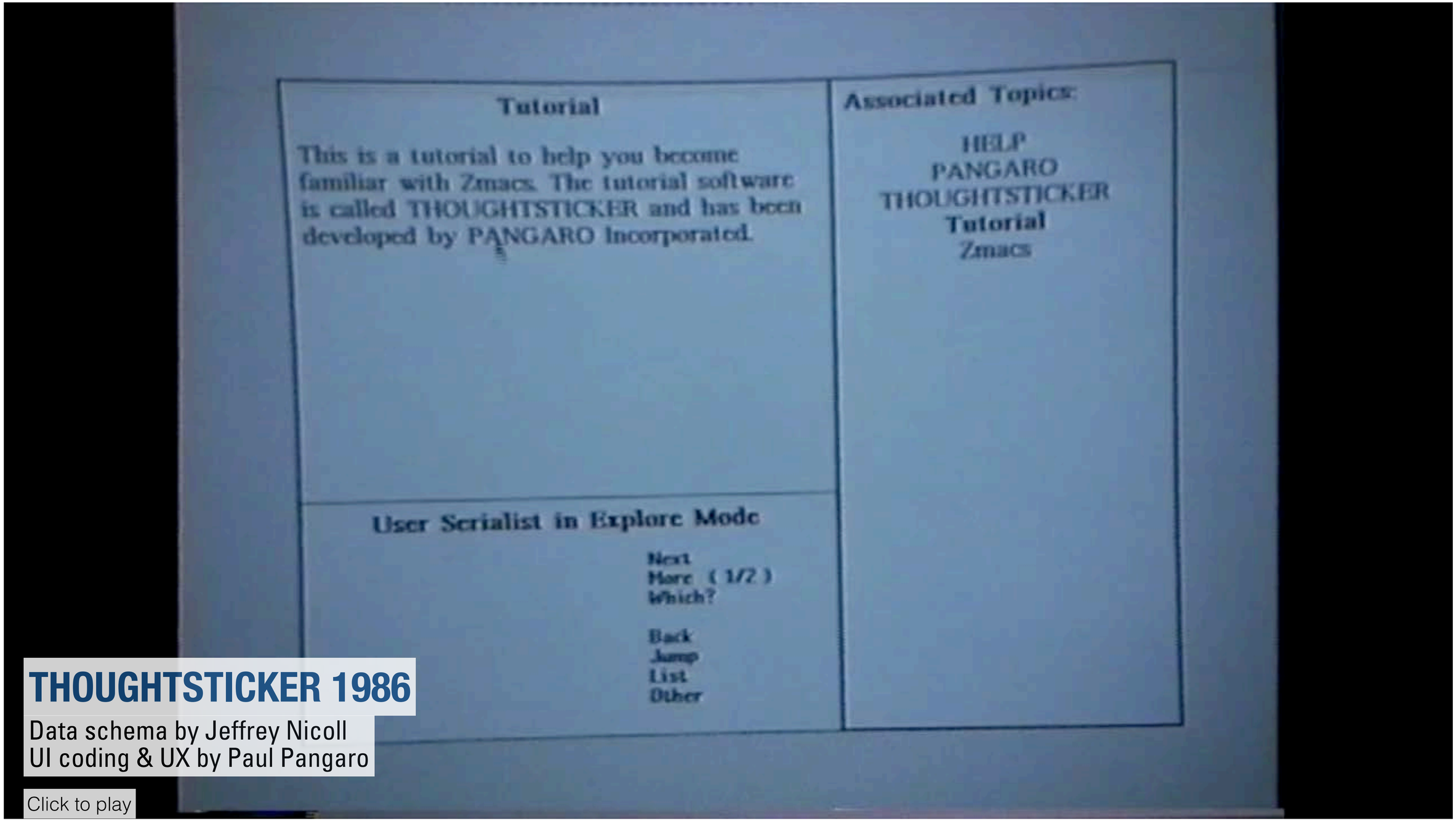


Images from
www.medienkunstnetz.de/works/colloquy-of-mobiles/

For more information
ccsmfa.wordpress.com/2018/01/14/remaking-pasks-colloquy-of-mobiles/



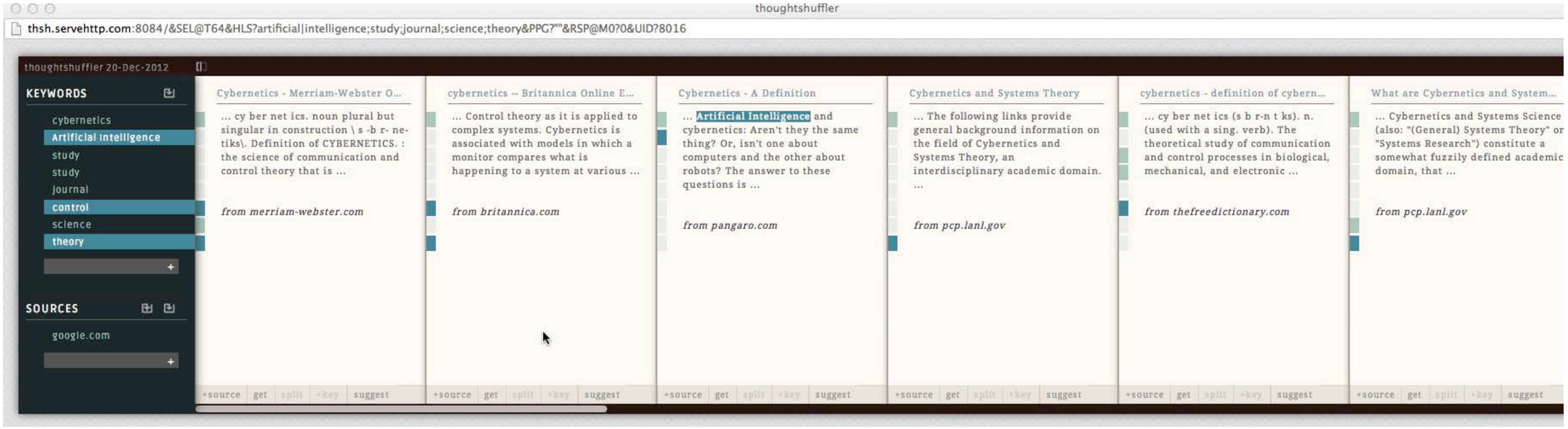
THOUGHTSTICKER at System Research Ltd 1979



THOUGHTSTICKER 1986

Data schema by Jeffrey Nicoll
UI coding & UX by Paul Pangaro

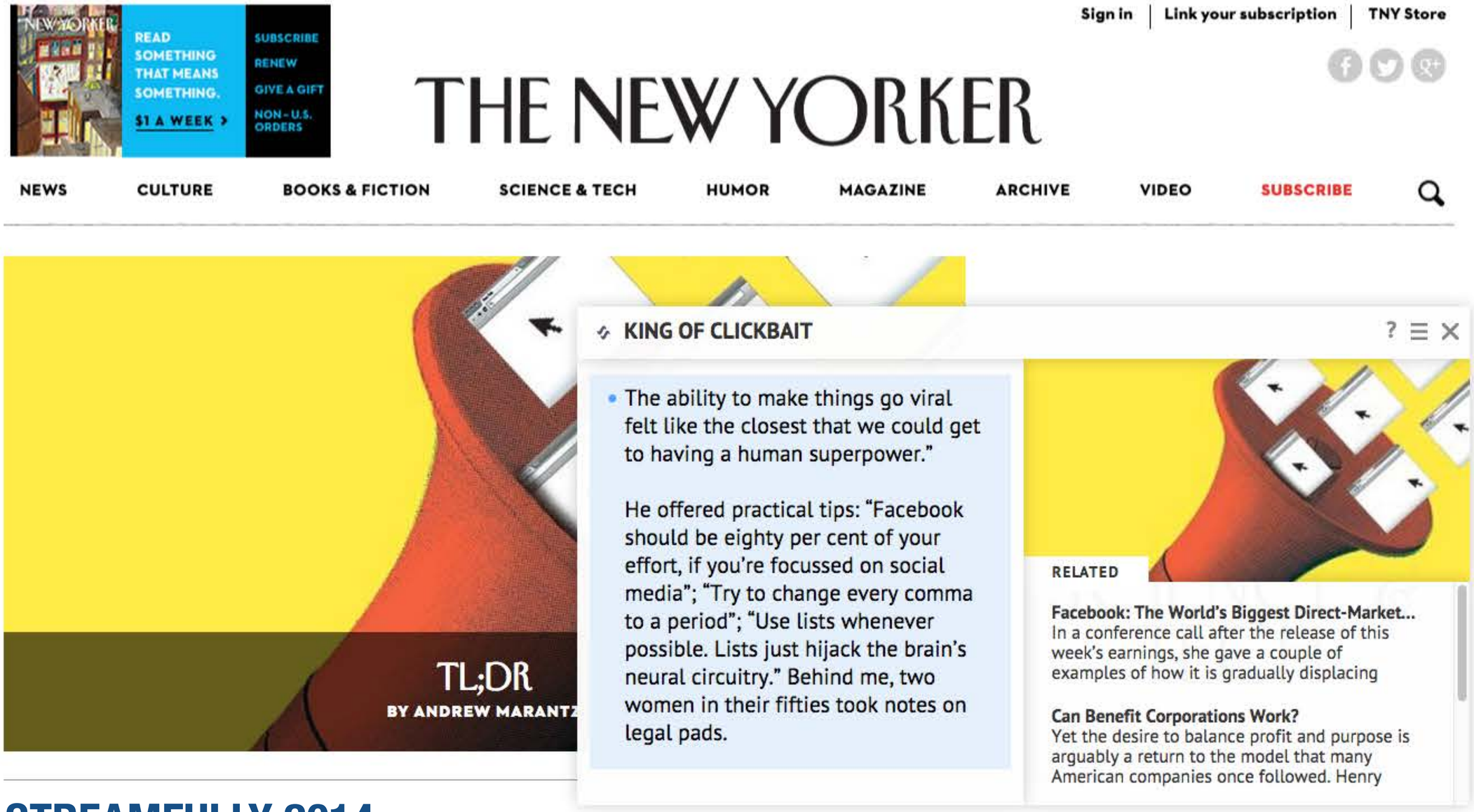
Click to play



THOUGHTSHUFFLER 2014

UI design and coding by Jeremy Scott Diamond
UX & heuristics by Paul Pangaro

Click to play



STREAMFULLY 2014

UI by Barbara de Wilde & John Katagawa
UI coding by John Katagawa
UX & heuristics by Paul Pangaro

THOUGHTSHUFFLER iOS 2013

UX by Miriam Simun
UI by See-ming Lee
concept & heuristics by Paul Pangaro

Click to play

SymptomChecker

Experiencing symptoms but not sure what they mean?
Use our Symptom Checker to help determine possible causes and treatments, and when to see a doctor.

Enter your symptom

Go

Give me symptoms to choose from ››

Assess Your Symptoms

Want to know what's causing your aches, pain, or rashes? We can identify conditions related to your symptoms.

Learn About Possible Causes

Get a better understanding of a condition: Discover if you're at risk, how it's diagnosed, and what you can do about it.

Explore Treatments

Weigh your treatment options, from traditional medicine to alternative therapies, and decide which is right to you.

Most Common Symptoms

- Diarrhea
- Knee pain
- Sore throat
- Sleep paralysis
- Insomnia
- Erectile dysfunction
- Blood in urine
- Conjunctivitis
- Heel pain
- Back pain
- Night sweats
- Abdominal pain
- Chest pain
- Foot pain
- Neck pain
- Vaginal discharge
- Morning sickness
- Anemia
- Constipation
- Vaginal itching

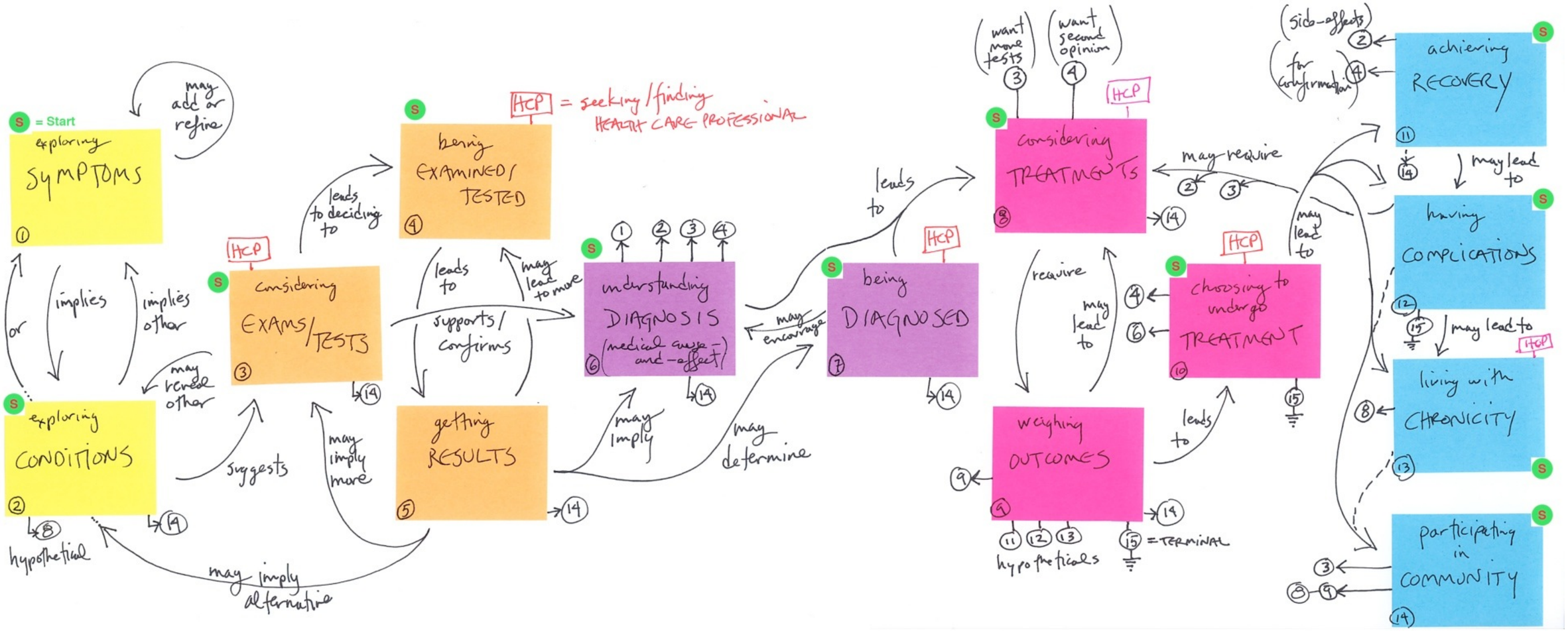
Health Topic

Healthline → Topics A-Z

View by:

- Health Topics
- Symptoms
- Drugs
- Visual Health
- Videos
- Slideshows
- Health Blogs
- Health News
- Reference Library

Consumer Health Portal

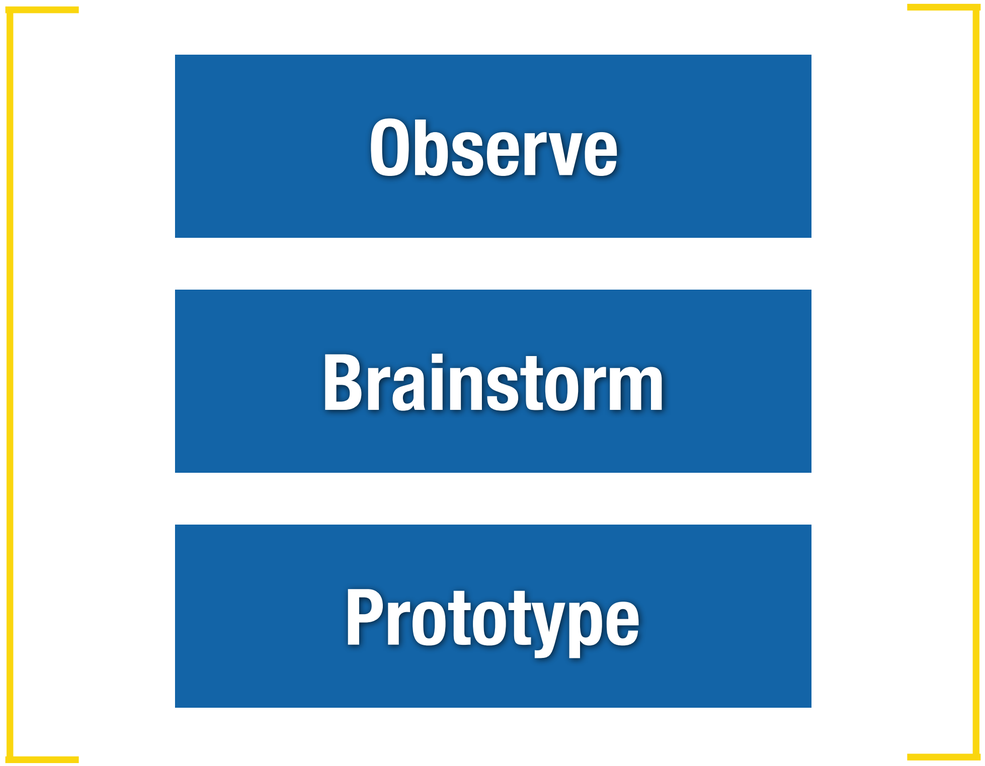


User Conversation Model 2006
Consumer Health Portal

Design…

Design… from Thinking to Conversation

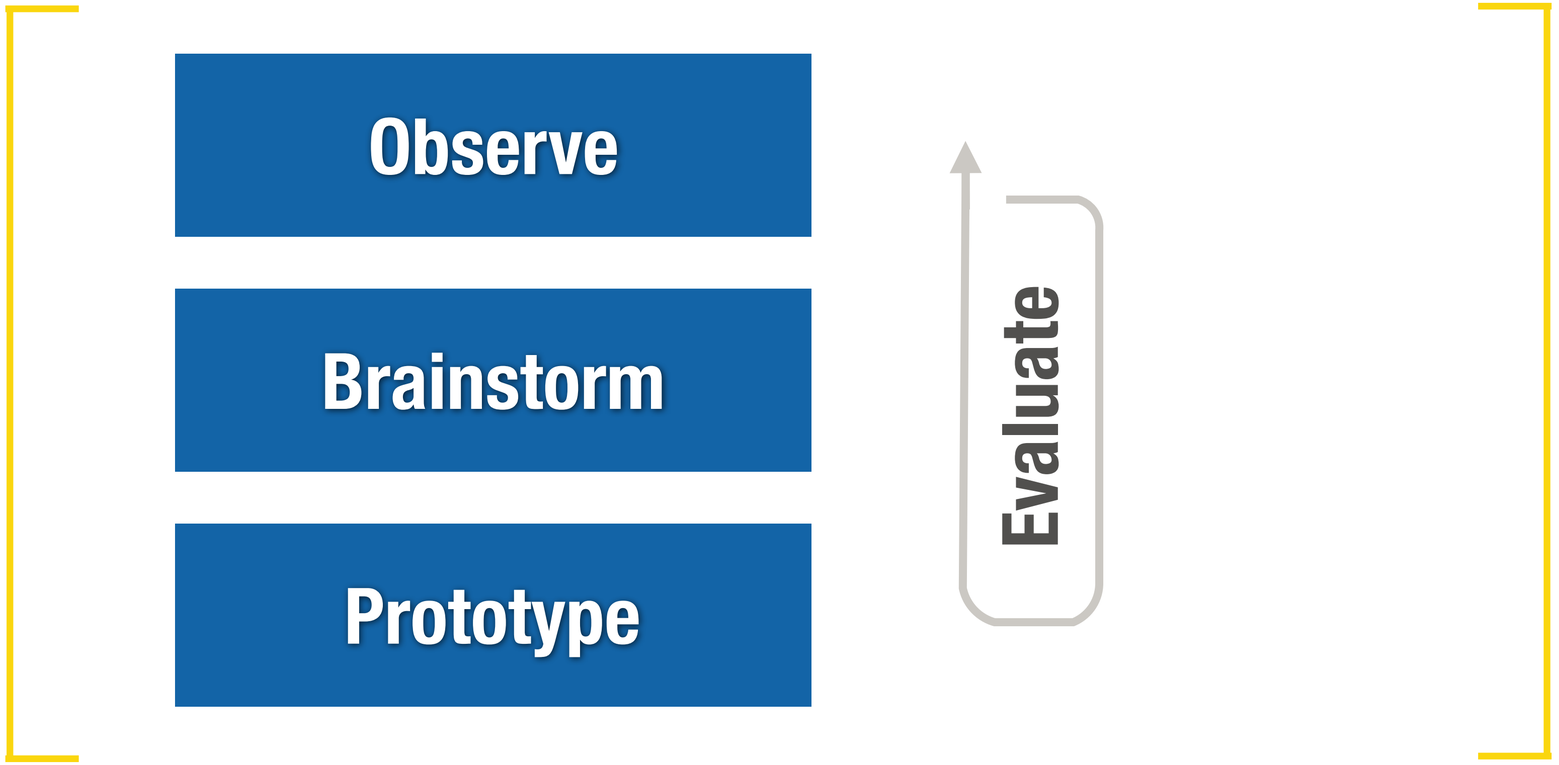
What is the process of Design Thinking?



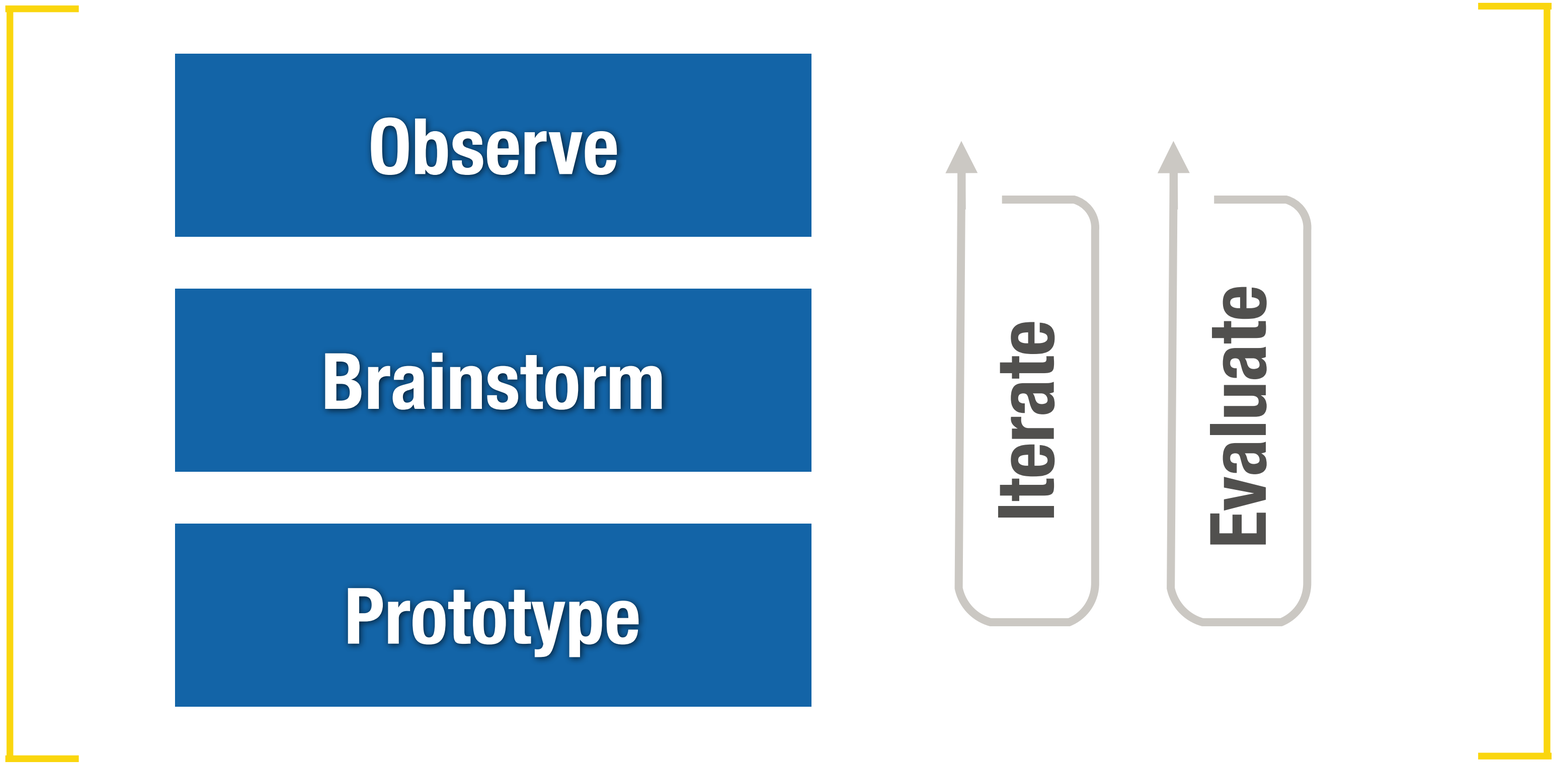
What Does that mean?

Ethnography	**Observe**
Open-ended idea generation	**Brainstorm**
Making and testing	**Prototype**

What Does that mean?



What Does that mean?

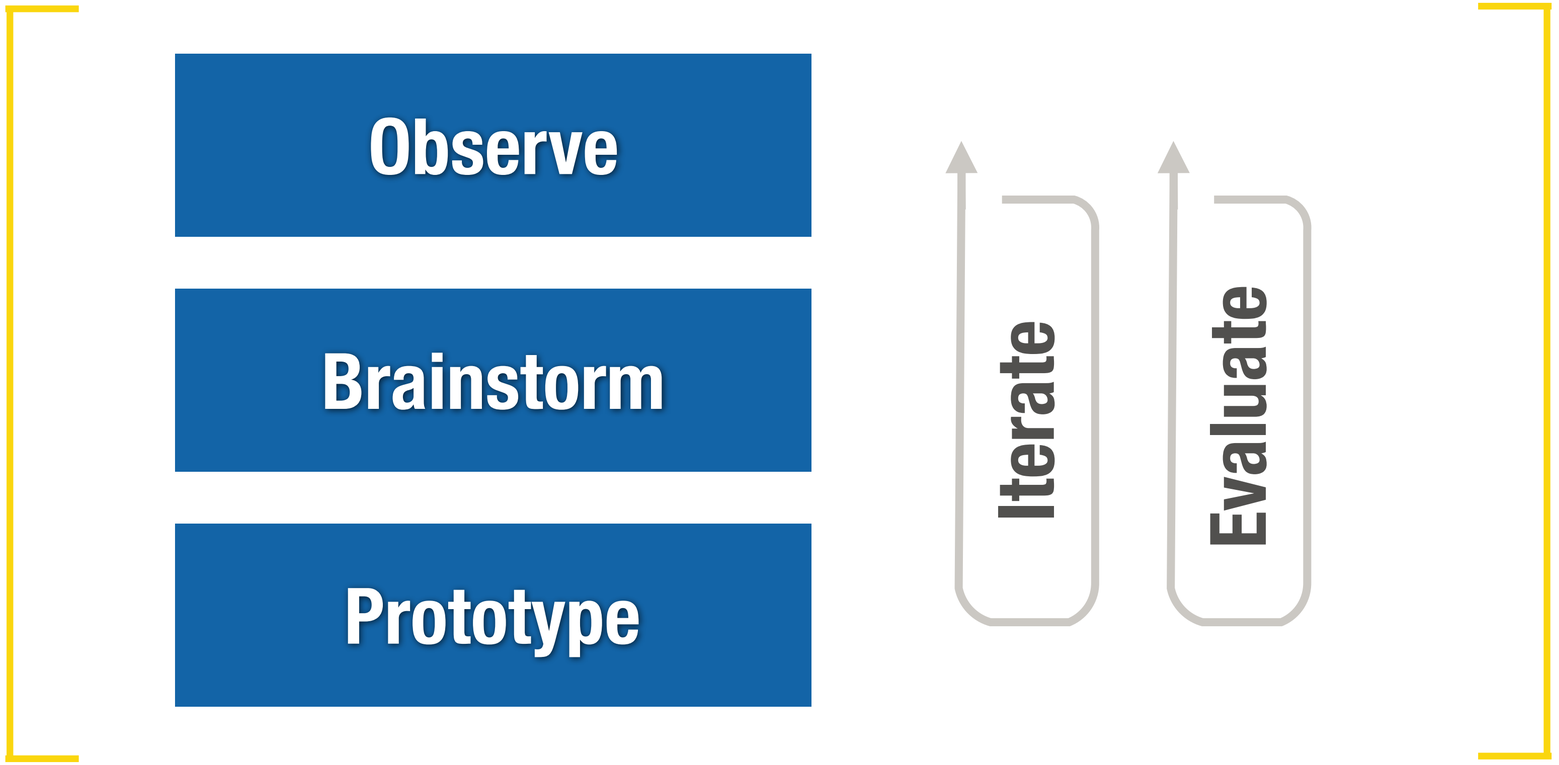


Limitations

Specific?

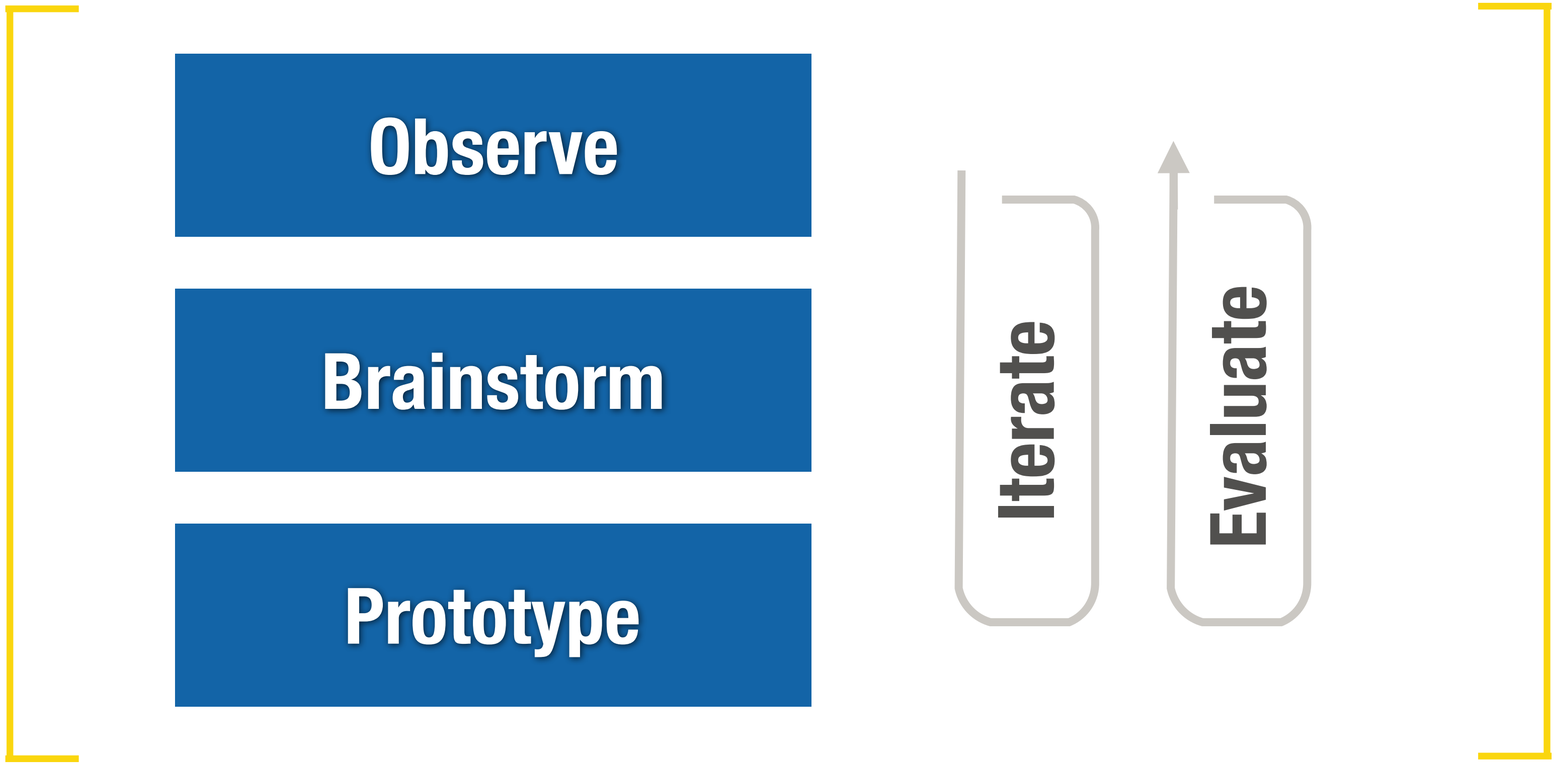
Rigorous?

Repeatable?



Evaluate…

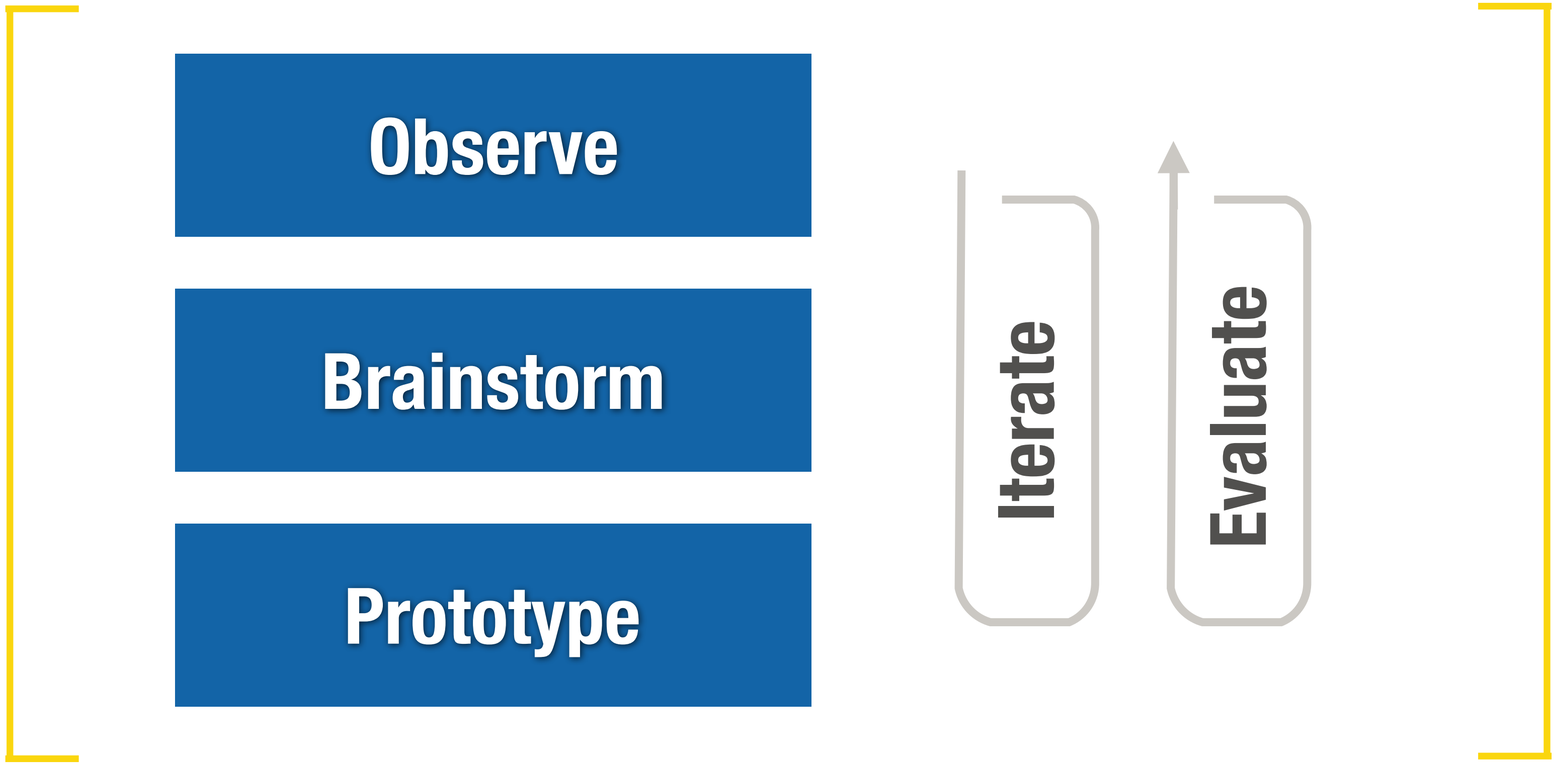
Measure
Improvements
for Users



Iterate & Evaluate

Measure
Improvements
for Users

Measure
Convergence
on design goals

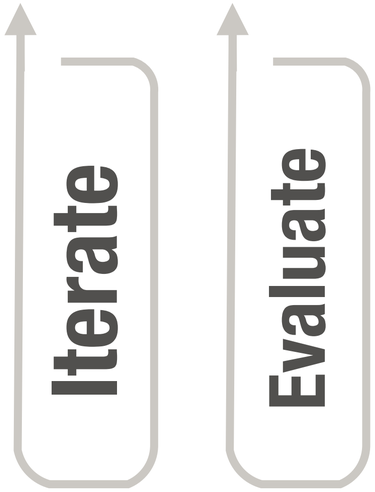


Iterate & Evaluate

Measure
Improvements
for Users

Measure
Convergence
on design goals

Conversation to Agree on Means



Conversation is the core

Measure
Improvements
for Users

Measure
Convergence
on design goals

Conversation is the core

Measure
Improvements
for Users

Measure
Convergence
on design goals

Conversation to Agree on Means

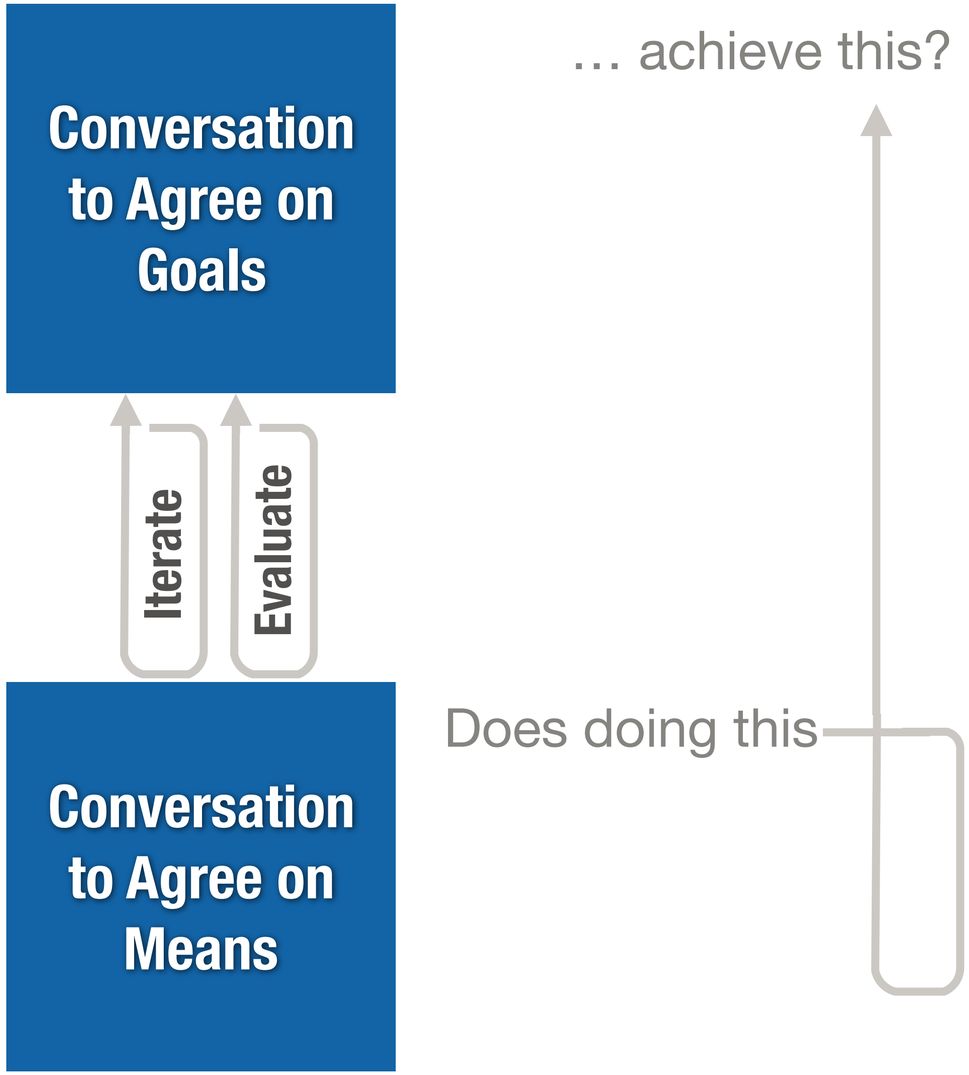
Rethinking Design Thinking

Rethinking Design Thinking

Design as Conversation

Conversation to Agree on Means

Design as Conversation

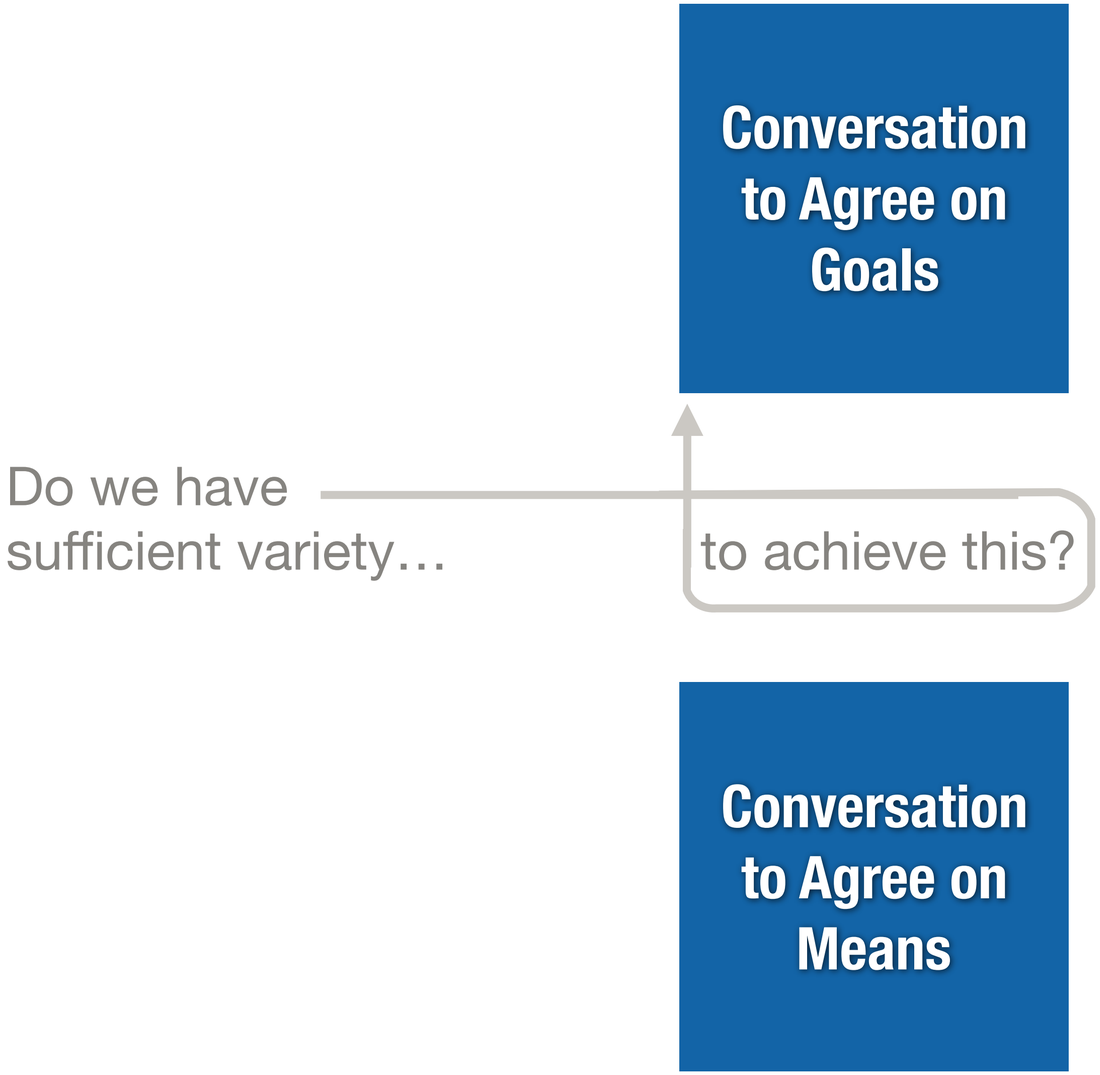


Design as Conversation

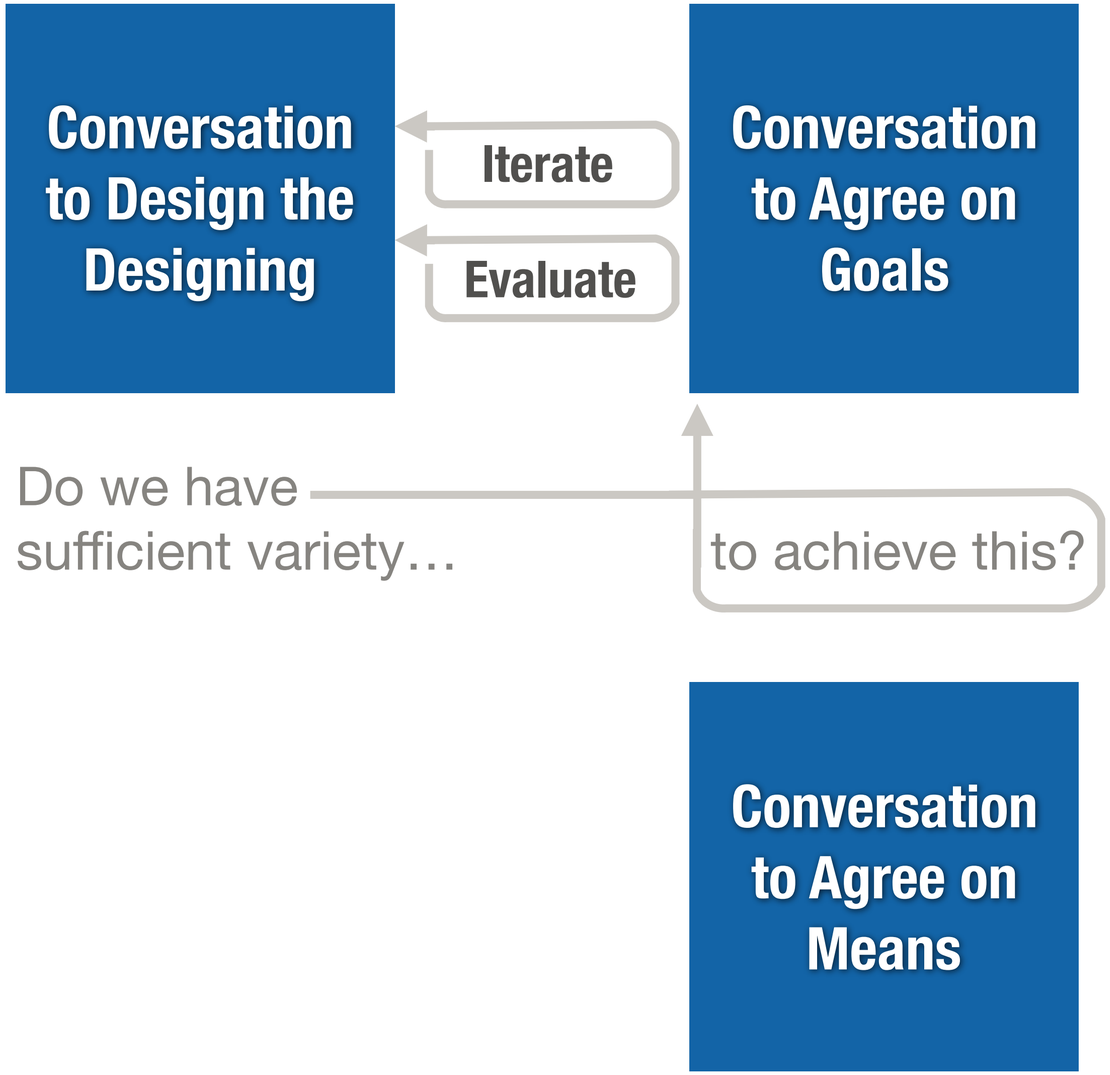
Conversation to Agree on Goals

Conversation to Agree on Means

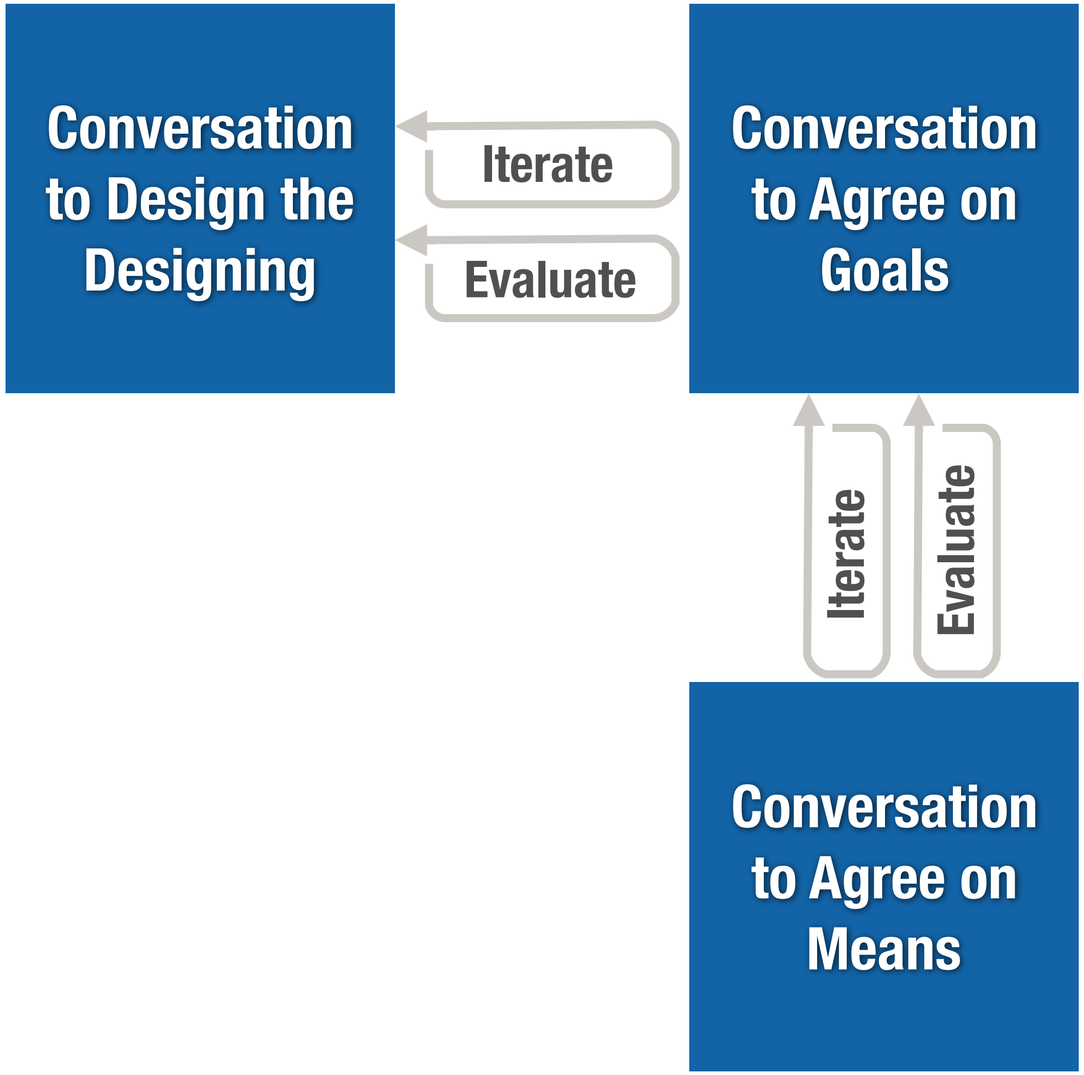
Design as Conversation



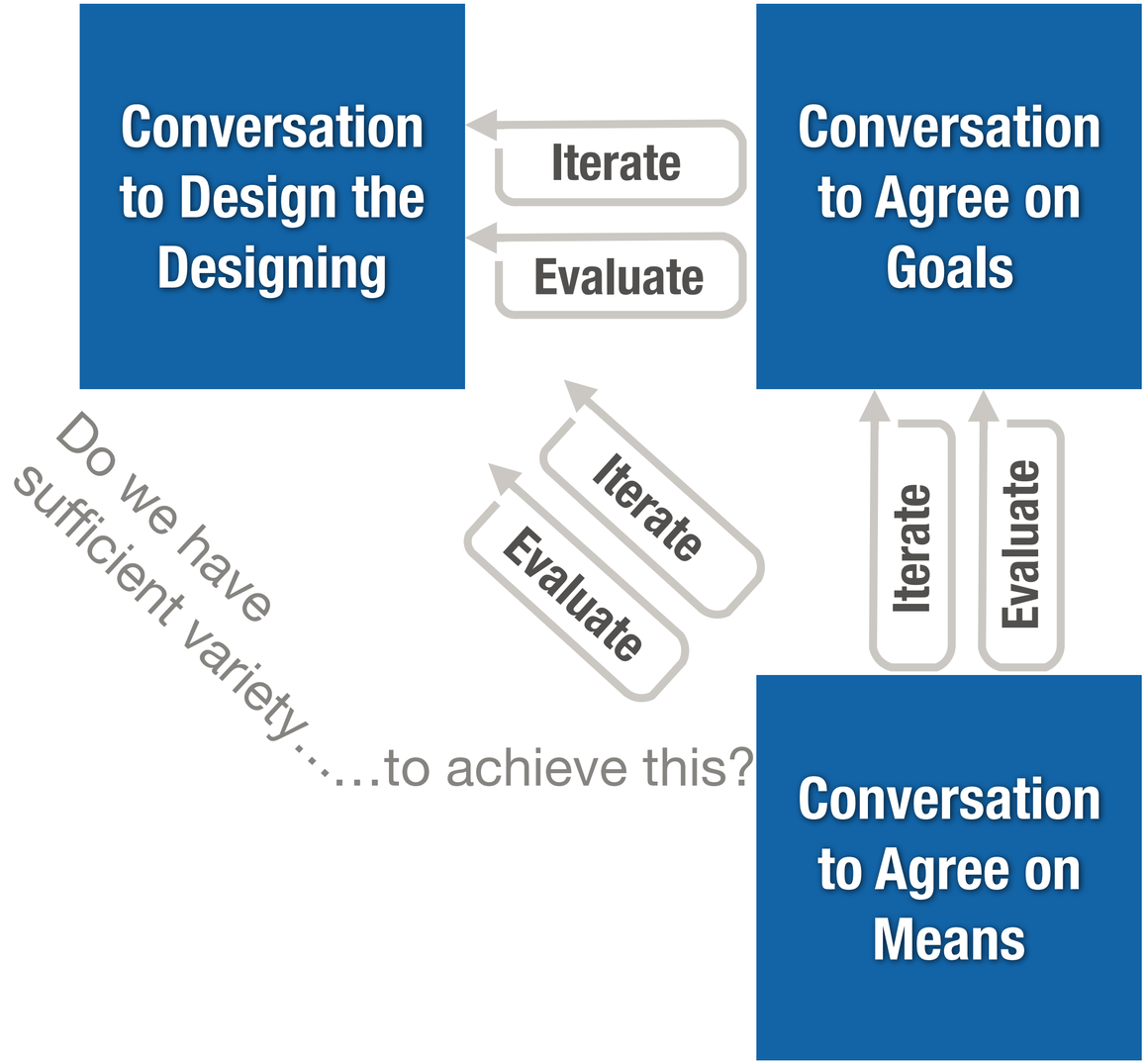
Design as Conversation



Design as Conversation



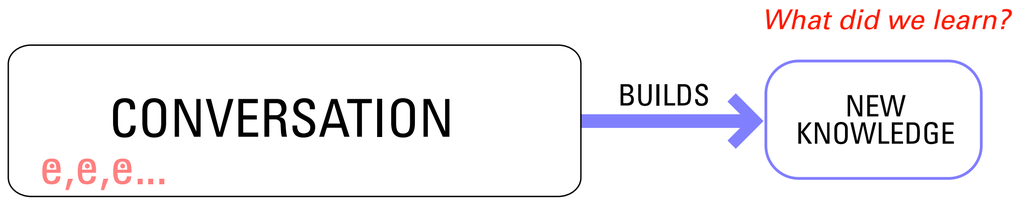
Design as Conversation



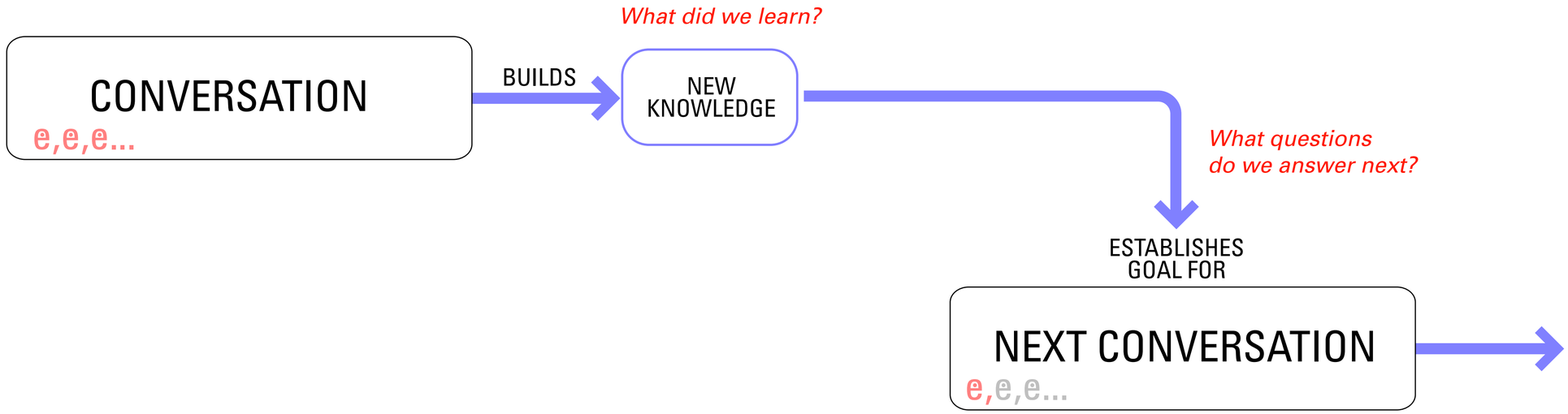
Designing Conversations…

Designing Conversations for Variety

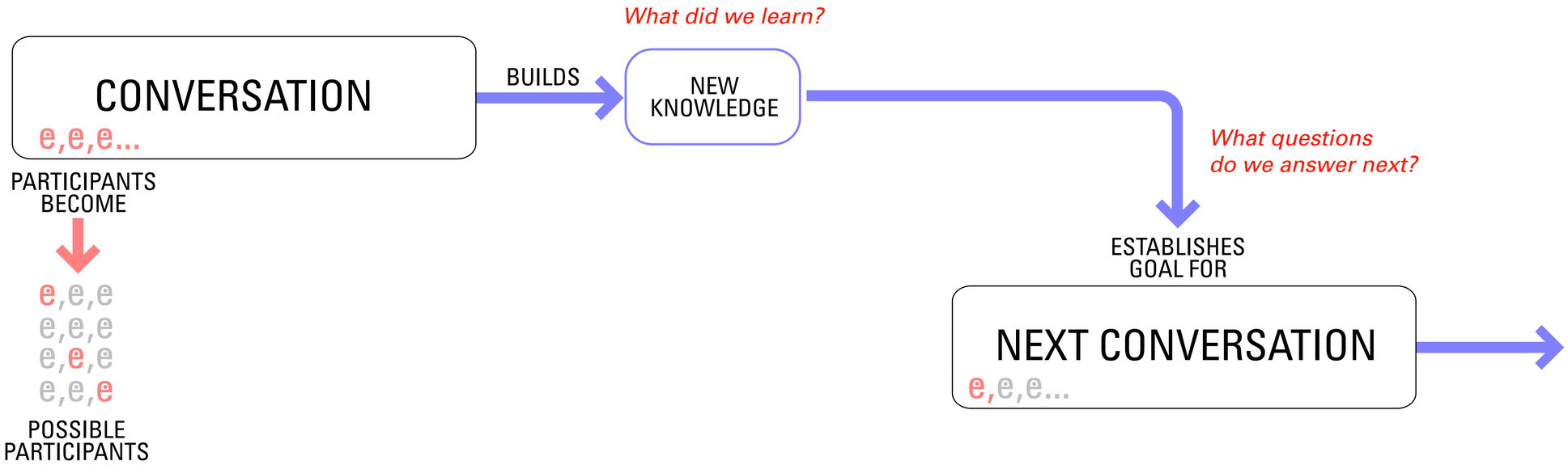
Each conversation builds new knowledge…



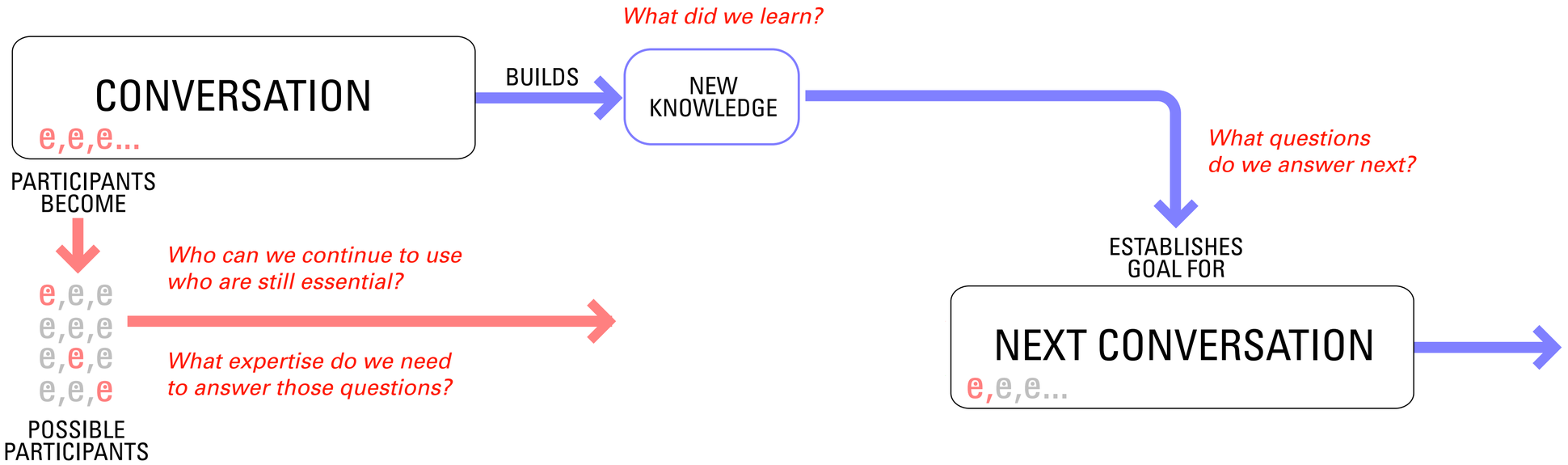
… and frames a goal for the next conversation.



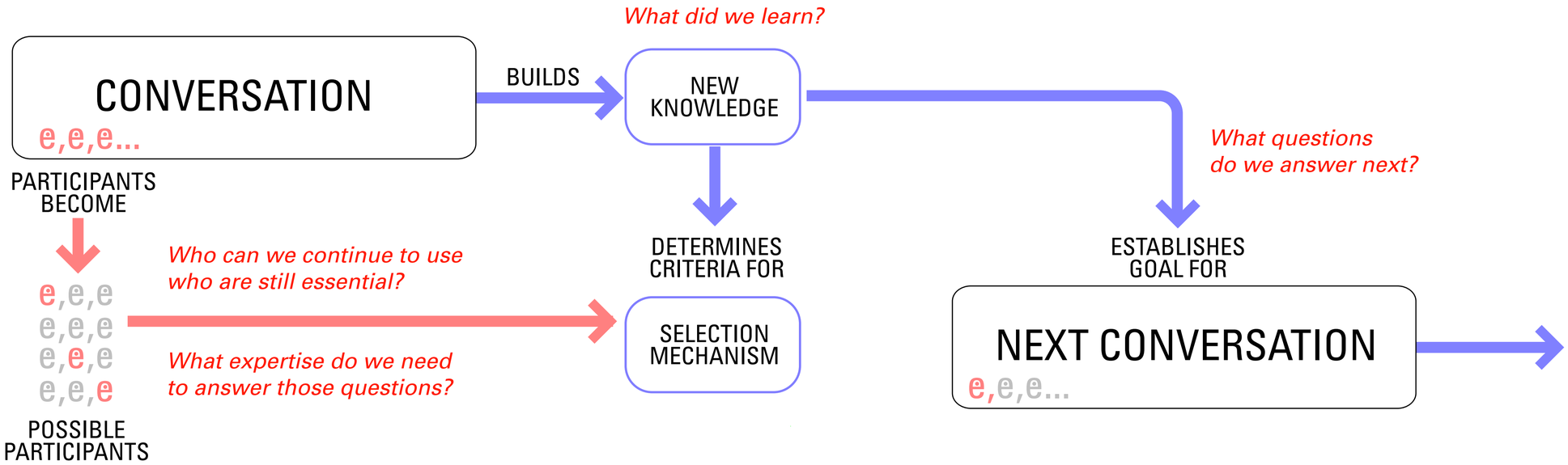
Participants in the current conversation…



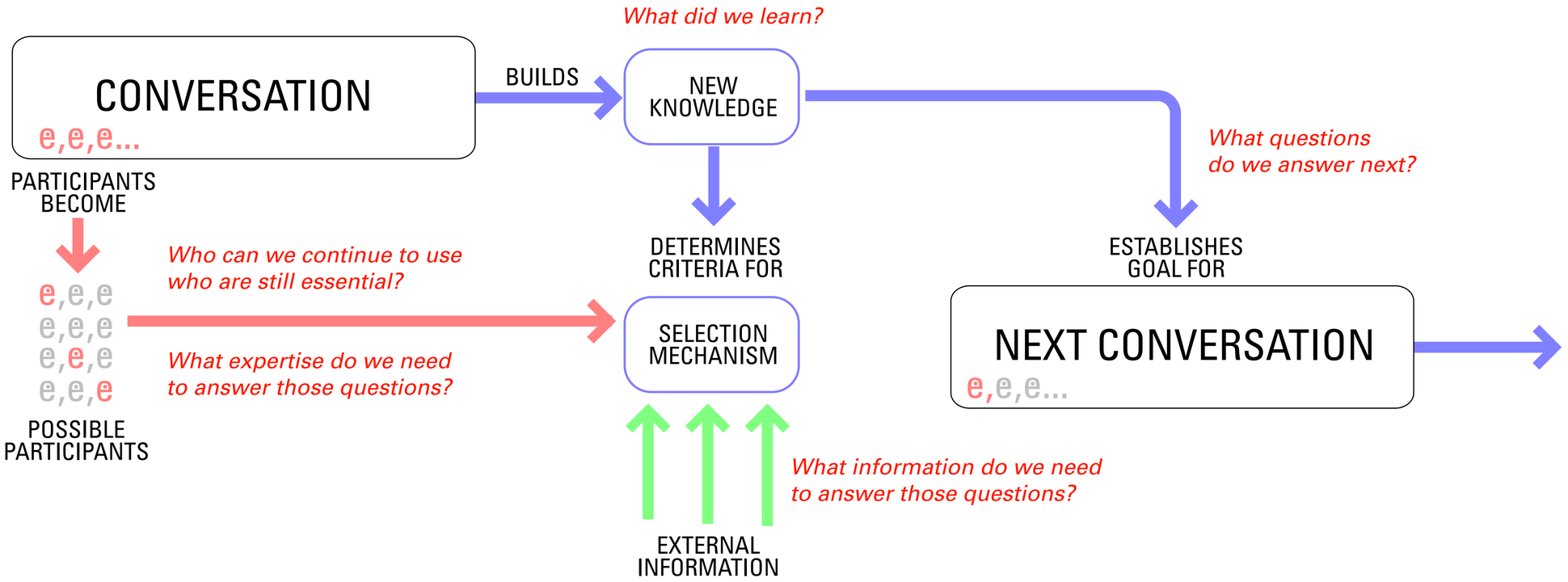
… may or may not suit the next one.



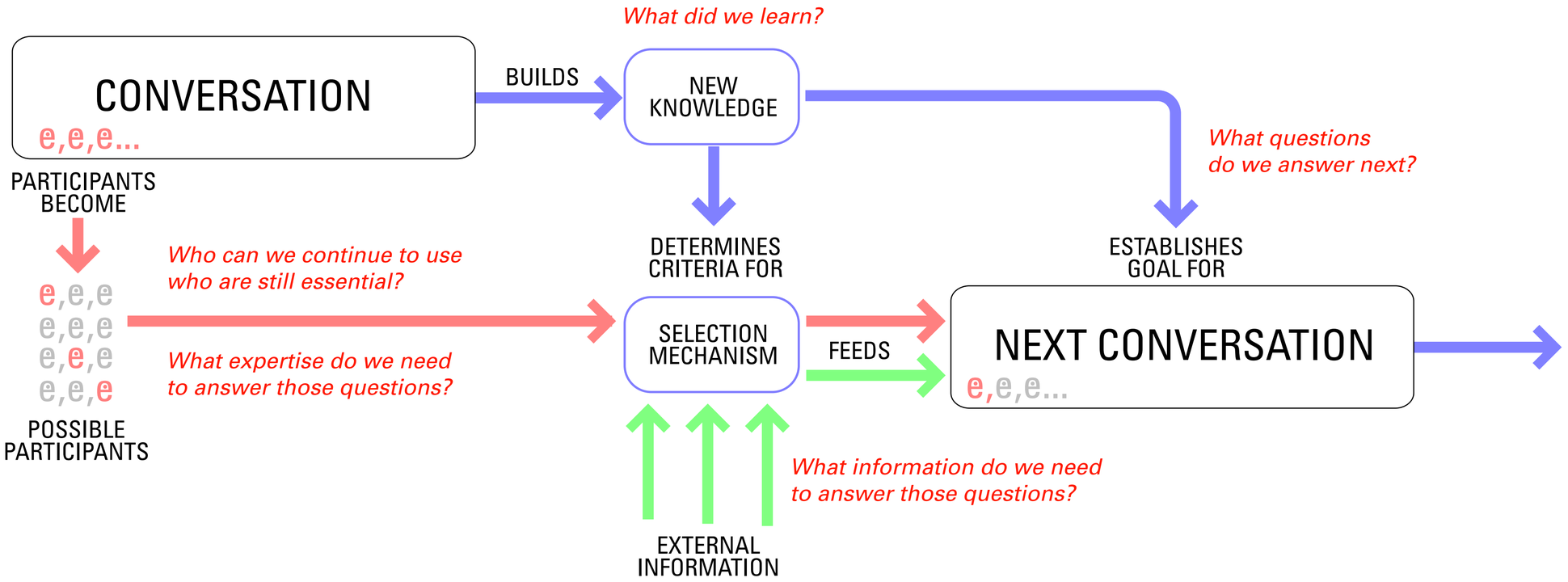
Participants may be identified and selected…



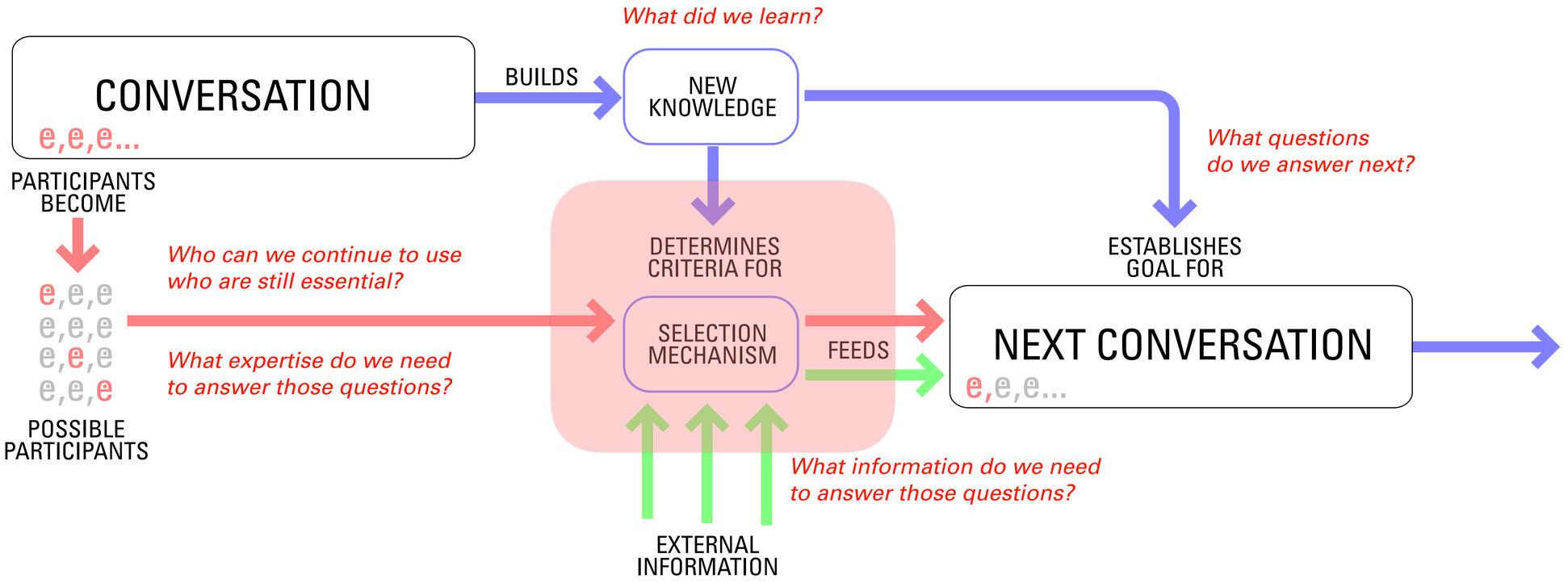
… along with new information…



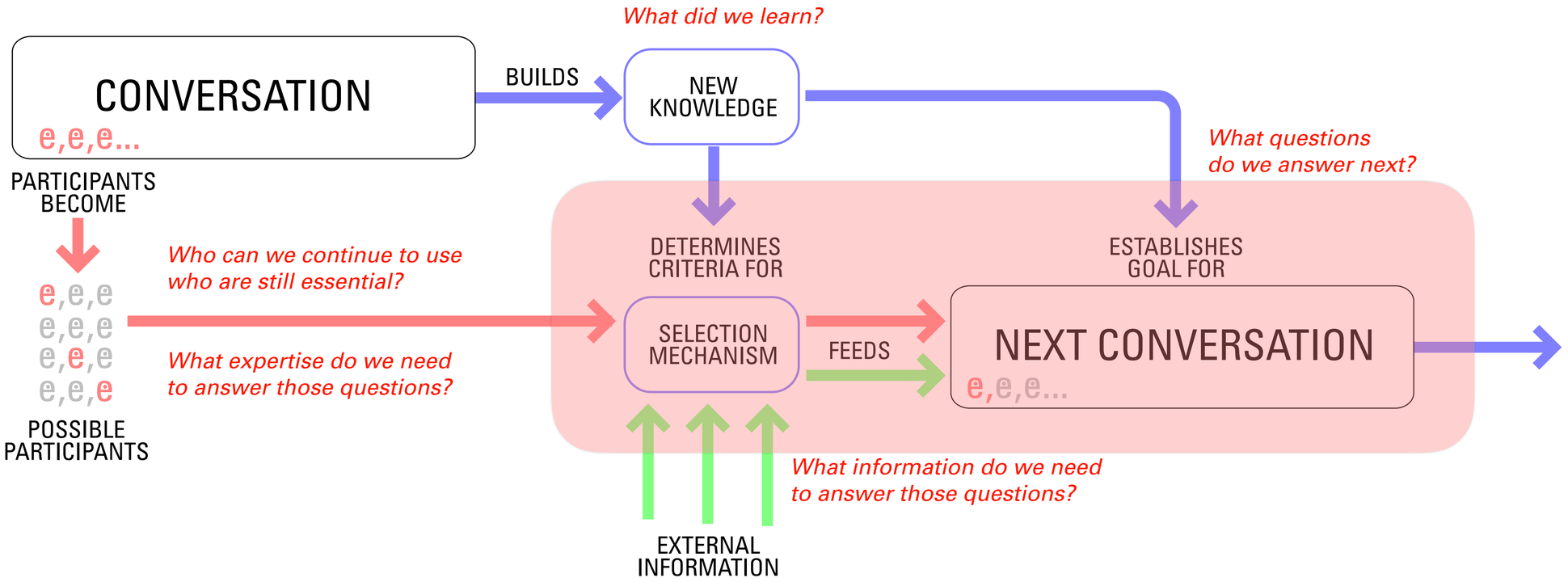
… to bring to the next conversation.



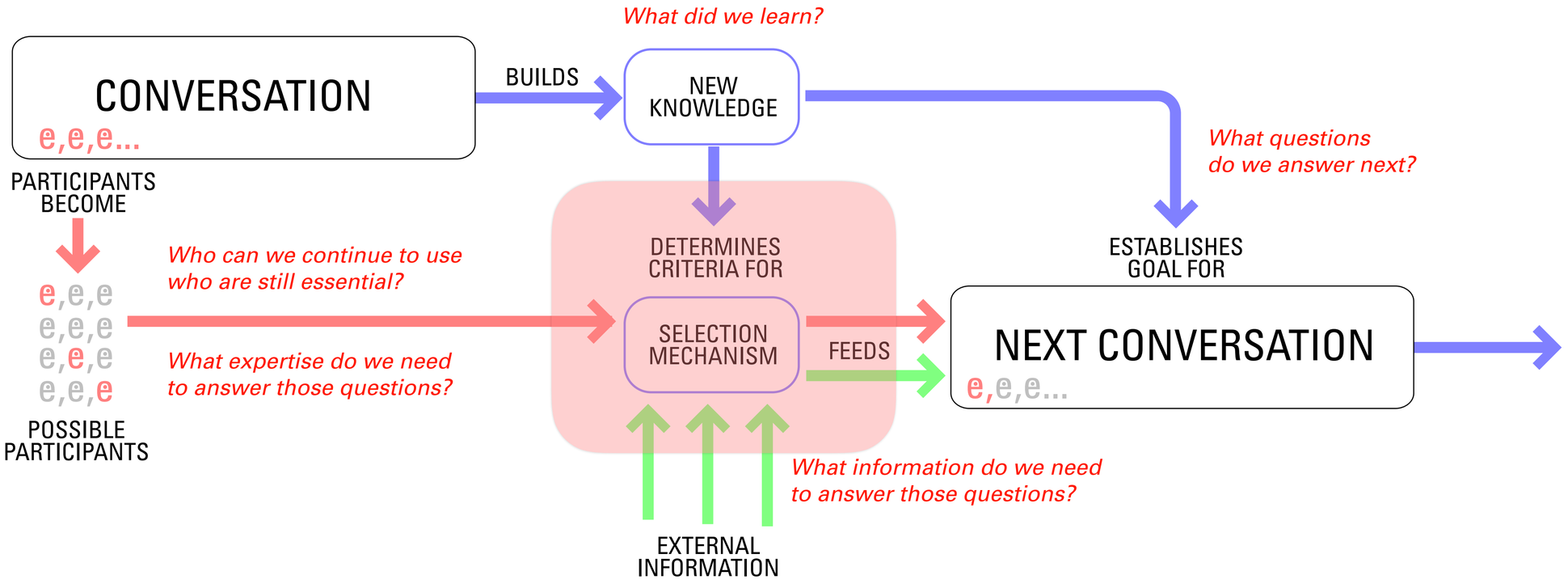
Designing conversations means…



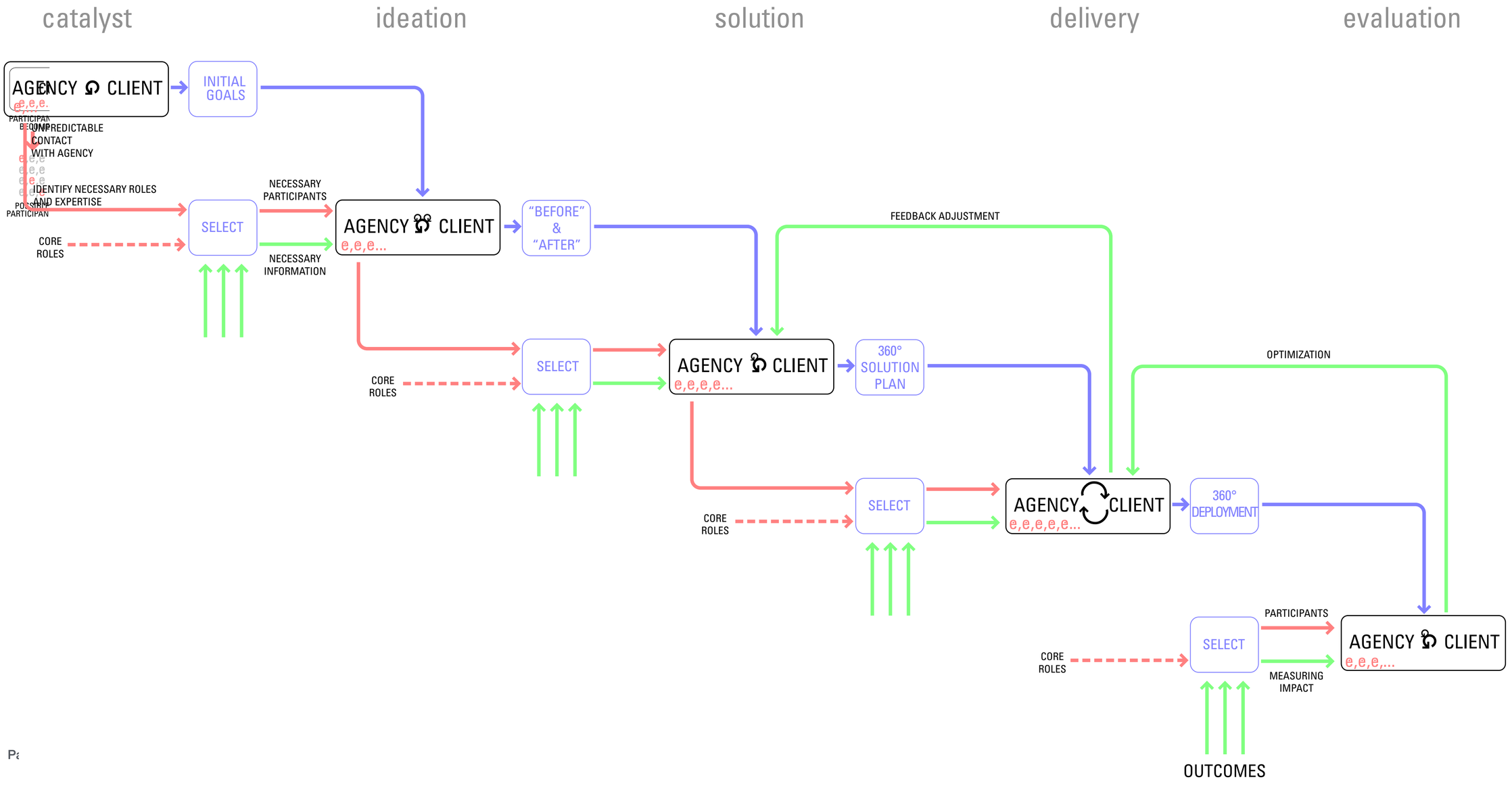
… selecting for requisite variety (with no guarantees).



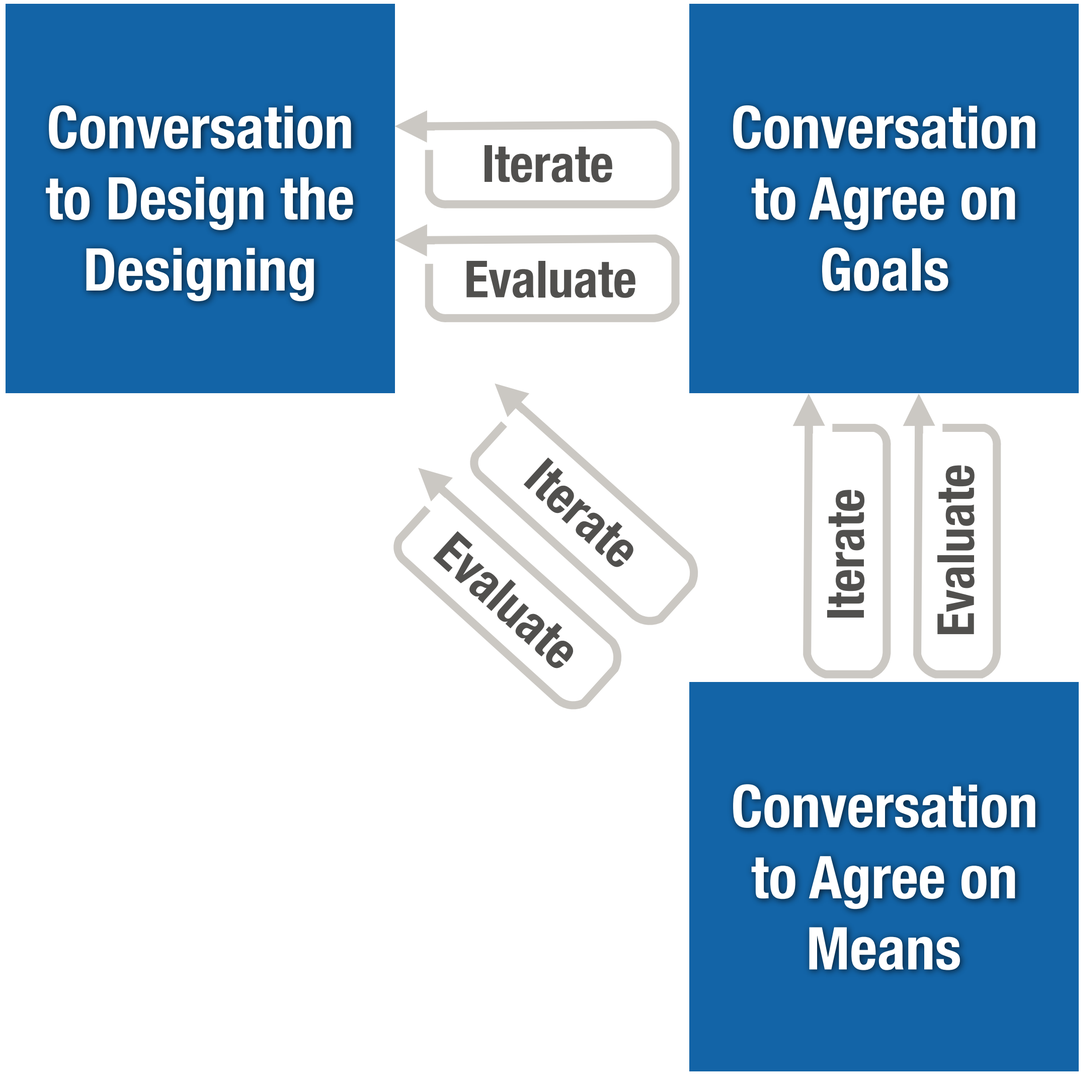
Focus on Designing Conversations for Variety



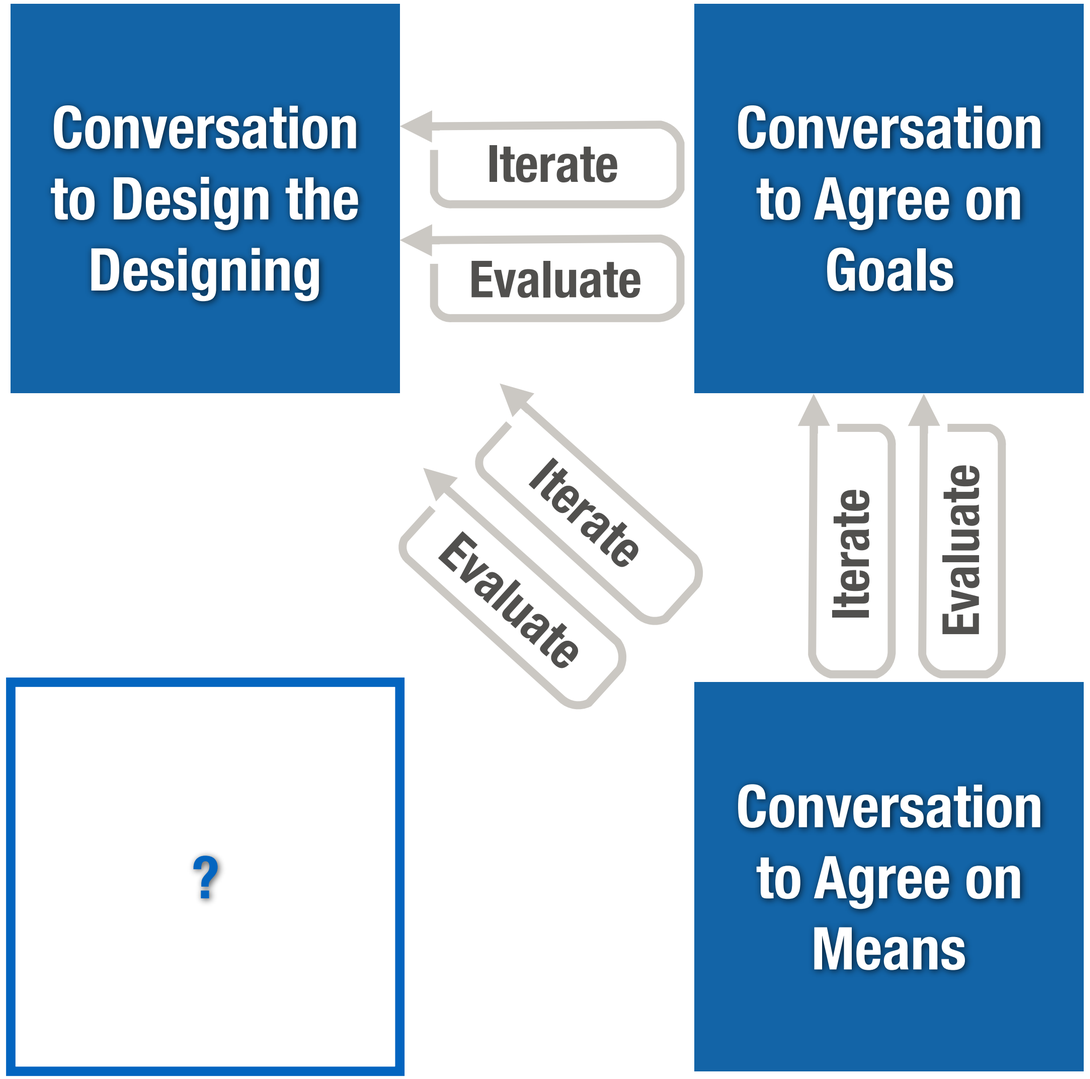
Designing the Cadence of Conversations



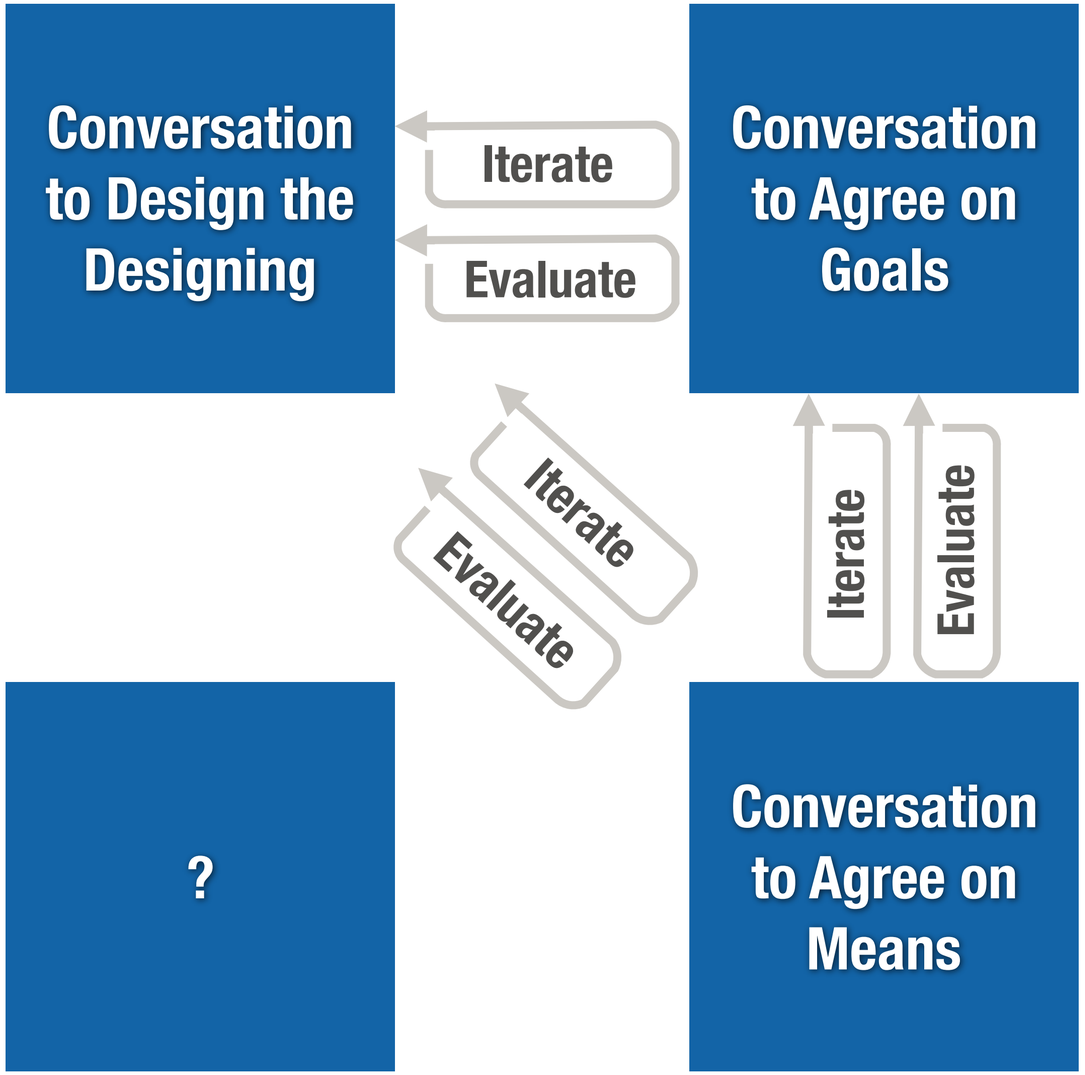
Design as Conversation



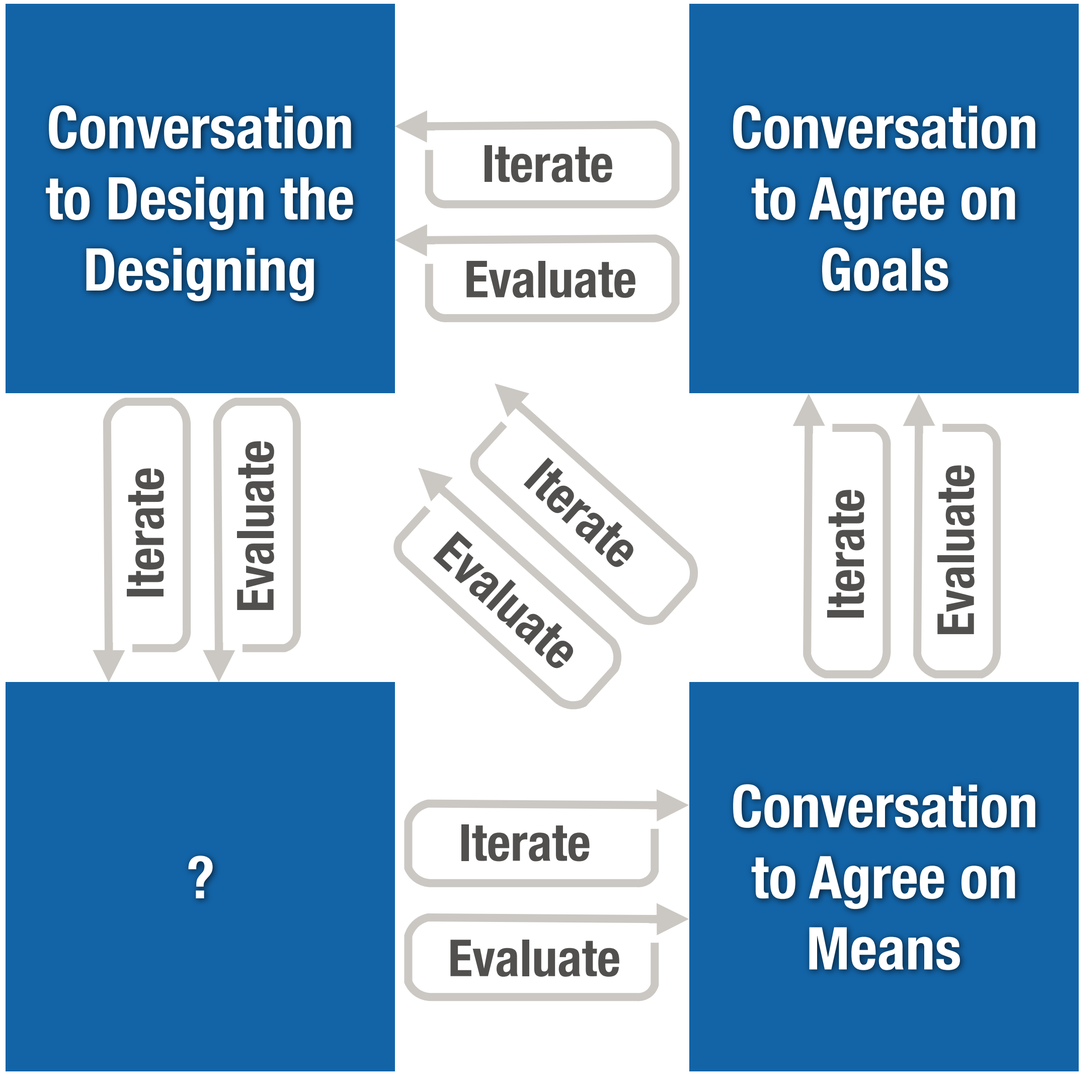
Design as Conversation

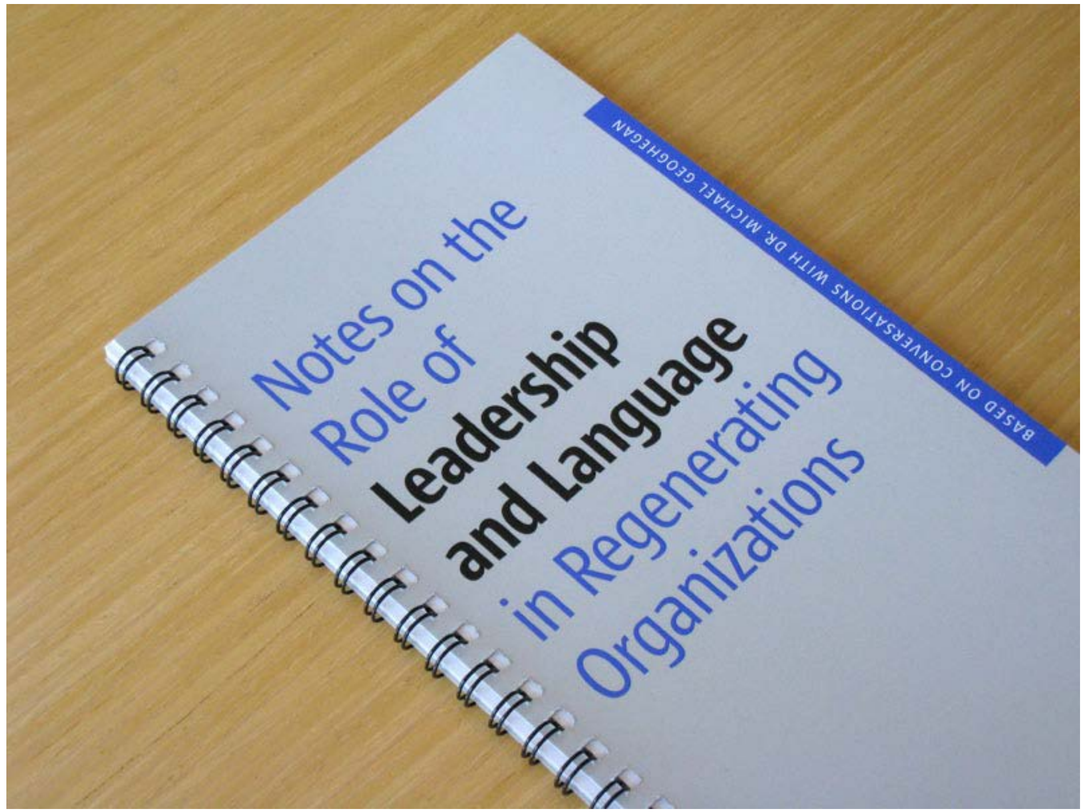


Design as Conversation



Design as Conversation





2002

http://pangaro.com/leadership-language-regenerating-organizations.html

An organization is its **language.**

Ultimately,
an organization consists of conversations:
who talks to whom, about what.

Each conversation
is recognized, selected, and amplified
(or ignored) by the system.
Decisions, actions, and a sense of valid purpose
grow out of these conversations.

Conversation leads to agreement.
Agreement leads to transaction.

Narrowing **language** increases efficiency.

Organizations create their own internal language to solve specific problems.

This language serves as a kind of shorthand:
Managers use it every day,
knowing they will be clearly understood.

Over time, this internal language
grows increasingly specialized—and narrow.

Narrowing **language** also increases ignorance.

The organization's internal language
is designed to help managers
facilitate present-day business—not look beyond it.

Using the internal language,
managers increase efficiencies,
but cannot recognize new fields of research,
new discoveries, new approaches.

Past **language** limits future vision.

Managers understand the organization's past behavior.
But this knowledge,
and the language that accompanies it,
limit their vision
of the organization's potential future state.

Using the language of the past,
managers may try to provide a vision for the future.
But it is an old future—
a memory of what the future could be.

Managers may strive for fundamental change,
but their language prevents them from achieving it.

Expanding **language** increases opportunity.

The conversations necessary for generating new opportunities come from outside the system.

For an organization to survive, it must be able to acquire new, relevant language domains.

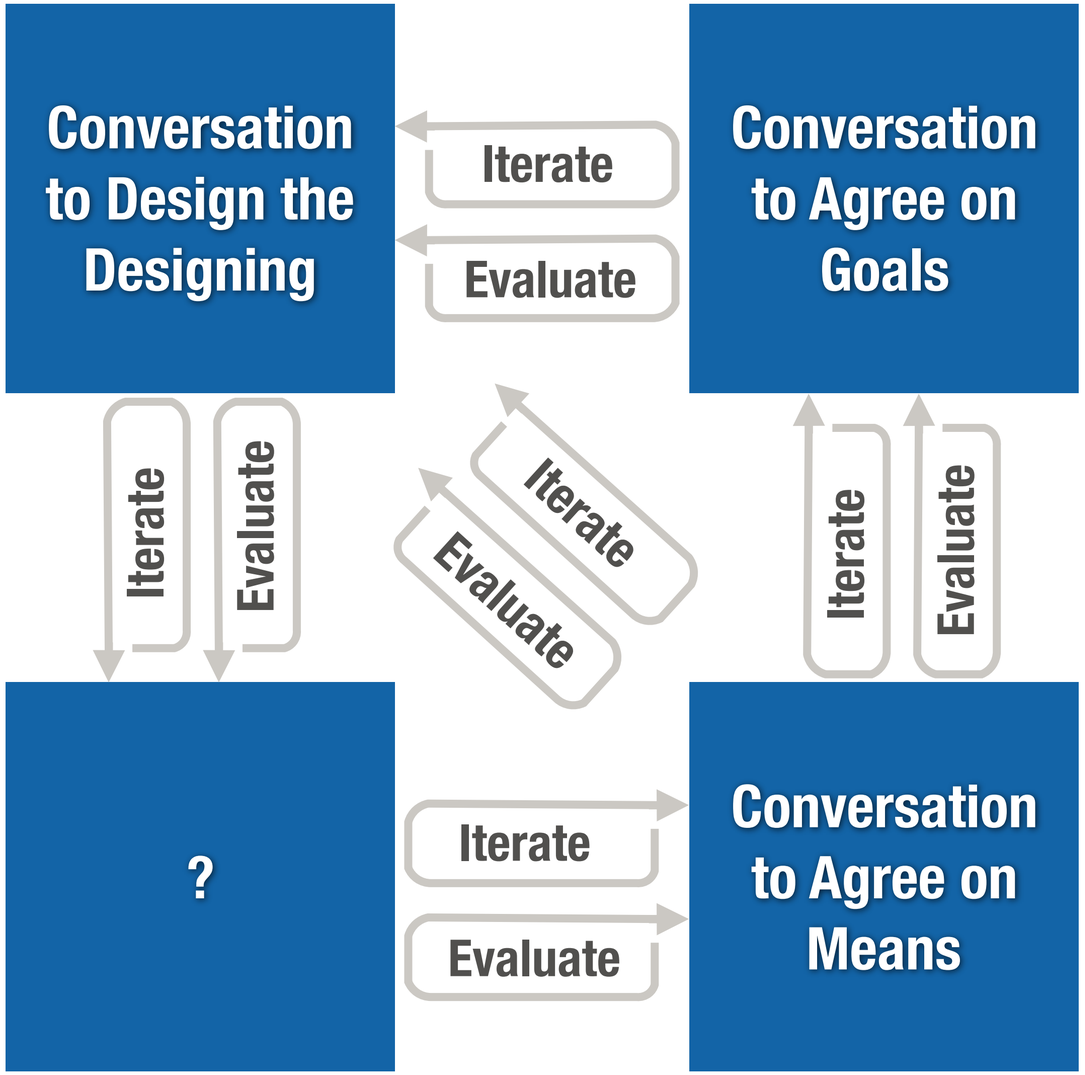
To regenerate, an organization creates a new **language.**

To support an organization's future viability, effective decision makers actively introduce change into the system.

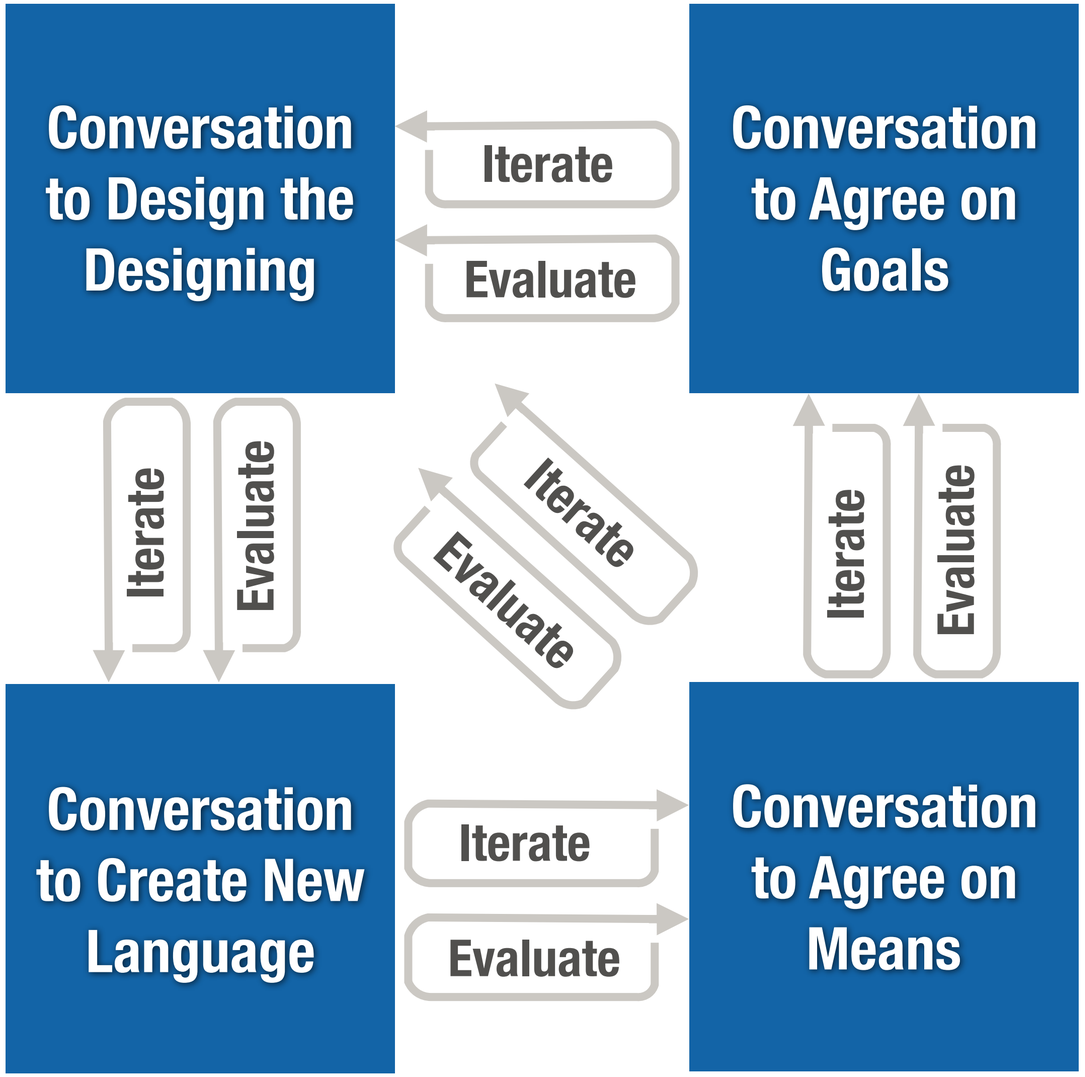
They do so by generating new language that appropriate groups in the organization come to understand and embrace.

This new language does not overtly challenge the pre-existing, efficient system, but rather creates new distinctions and supportive relationships.

Design as Conversation



Design as Conversation



Design = Conversations for Action

If we converse explicitly about goals, we are transparent about frames and values.
(This is ethical.)

**If we converse about the means to achieve those goals,
we more fully engage participants and their abilities, improving outcomes.**
(This is collaborative.)

**If we converse to co-evolve new language, we can escape the limitations
of current viewpoints, and create new frames and new possibilities.**
(This is innovative.)

**If we converse about the design process, we enter all our conversations
as participants, answerable for our actions.**
(This is responsible.)

Design = Conversations for Action

If we converse explicitly about goals, we are transparent about frames and values.
(To agree on goals is ethical.)

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(To design the designing is responsible.)

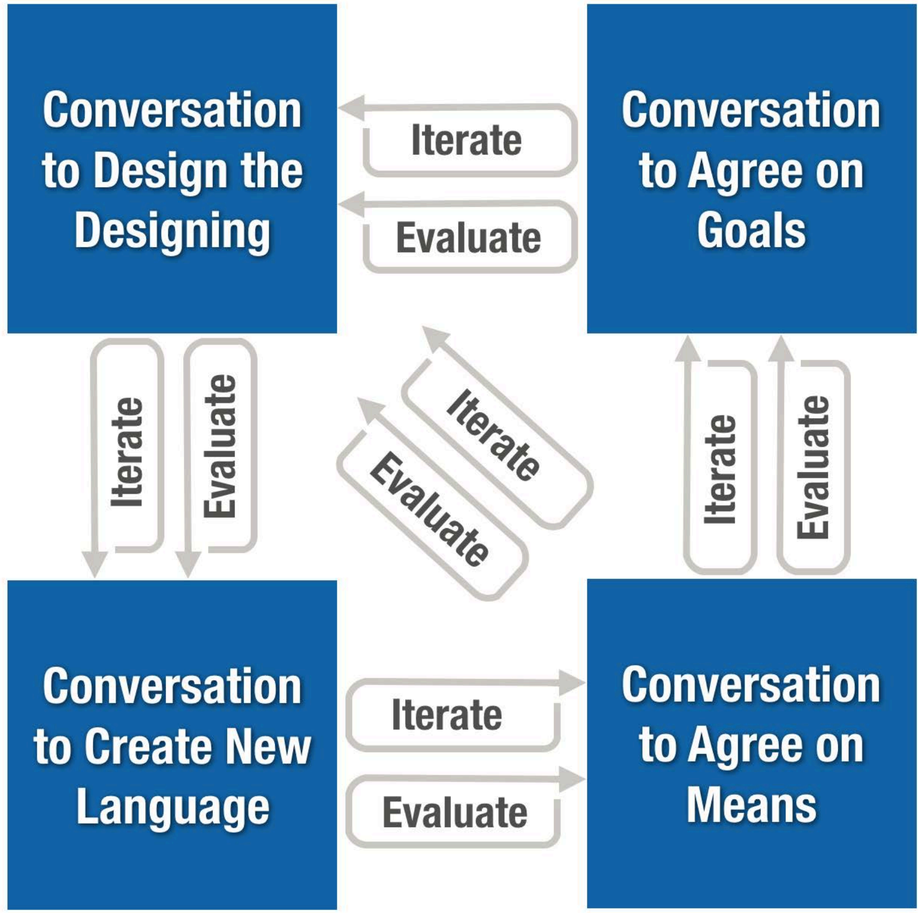
Design = Conversations for Action

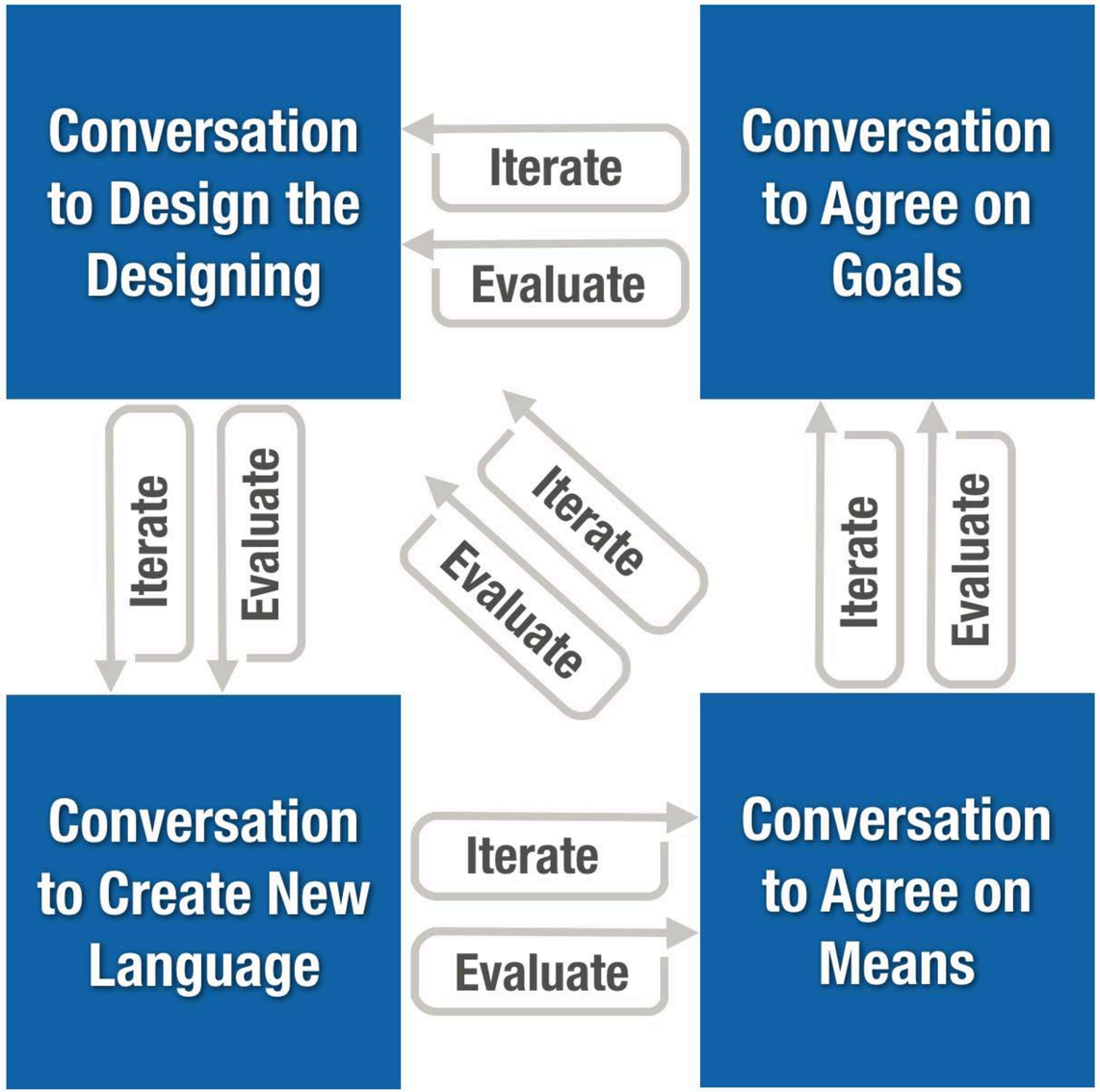
(To agree on goals is ethical.)

(To agree on means is collaborative.)

(To create new language is innovative.)

(To design the designing is responsible.)

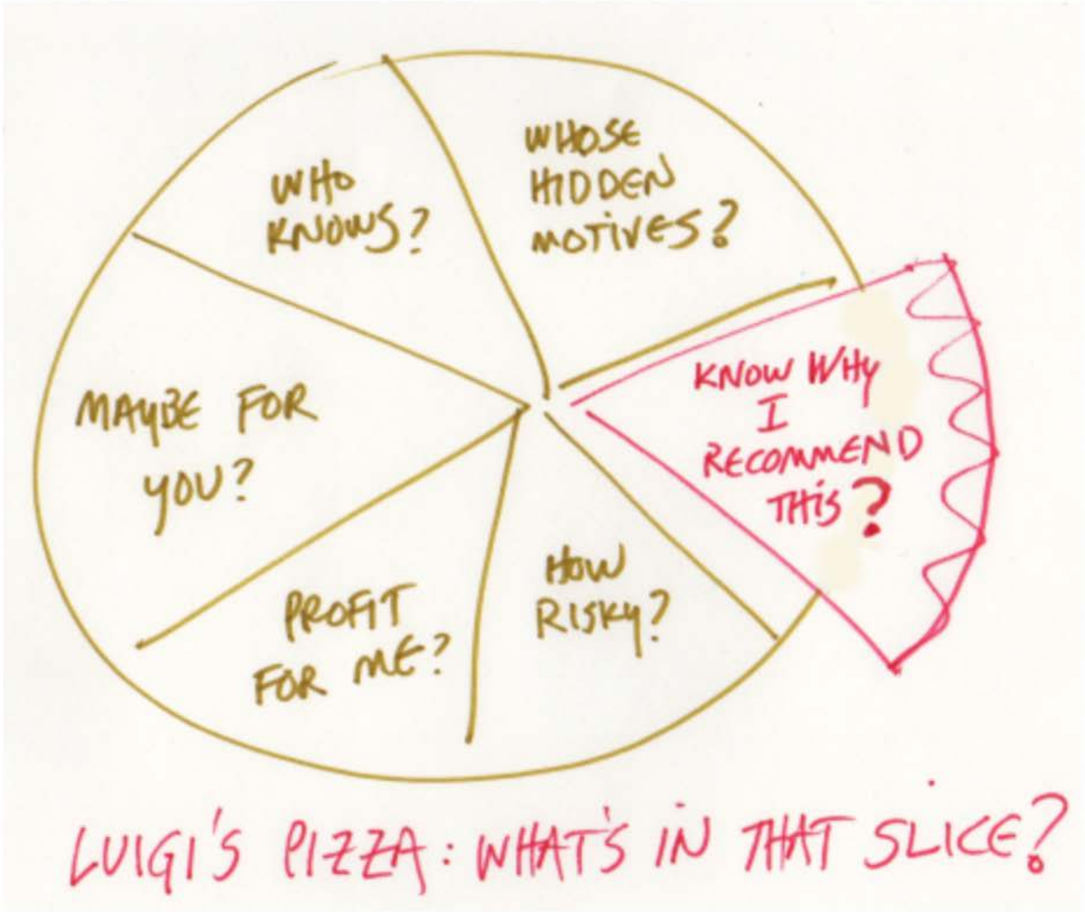



Conversation to Design the Designing
Iterate
Evaluate
Conversation to Agree on Goals
Iterate
Evaluate
Iterate
Evaluate
Iterate
Evaluate
Conversation to Create New Language
Iterate
Evaluate
Conversation to Agree on Means

Design
of
Conversations for Action

Luigi's Pizza: A Parable

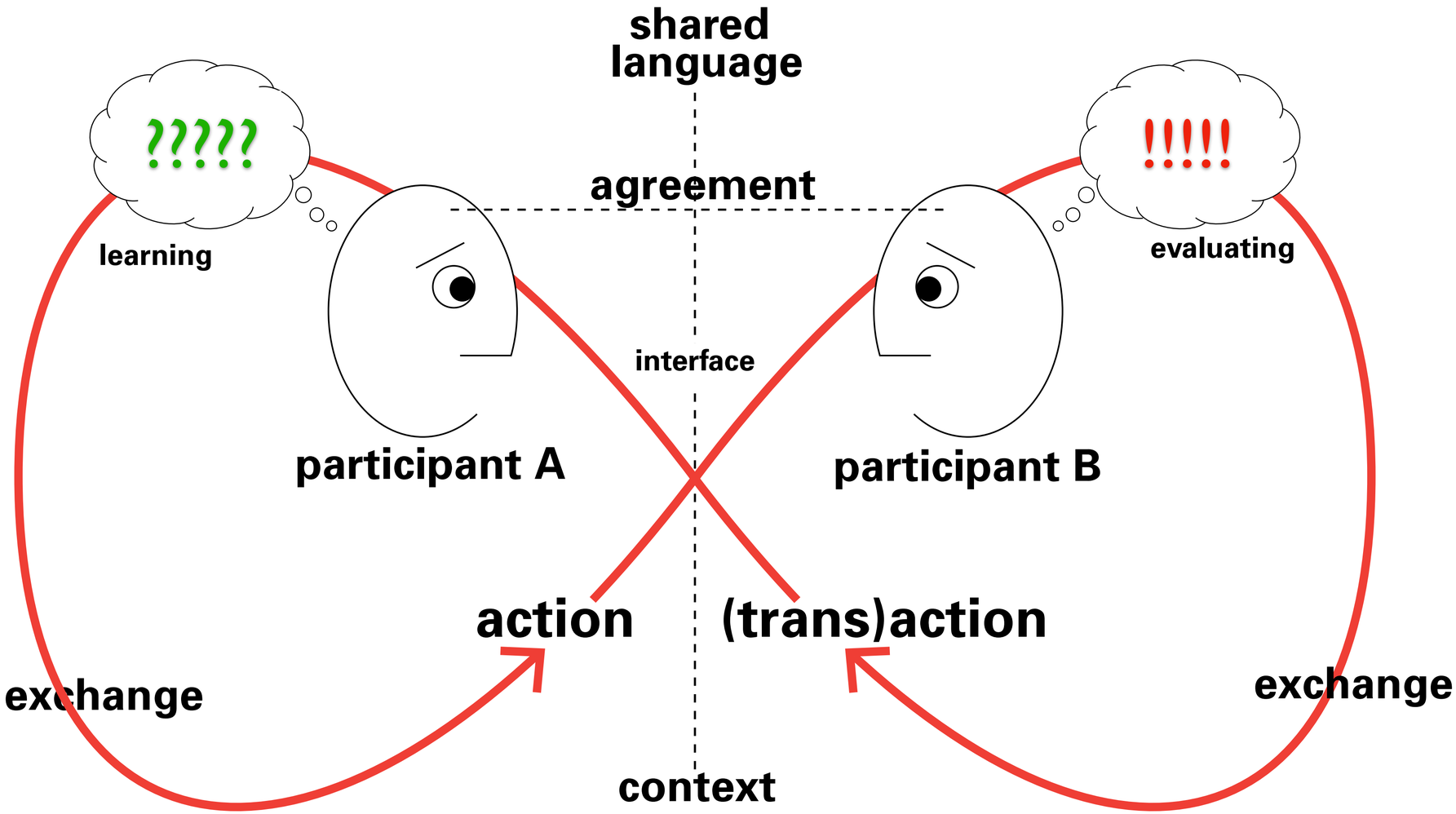
November 8, 2016



Say you want to eat somewhere and you ask for my recommendation. I say, "Sure, I've got the best place for you: Luigi's Pizza, on the corner of First & Commerce."

Axiom #1

Conversation is the minimal ethical interface where conversation means reliable transparency of action & intent—what & why across the interface.


shared
language
agreement
interface
context
?????
learning
!!!!!
evaluating
participant A
participant B
action
(trans)action
exchange
exchange

Why does conversation matter?

- ***to act together, we must reach agreement***
- ***to reach agreement, we must have an exchange***
- ***to hold an exchange, we must have shared language.***

To cooperate and collaborate requires conversation

What may follow from conversation?

- ***shared history***
- ***relationship***
- ***trust***
- ***unity***

What does conversation enable?

- ***community***
- ***commerce***
- ***culture***
- ***government***
- ***society***

Axiom #2

Conversation is the minimal humane interface growing the understanding & informing the action of one or more willing & active participants such that trust and collaboration may arise.

What's a "good conversation"?

- ***stays sensitive to context***
- ***avoids repetition while offering something novel***
- ***maintains continuity***
- ***raises great questions***
- ***helps you be what you want to be… or to become.***

Why can't AI + Conversation Interfaces do these things?

Second-order Design = Design for Conversation

**The goal of second-order design is
to facilitate the emergence of conditions
in which others can design—
to create conditions in which
conversations can emerge—
and thus to increase the number of choices open to all.**

— Dubberly & Pangaro, Cybernetics and Design: Conversations for Action, 2017

Thank you.

See pangaro.com/samsung2018/ for slides and references.

Special Thanks to:

Stefan Heuser
John Martin
Pooja Upadhyay

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Appendices

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Applying C-L-E-A-T

Questions for Designing for Conversation

- What channel is being opened to begin the conversation?
  Is the interruption reasonable in how and when it intrudes?
  What is the bio-cost of the intrusion relative to its benefit?
  Are there better ways to interrupt?

- Is the first message clear?
  Does it offer something to the recipient?

- Does the exchange convey the potential benefits in continuing?
  Is there learning or delight? Is curiosity or interest stimulated?

- Is meaning easily understood—
  do the messages speak in the language of the participants?
  Are messages sensitive to others' context, needs, interests, values?
  How can messages be made more efficient or clear?

From "What is Conversation?"
Dubberly & Pangaro 2009

http://www.dubberly.com/articles/what-is-conversation.html

Why can't AI + Conversation Interfaces do all this?

Applying C-L-E-A-T

Questions for Designing “Conversation Interfaces”

- What does the Conversation Interface (CUI) know about the user’s context—
  what more can it know, automatically or by input from the user?
- How can a user convey intention *to* the software—
  can the CUI be open to the user’s goals, values, preferences?
- Does the CUI evolve during the engagement—
  in addition to understanding the user, can it build new knowledge?
- When should the CUI be confident it understands the user—
  and when should it double-check?
- Can the CUI’s capabilities build a relationship of trust—
  what does that take?

From “What is Conversation?”
Dubberly & Pangaro 2009

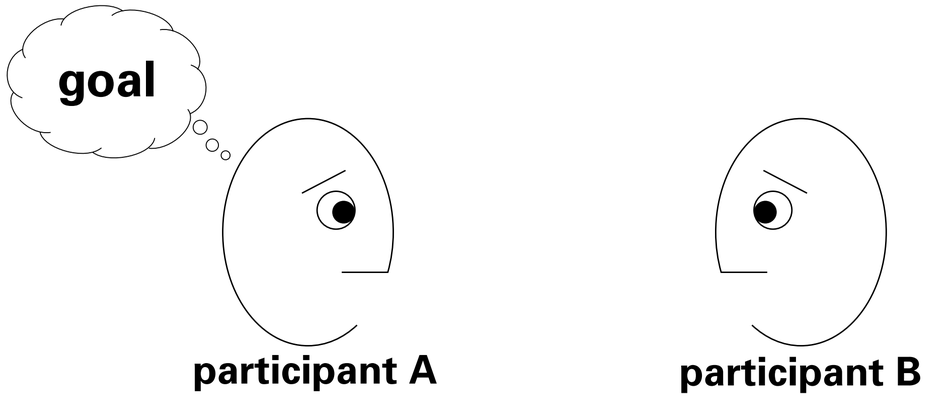
http://www.dubberly.com/articles/what-is-conversation.html

When will Conversation Interfaces do all this?

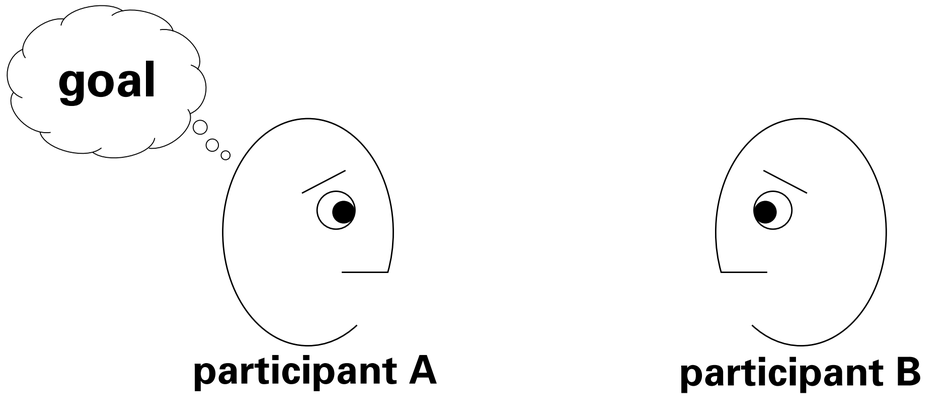
Alexa, can you please acquire the skill of conversation

Alexa, what is “conversation”?

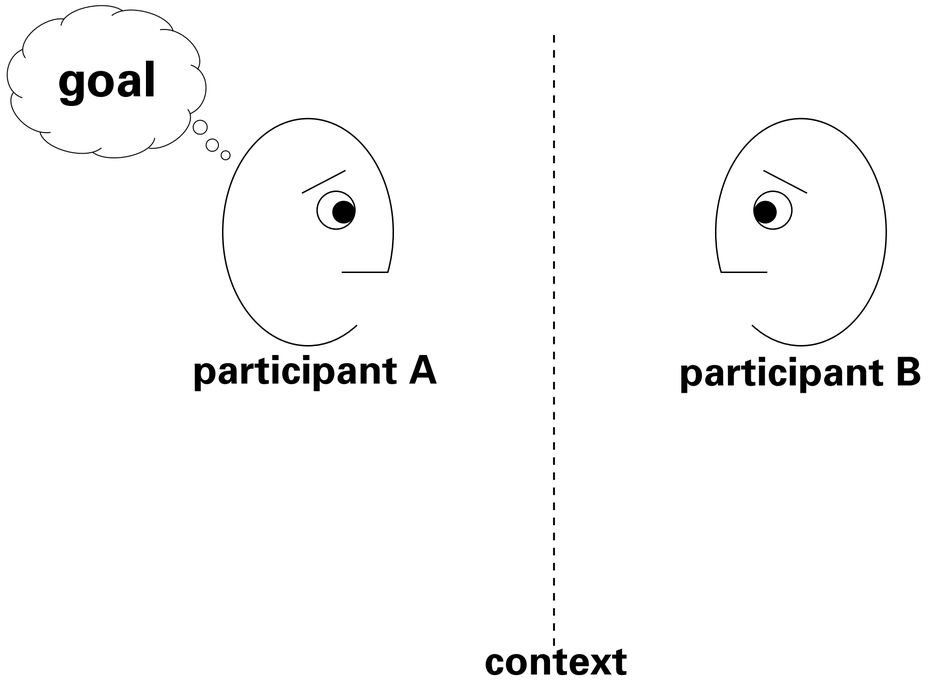
Conversational Frame



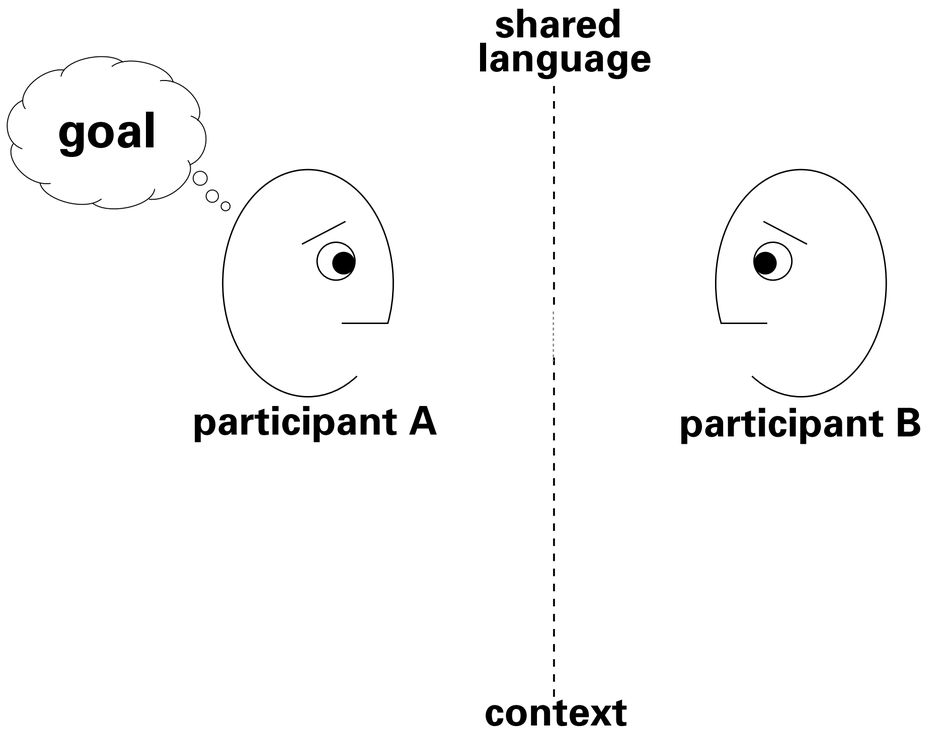
A participant has a goal.



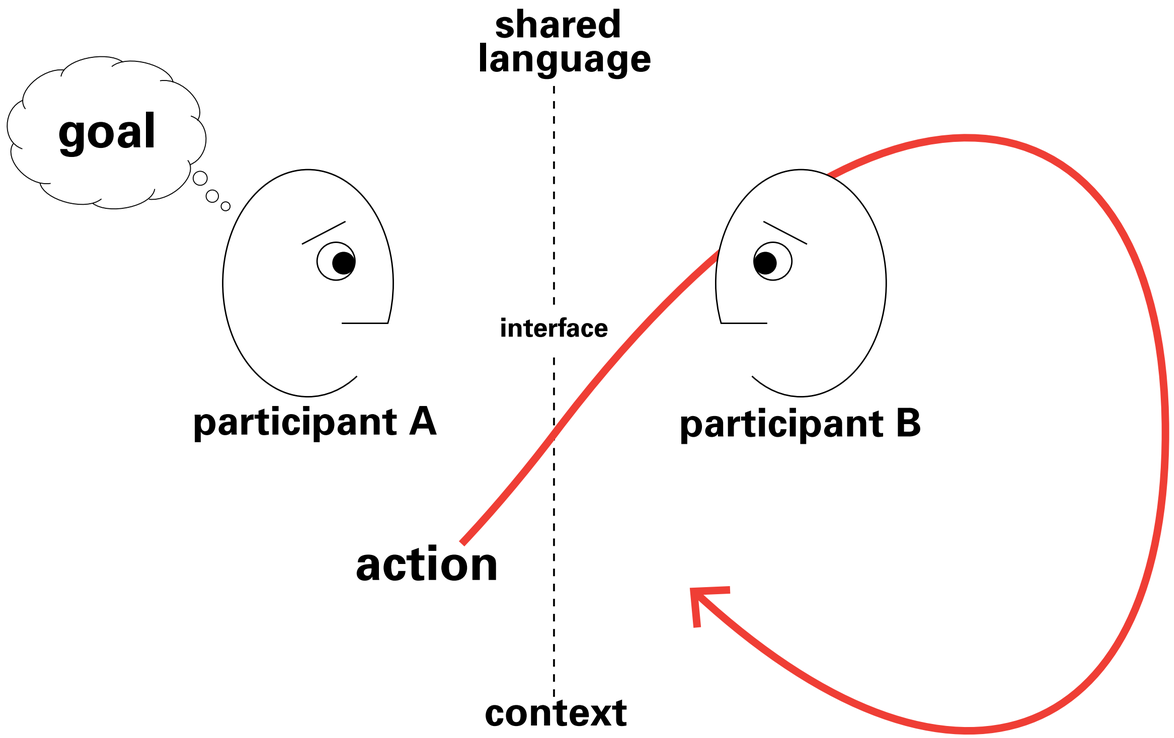
Chooses a context.



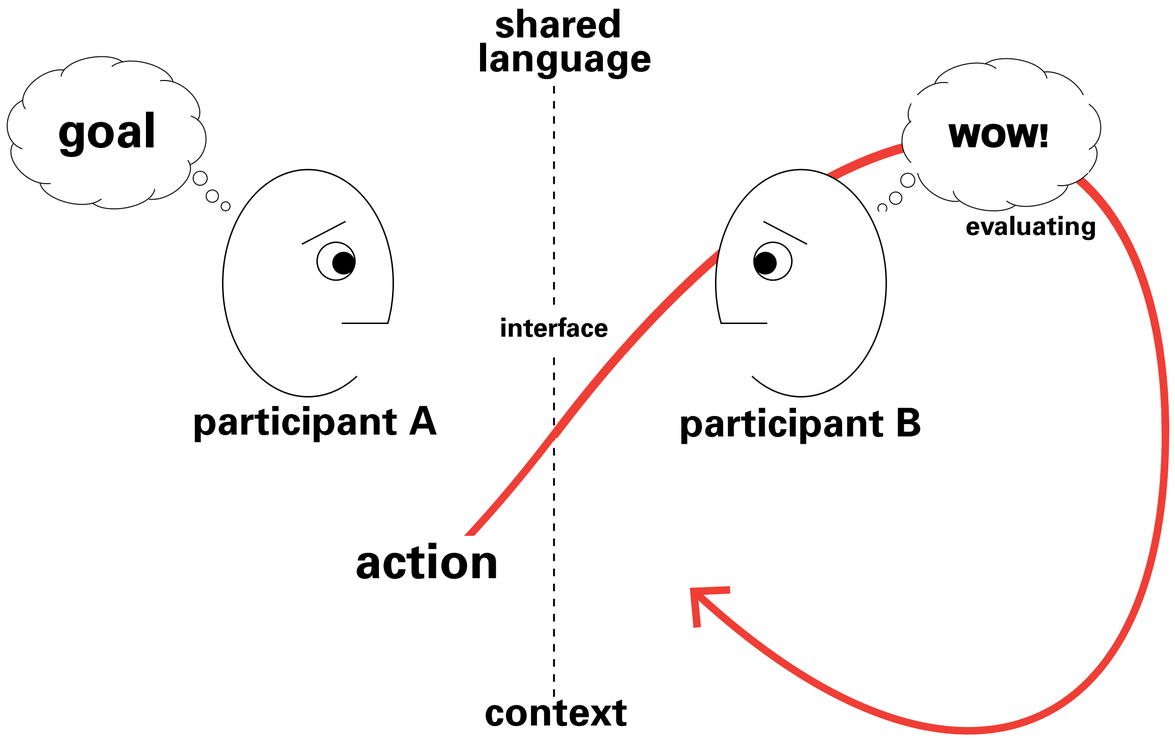
Chooses a language.



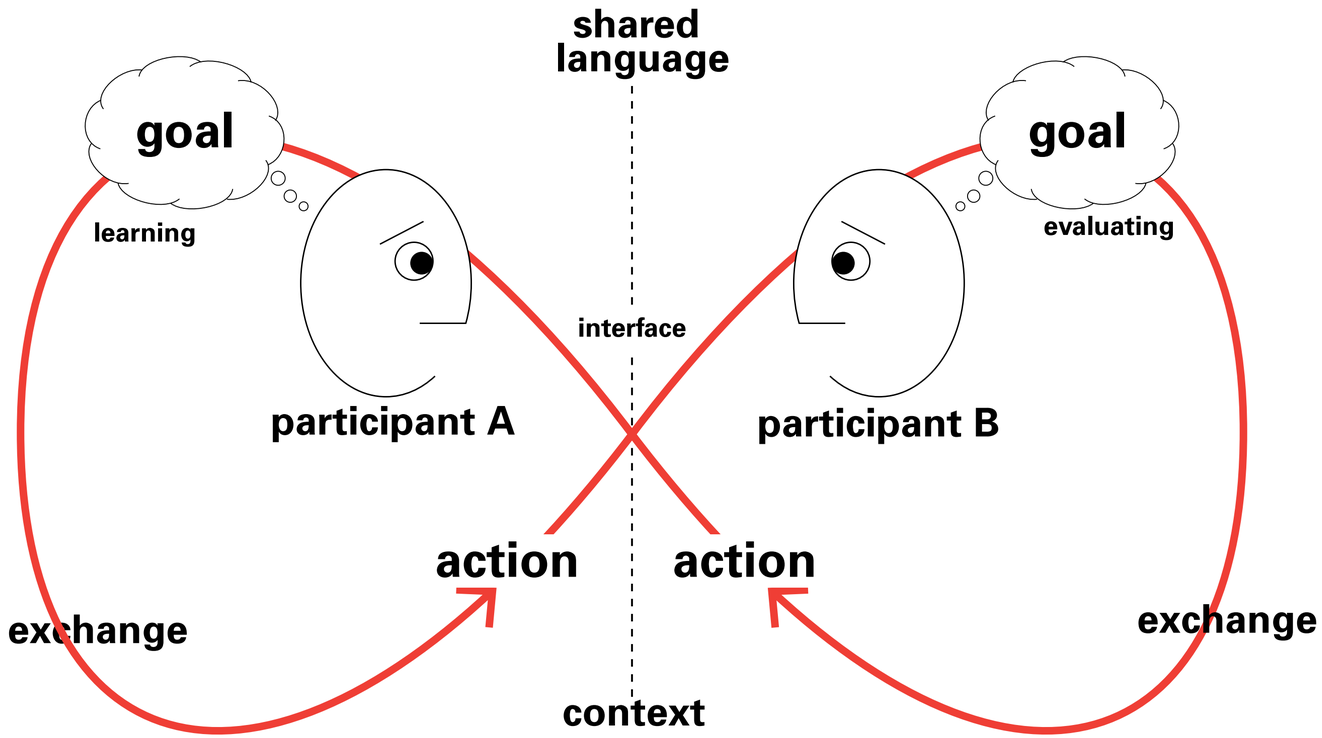
Begins an exchange.



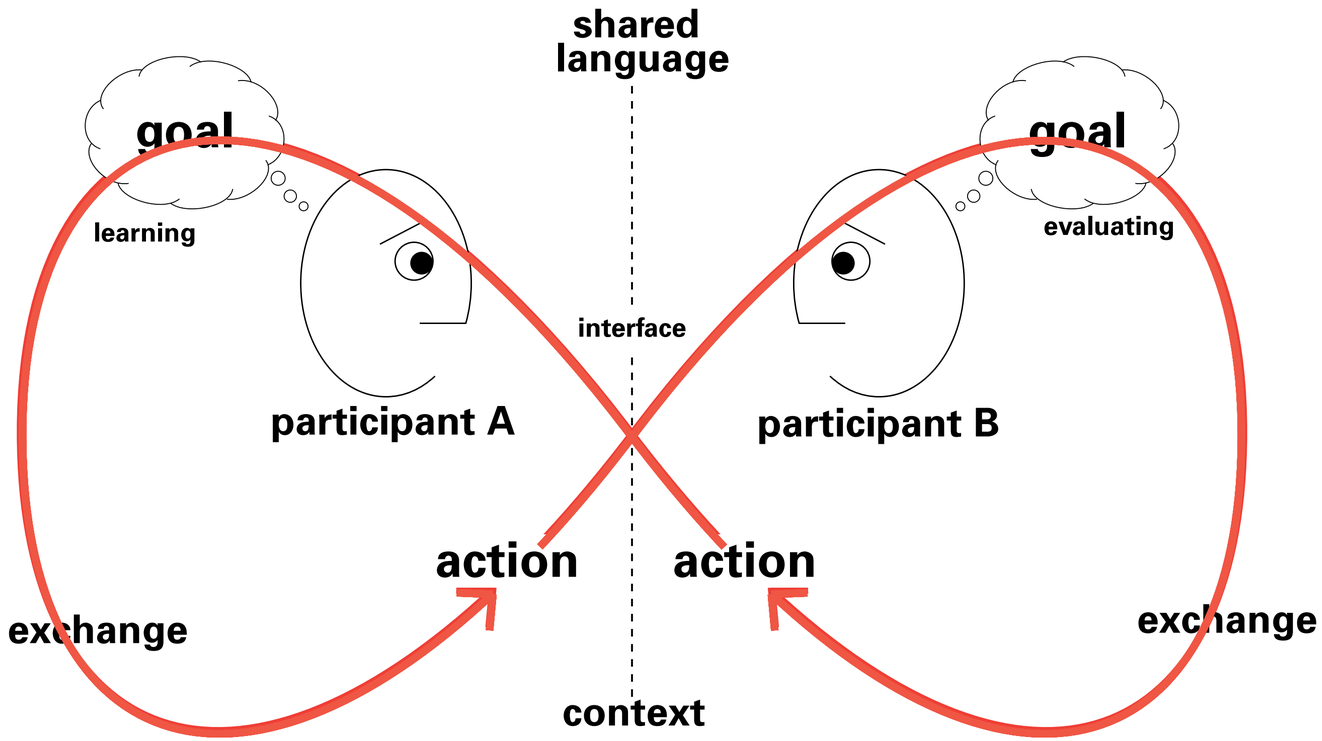
May evoke a response…



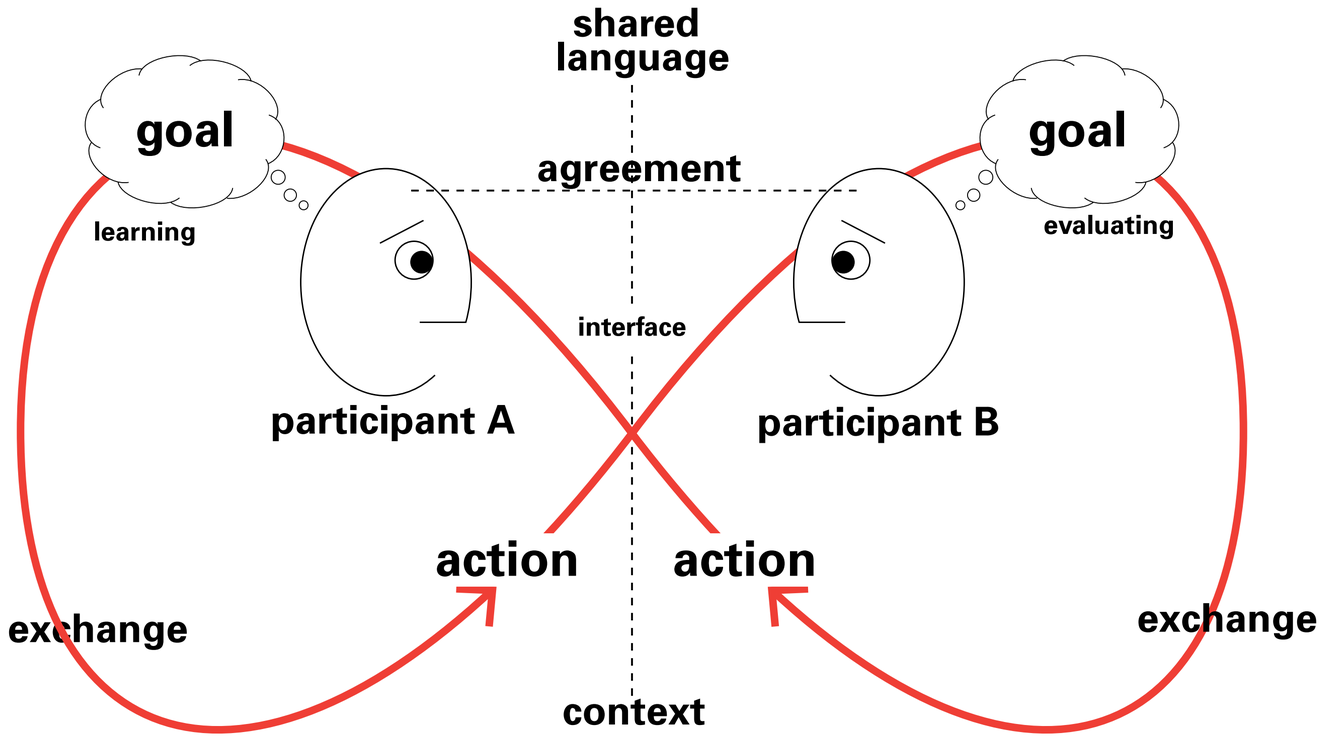
… and a reaction that evokes a reaction…



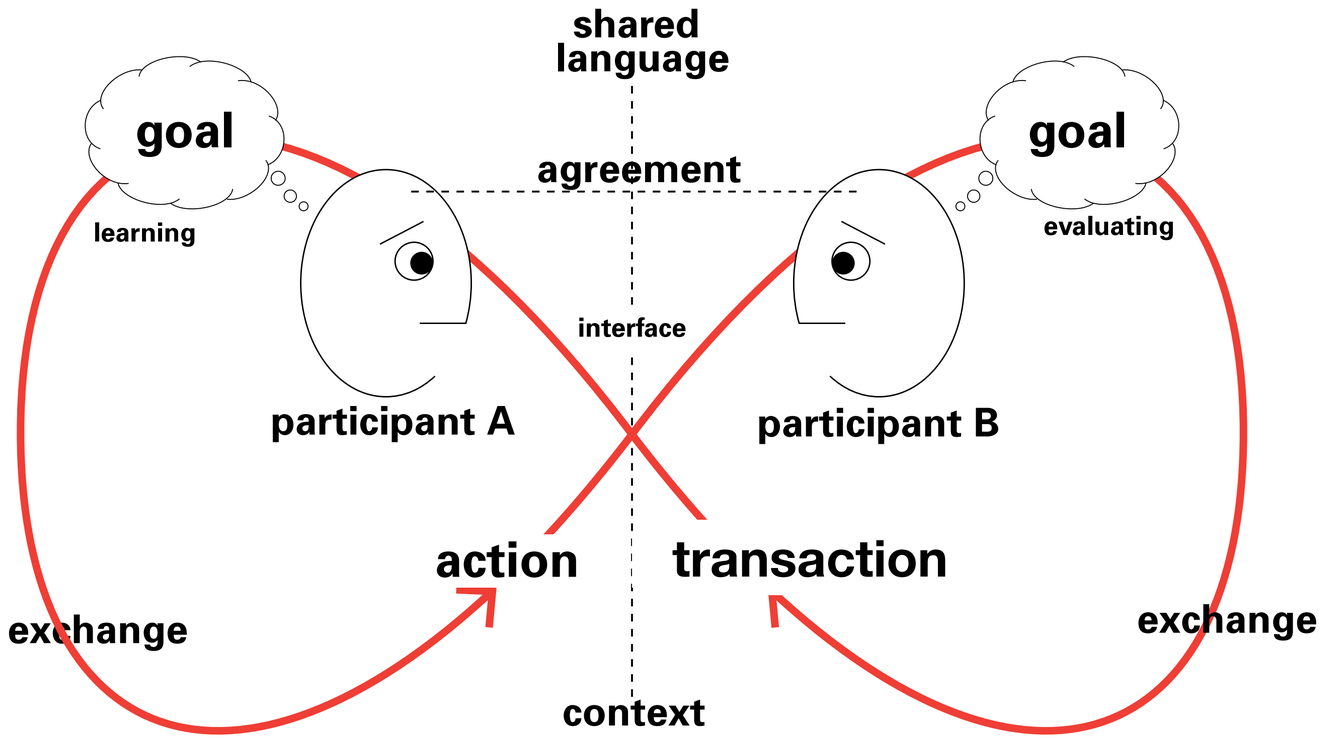
The engagement may continue.



An agreement may be reached.

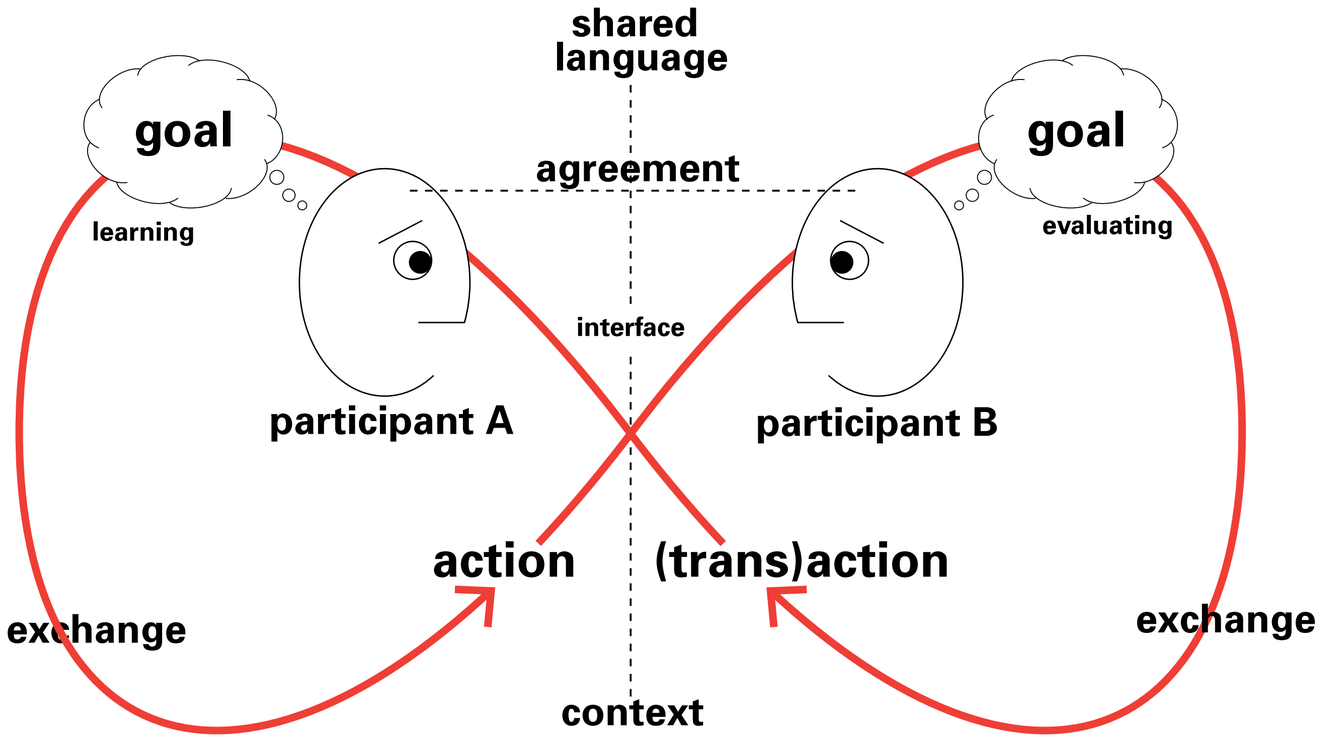


A transaction may occur.



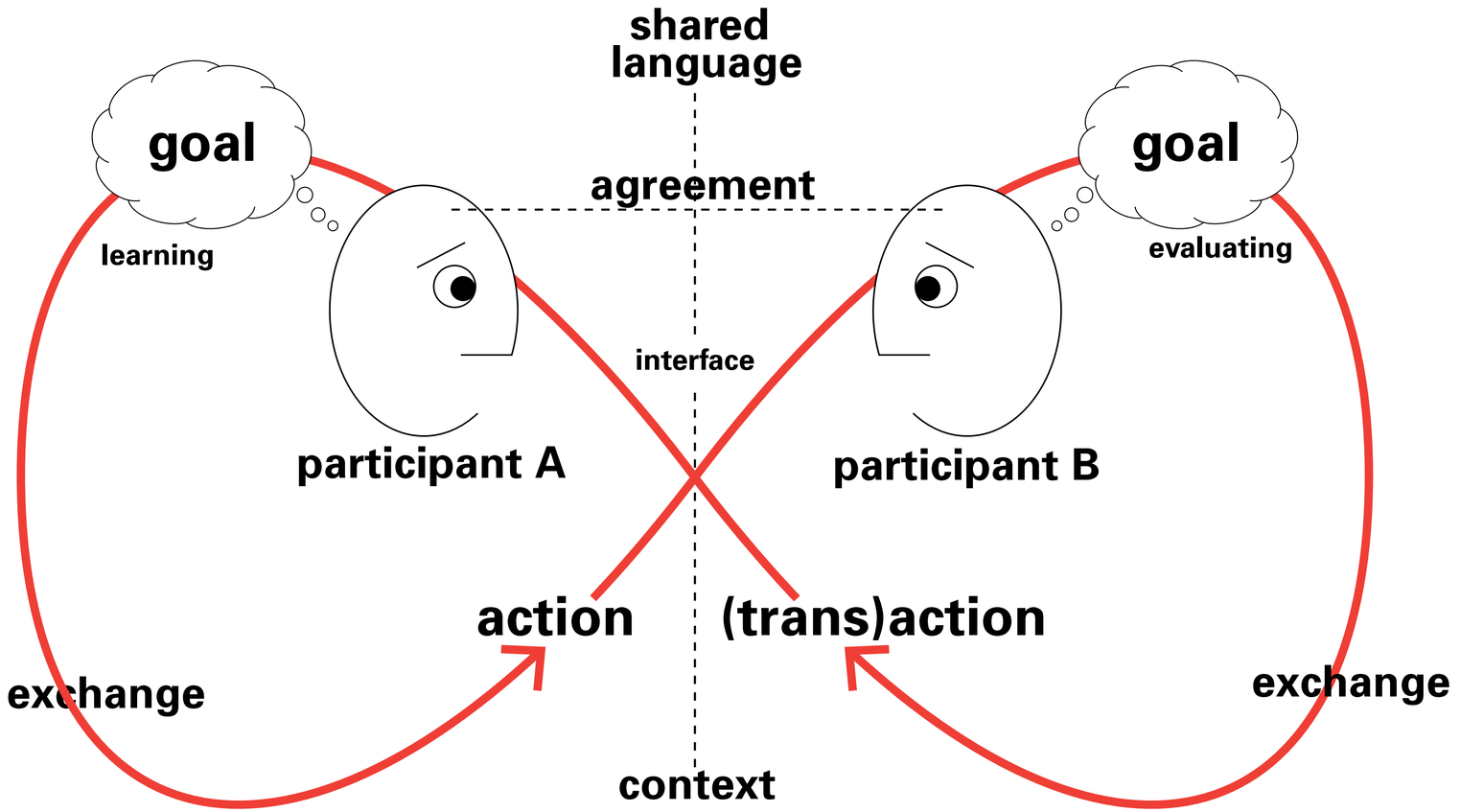
after Dubberly Design Office 2008

Conversation Redux



Conversation Redux — C-L-E-A-T

C – Context
L – Language
E – Engagement
A – Agreement
T – Transaction



The Machine Revolution

Role of machines…	**Industrial Revolution** (1750–1850)	**Computer Revolution** (1955–1995)	**Conversation Revolution** (2015–?)
Extend and enhance…	…muscles	…nervous system	…muscles and nervous system
Create value by lowering the cost of…	…performing physical labor	…performing cognitive tasks	…collaborating