APPENDIX

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A1 - USER SURVEY (1)

Title: Covid-19 testing

Goals

- Overview of demographics in reference to the subject.
- Overview of motivations, behaviours and needs.

Introduction

Hello! I am a Politecnico di Milano student who is conducting a research on needs and behaviors related to different typologies of Covid-19 tests, which will be an instrumental part of my Master Thesis. This survey will take approximately 3 minutes. Your data will be collected anonymously and only used for this research. Thank You!

Part 1

Overview

- How old are you? [selection]
- Where do you live? [short text]
- What is your status? [single choice: worker; student; student worker; retired; not employed]

Status specification

- Are you a healthcare worker, part of teaching staff or a first aid volunteer? [Y/N]
- Are you a frequent traveller? [single choice: Yes, I often travel for work; Yes, I often travel for study purposes; Yes, I often travel for leisure; no]

Part 2

Covid-19 testing introduction

Have you ever taken a Covid-19 Test? [Y/N]

Covid-19 Test - reasons

 What are the reasons you took a Covid-19 Test? [multiple choice: I was showing some symptoms; It was required for travelling; I was in contact with a person who resulted positive; I have frequent contact with immunocompromised people; I am immunocompromised]

Covid-19 Antigen Test (1)

- Have you ever taken a Covid-19 ANTIGEN test? (The antigen test type is the one showed in the picture) [Y/N]
- How many Covid-19 ANTIGEN tests have you done from the start of the pandemic until now (approximately)? [single choice: 1-3; 3-6; 6+]
- Why did you choos this type (ANTIGEN) of test? [multiple choice: I could do it easily at home, by myself; It was less expensive than other test types; I wanted a result quickly; It was too complicated to book an appointment for another test type; other]
- How would you describe your experience in taking a Covid-19 ANTIGEN test? [single choice: excellent, very good, good, neutral, poor, very poor]
- Why [long text]

Covid-19 PCR Test (2)

- Have you ever taken a Covid-19 PCR test? (The PCR test type is the one showed in the picture) [Y/N]
- How many Covid-19 PCR tests have you done from the start of the pandemic until now (approximately)? [single choice: 1-3; 3-6; 6+]
- Why did you choose this type (PCR) of test? [multiple choice: I wanted a precise and reliable result; It was required for a specific activity (eg. travel); other]
- Where did you take this type (PCR) of test? [short text]
- How would you describe your experience in taking a Covid-19 ANTIGEN test?
 [single choice: excellent, very good, good, neutral, poor, very poor]
- Why [long text]

End

Thank you very much for taking the time to complete this survey! If you would like to answer a few more questions, please write your email address in the box below.

A2 - USER INTERVIEWS

Goals

- Go deeper into the relationship between travel and covid tests
- Understand what works and what doesn't for testing

Introduction

Thank you for agreeing to talk with me today. I want to take the next 1 hour to understand your experience with travel and covid-19 testing. I'll ask a few questions: it's important that we hear everything from your perspective. I am going to record the audio of this session. It's completely anonymous and just for my own reference later. I may take some photos—of course with your permission. If there's anything that you're not comfortable speaking of, just say so.

Background

• Can you tell me a little bit about yourself (age, occupation, living context, etc.)

Travel

- Could you describe to me the travels you did in the last two years of pandemic?
- How many times you travelled, what did you do?

Covid-19 testing

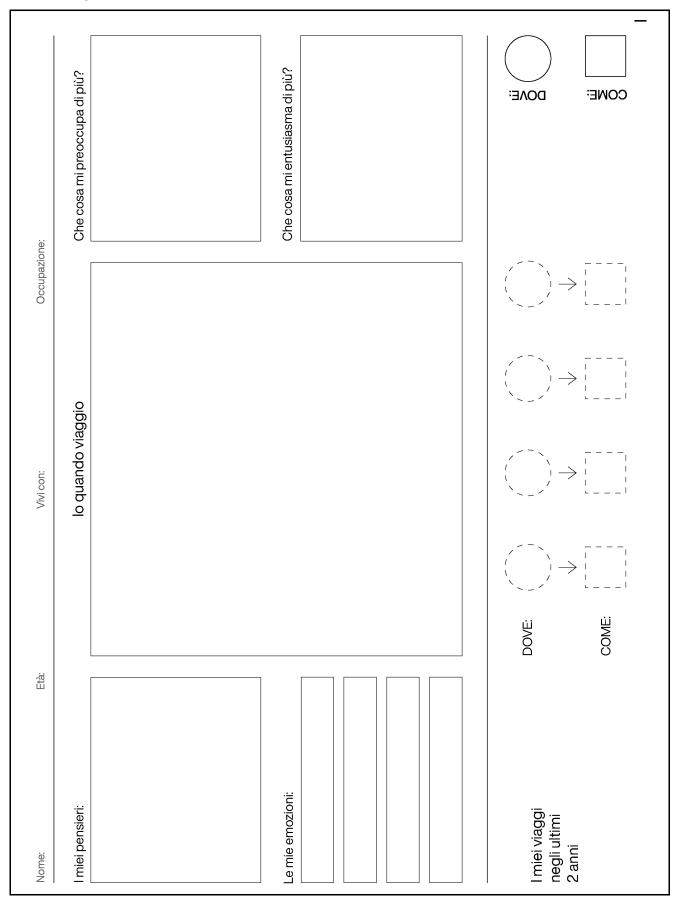
- Could you describe to me your experience with covid-19 tests?
- Which types did you use and why?
- Hardest thing, easiest thing
- Concern about the reliability
- Getting a certification

// general prompt questions

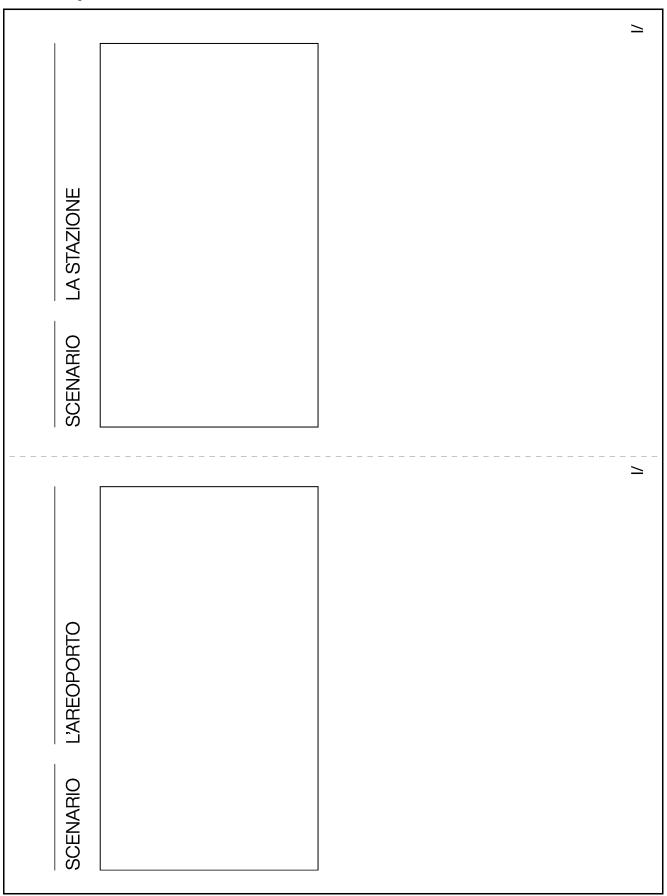
- Walk me through the process of...?
- What do you like/dislike about...?
- What's the hardest / most frustrating part about ...?
- Why?
- You mentioned [xxx], what's the reason for that?
- Can you give me / think of an example of [xxx]?

A3 - BOUNDARY OBJECTS

Warm-up



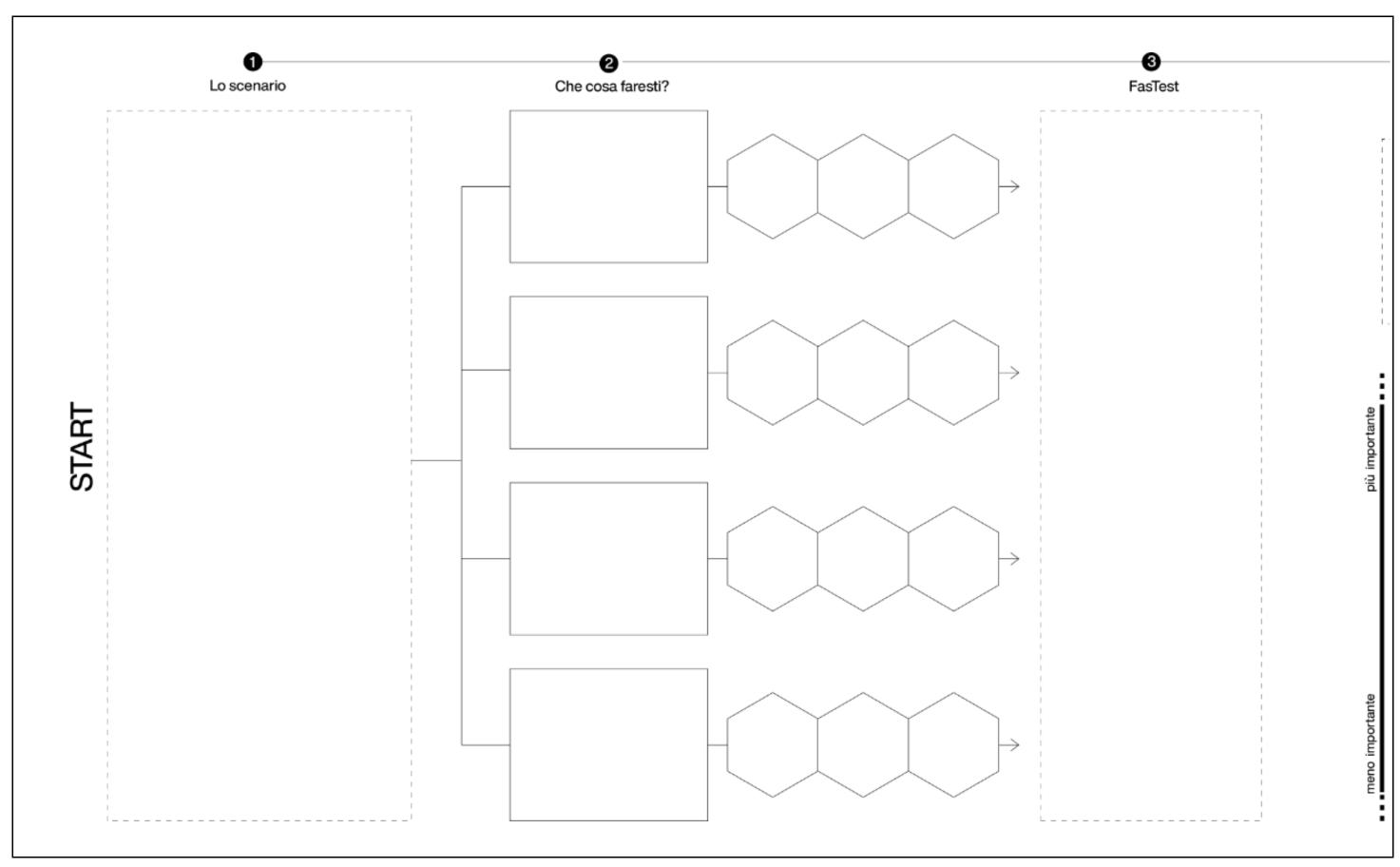
Warm-up

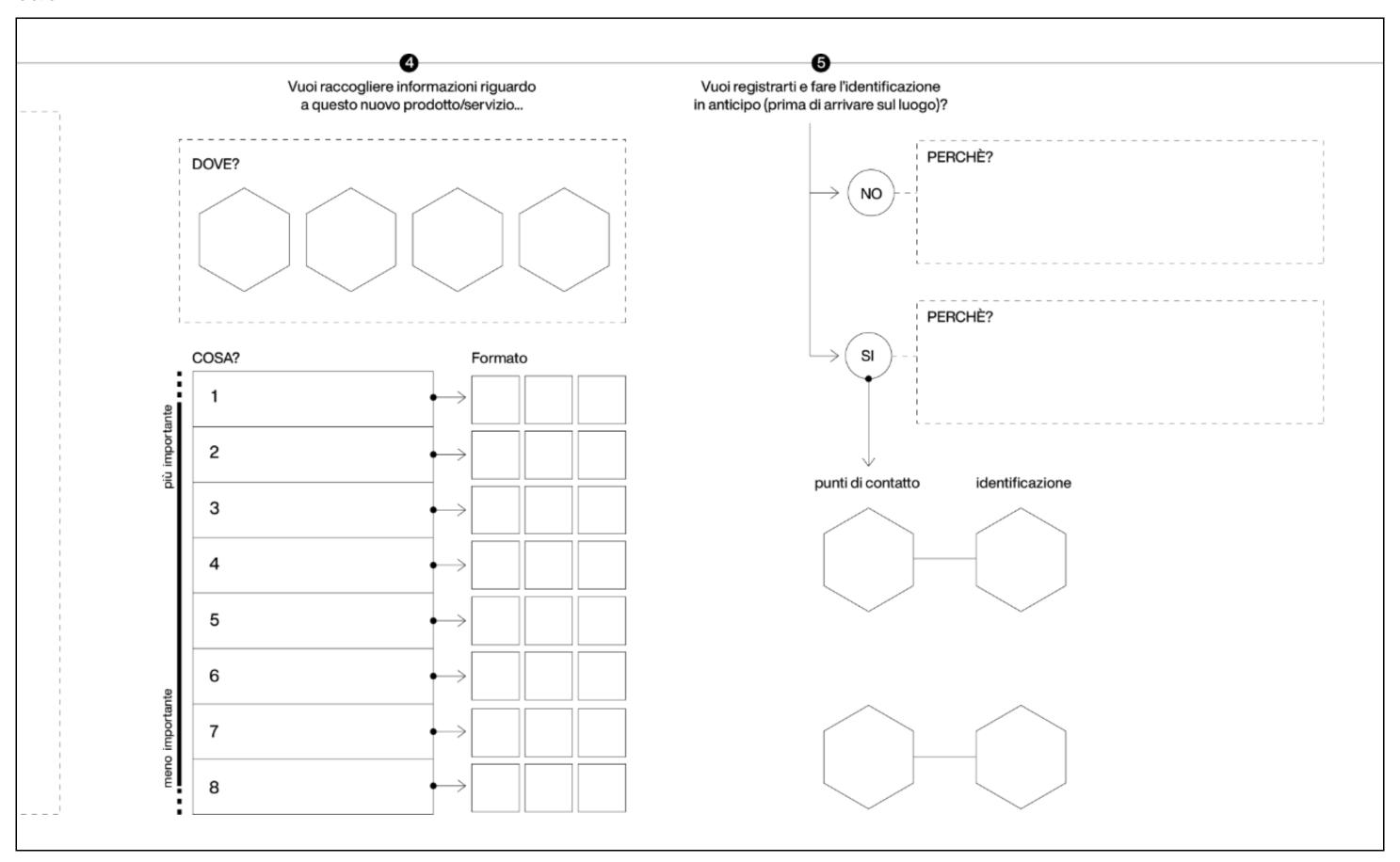


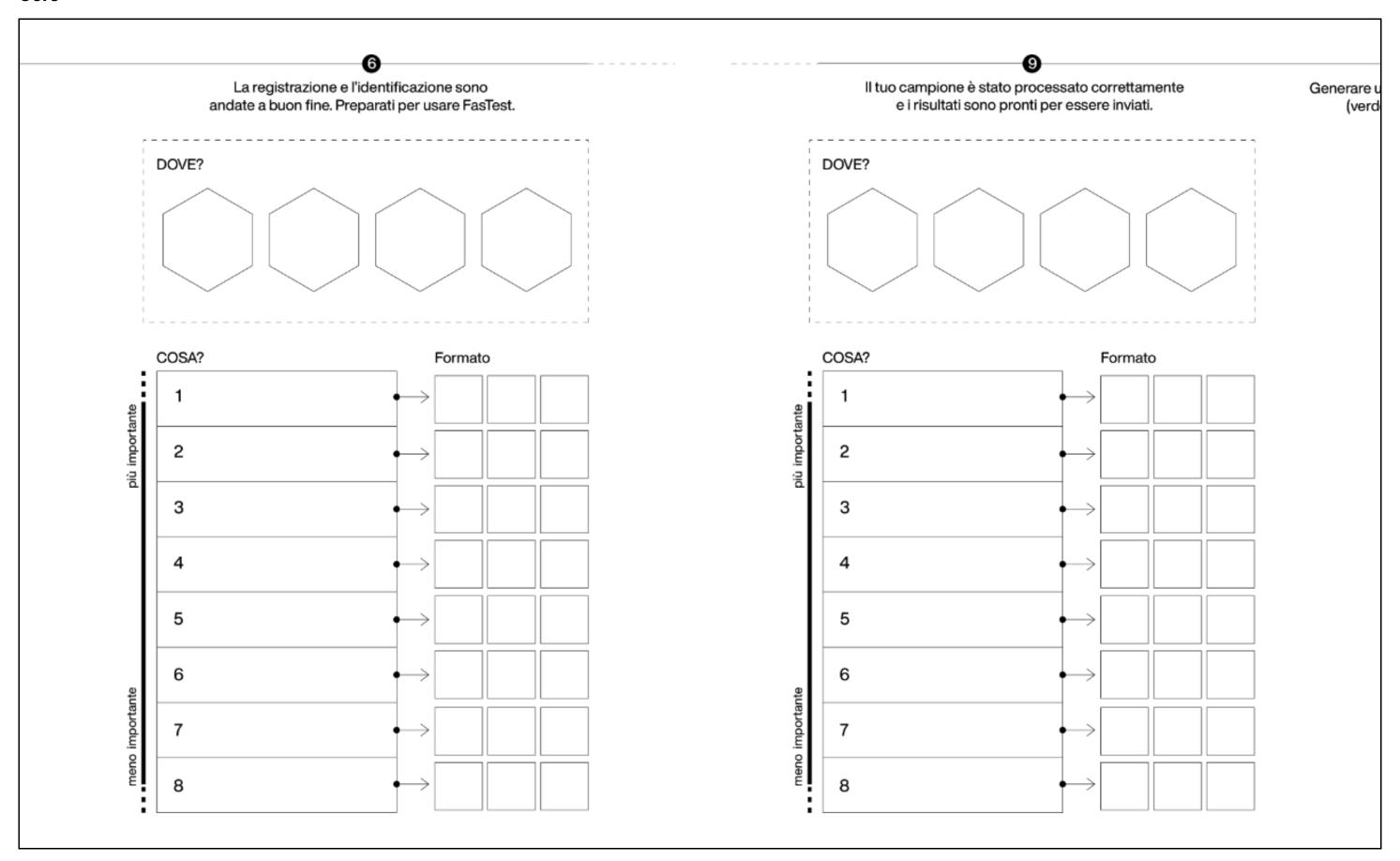
A3 - BOUNDARY OBJECTS

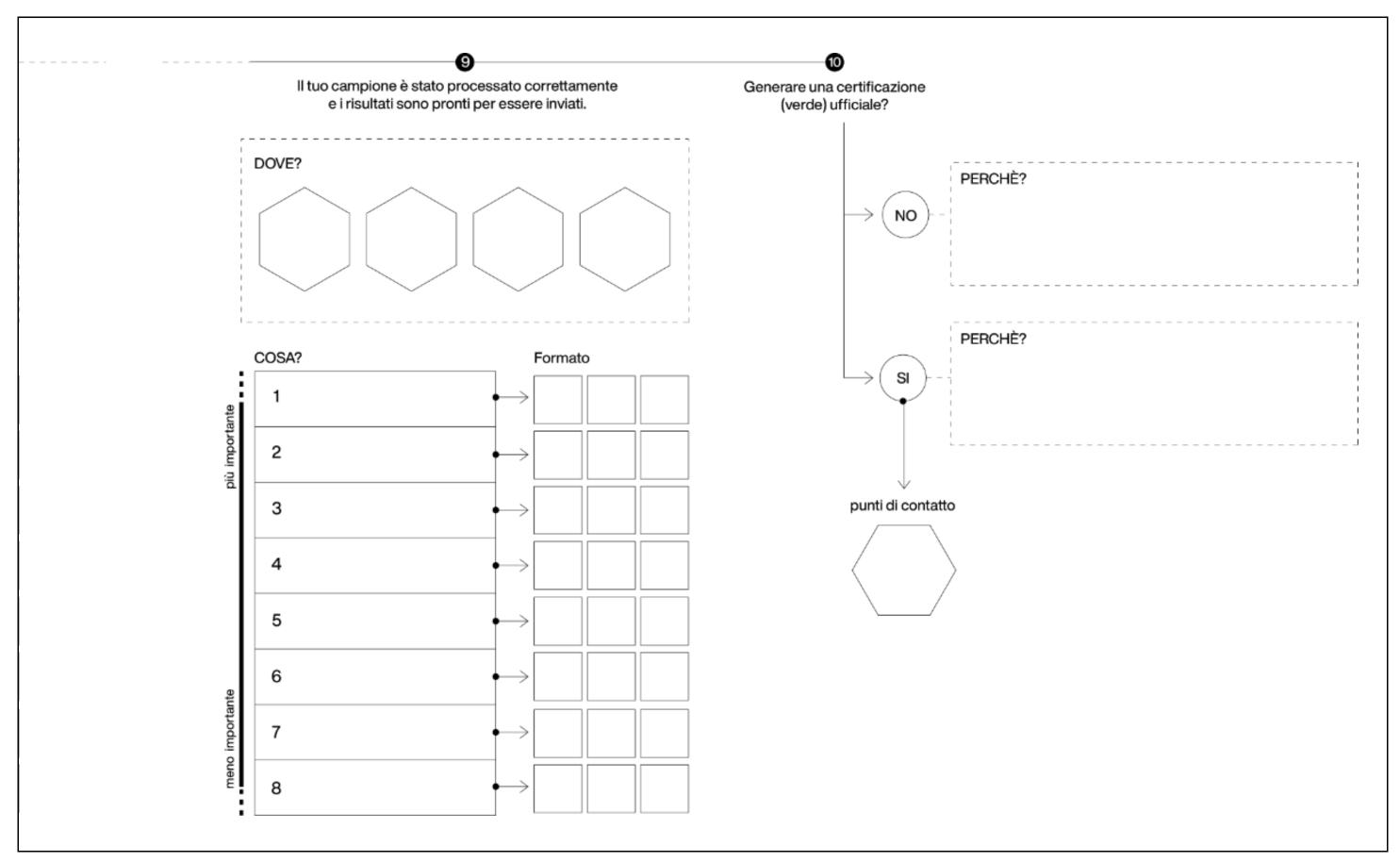
Intermezzo #1 & 2

Se sento "cabina automatica per test di malattie", ni immagino		
Queste caratteristiche:	Queste emozioni:	









A3 - BOUNDARY OBJECTS

Closure

		٦	
Riflettendo sulla cabin	a		Come hai trovato la sessione di co-design?
COSA FUNZIONA	COSA CAMBIEREI		Spiegazioni e attività ti sono sembrate chiare?
HO ANCORA QUESTI DUBBI	HO QUESTA NUOVA IDEA		Hai qualche suggerimento o critica da pormi, per migliorare in futuro?

A3 - BOUNDARY OBJECTS

Cards and elements

































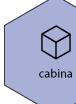




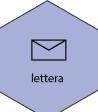














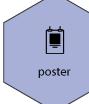






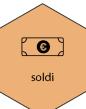














































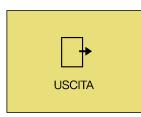
























A4 - USER SURVEY (2)

Title:Covid-19 testing booth

Introduction

This survey will take less than 1 minute. Your data will be collected anonymously and only used for a research project. Thank You!

Covid-19 testing booth

Imagine you have to take a Covid-19 self test in a public setting (eg. airport), which requires a mouth or nasal swab.

- Considering the situation described above, how important is privacy to you? [single choice: Very important; Moderately important; Not important]
- If you had to take the Covid-19 self test inside a booth, in which situation would you feel more comfortable? [single choice: In a booth with all four sides closed.; In a booth with one side open and three closed.]

Booth with all four sides closed.

- You answered "In a booth with all four sides closed". Why? [long text]
- Would you feel more comfortable with the fourth side being: [single choice: Automatically sliding doors; Manually sliding doors; Drape or cloth; Regular door; other]
- Why? [long text]
- You answered "other". Could you describe what you picture and why? [long text]

In a booth with one side open and three closed.

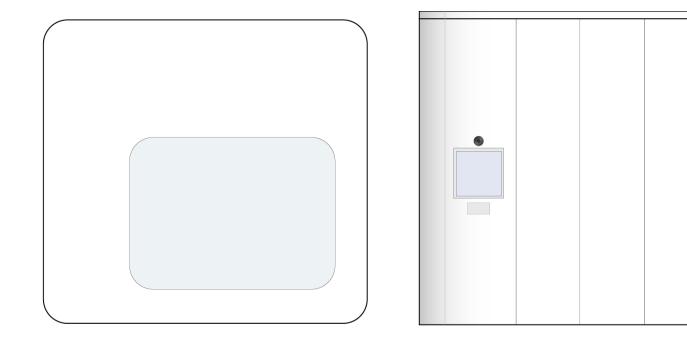
You answered "In a booth with one side open and three closed". Why? [long text]

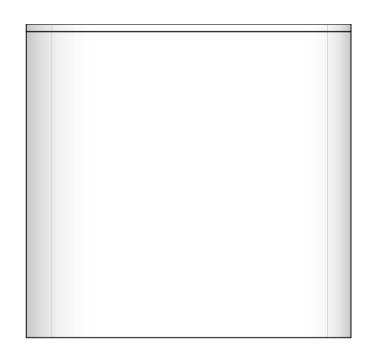
End

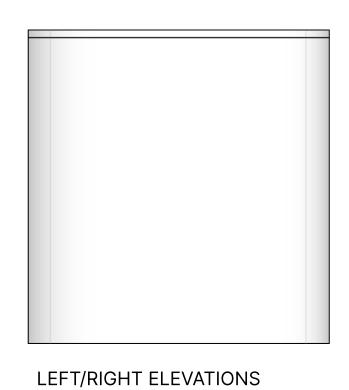
Thank you very much for taking the time to complete this survey!

A5 - CONCEPTS

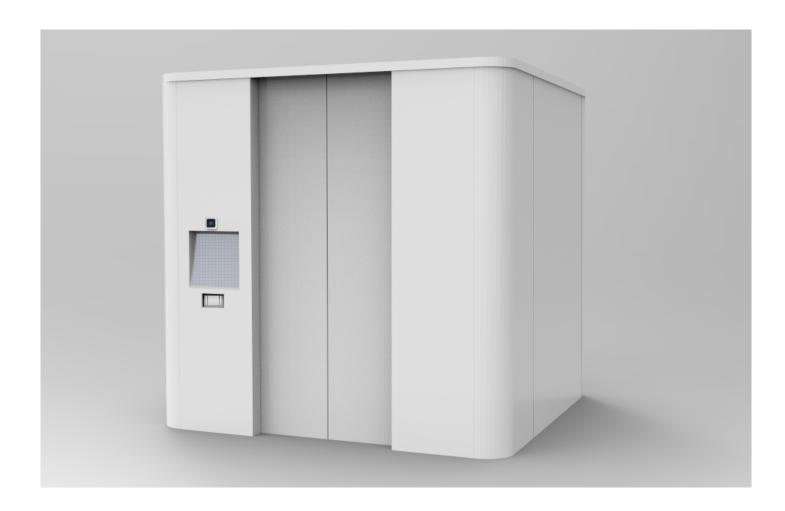
Concept #1

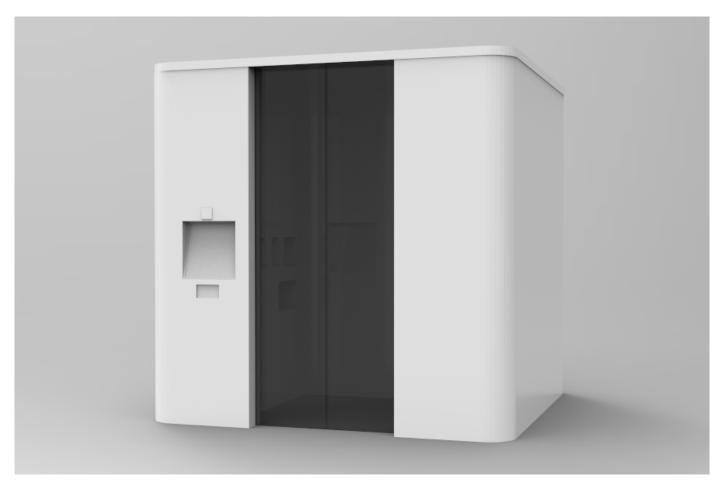






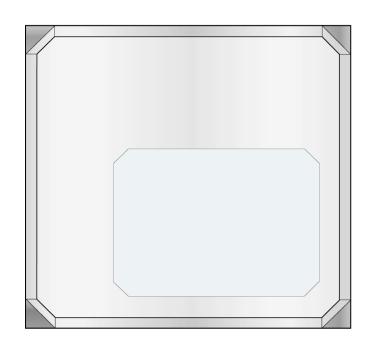
PLAN FRONT ELEVATION REAR ELEVATION

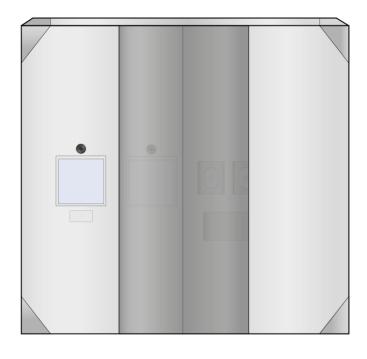


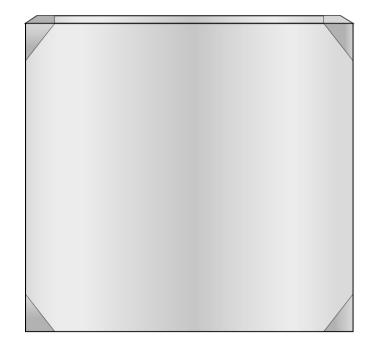


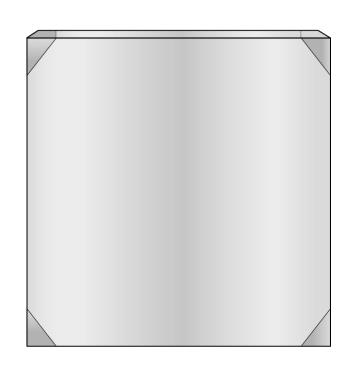
A5 - CONCEPTS

Concept #2







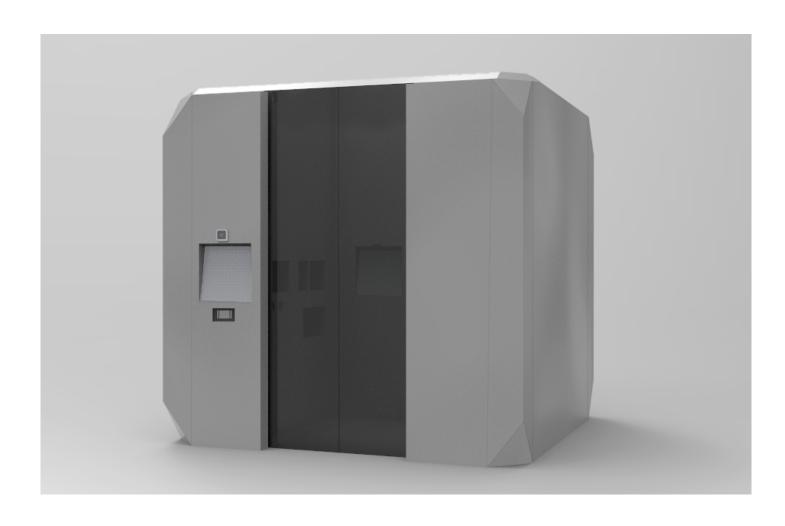


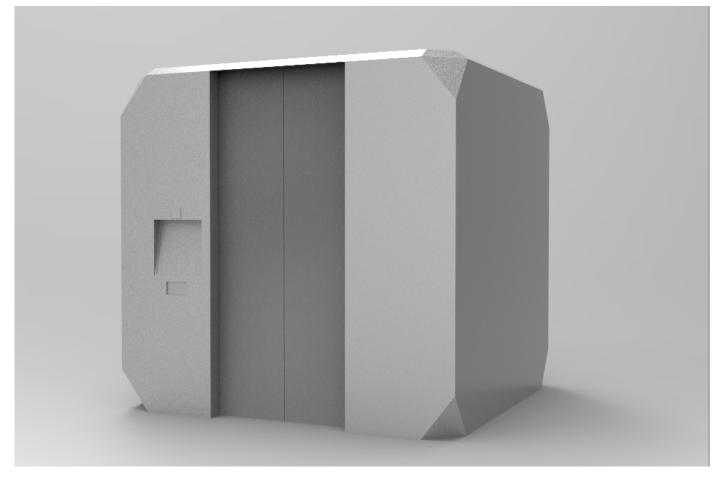
PLAN

FRONT ELEVATION

REAR ELEVATION

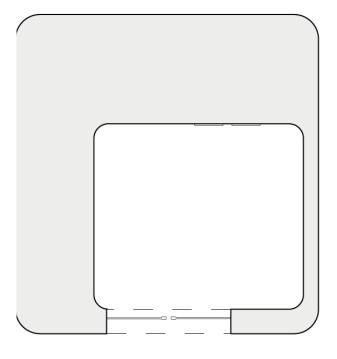
LEFT/RIGHT ELEVATIONS

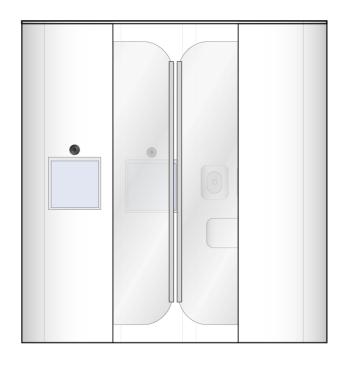


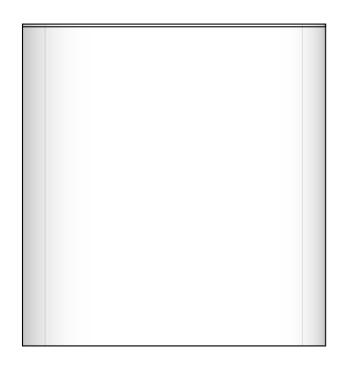


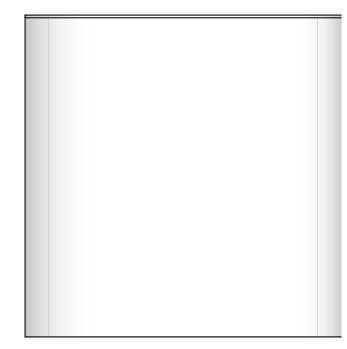
A5 - CONCEPTS

Concept #3









PLAN

FRONT ELEVATION

REAR ELEVATION

LEFT/RIGHT ELEVATIONS





A6 - WAYFINDING PROPOSALS

Proposal #1







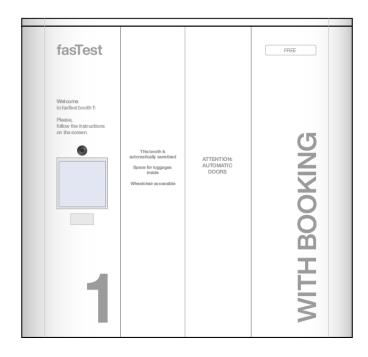
REAR ELEVATION



LEFT/RIGHT ELEVATIONS



Proposal #2



FRONT ELEVATION



REAR ELEVATION



LEFT/RIGHT ELEVATIONS



A6 - WAYFINDING PROPOSALS

Proposal #3

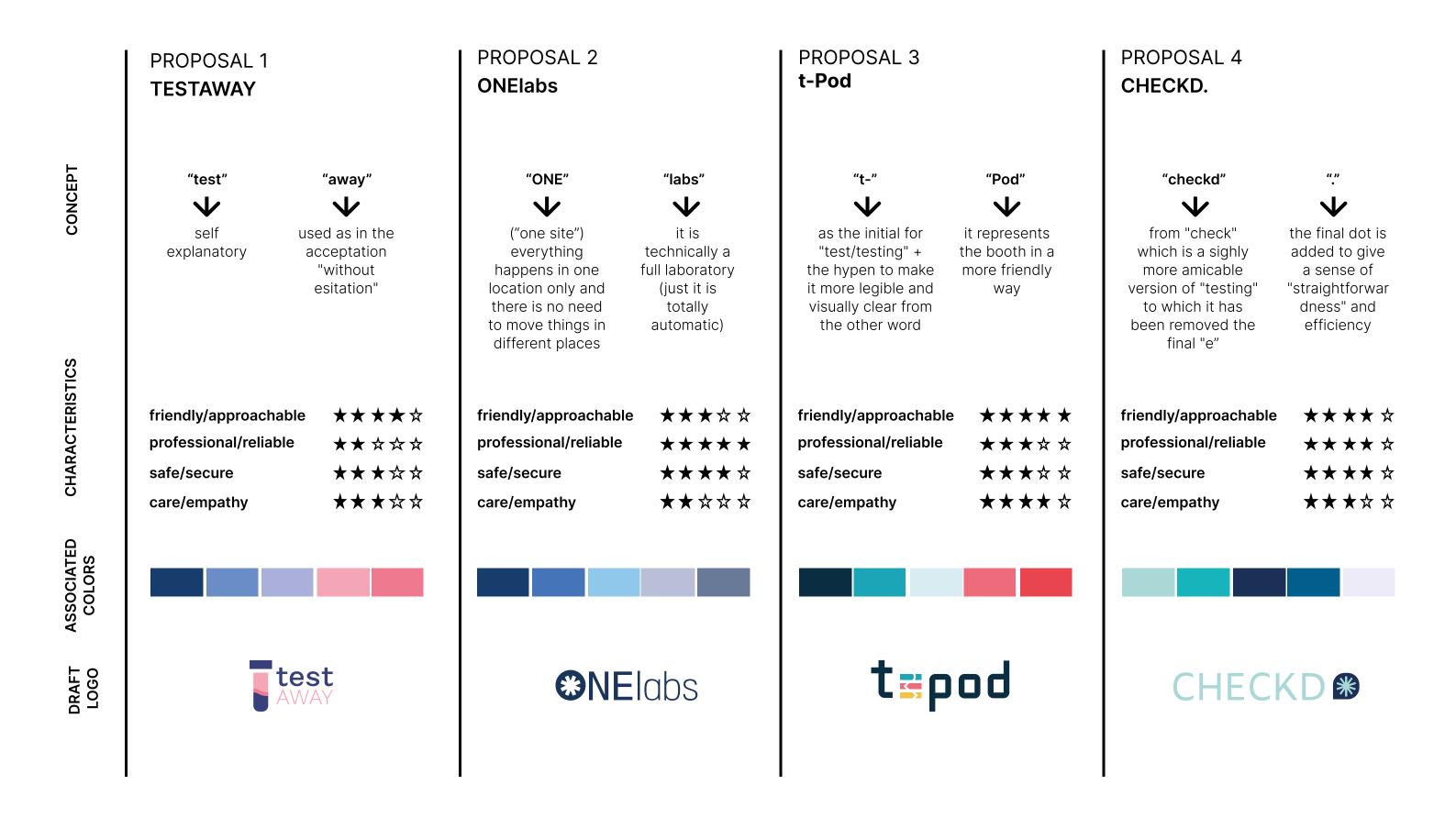






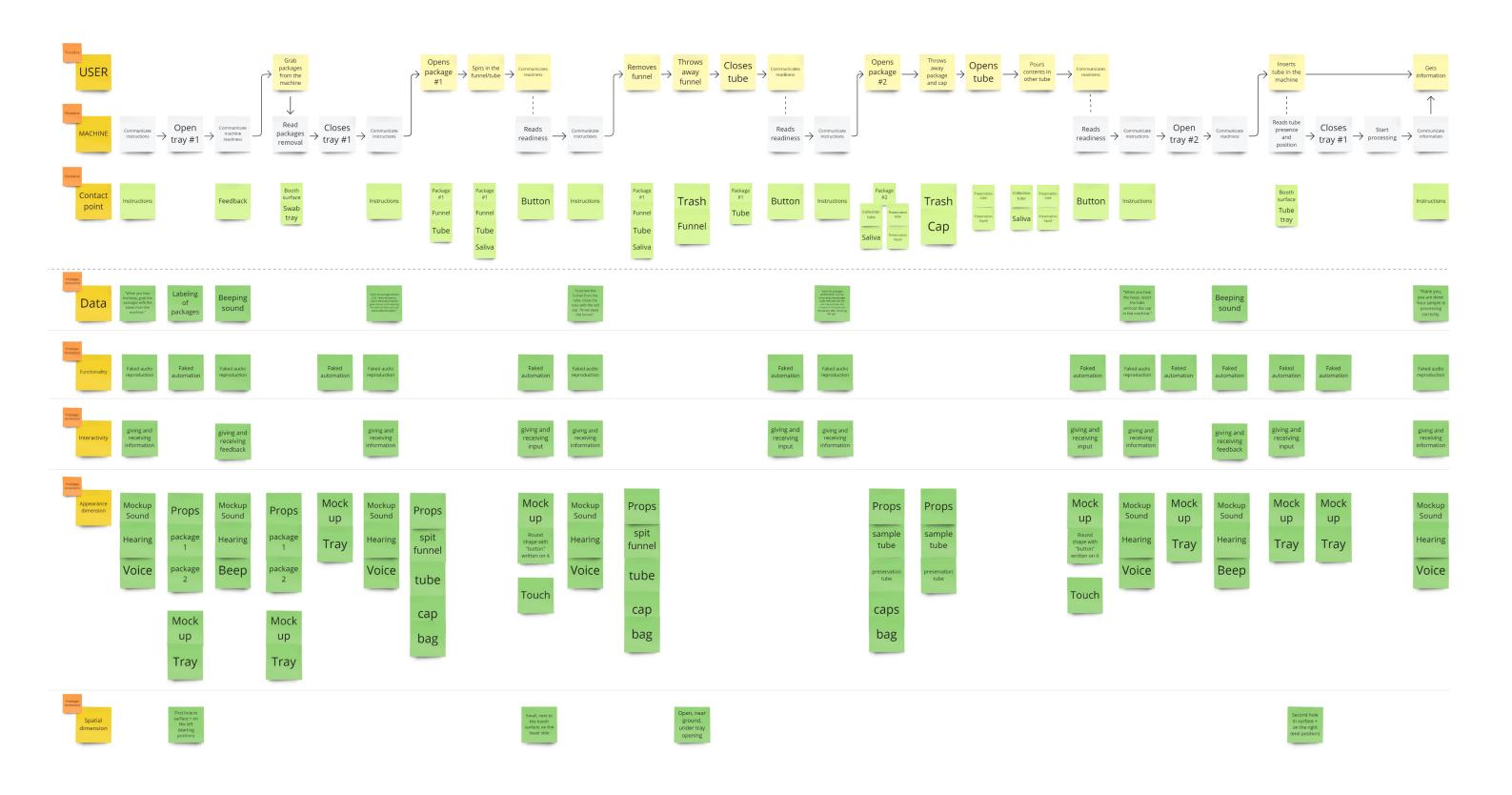


A7 - BRAND IDENTITY PROPOSALS



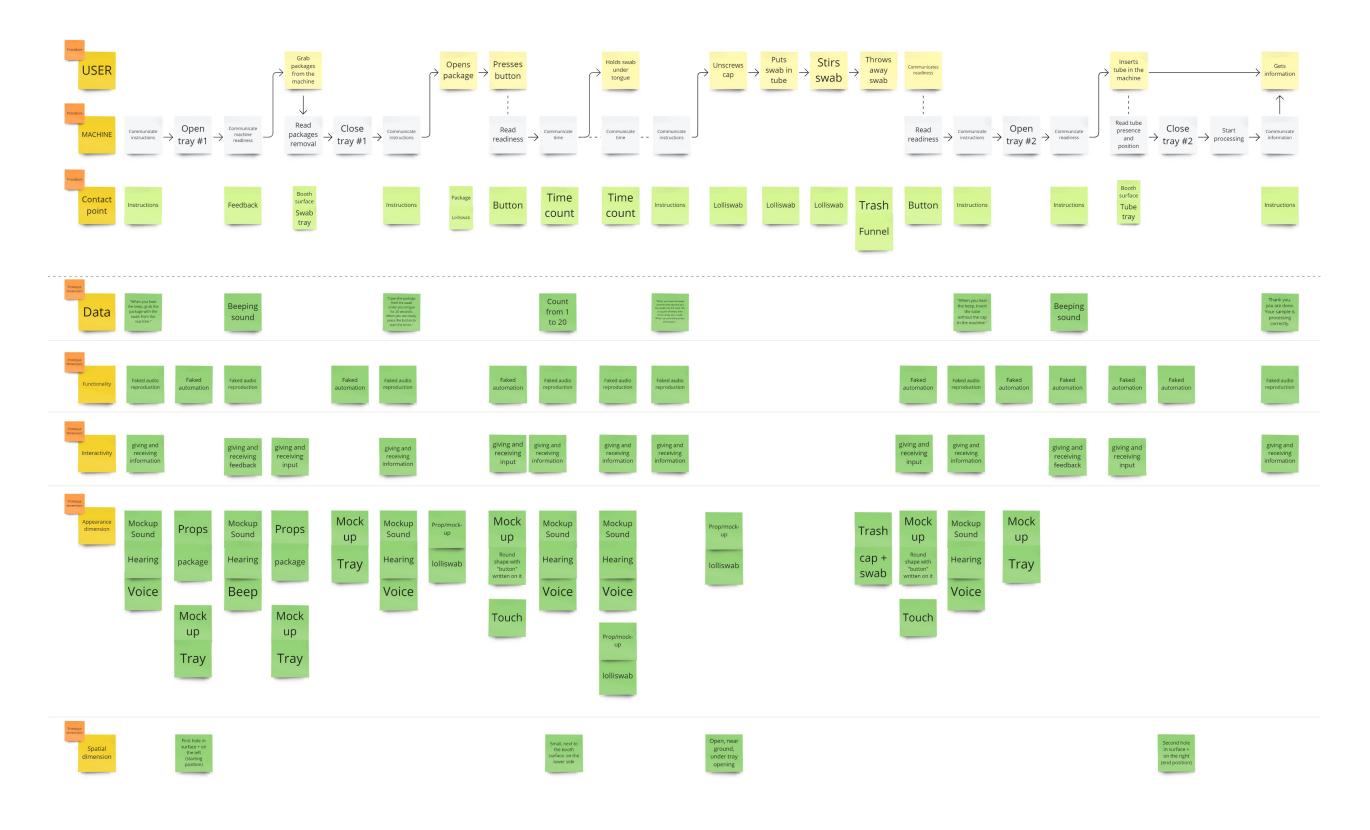
A8 - EXPERIENCE PROTOTYPING BREAKDOWN

Manual saliva



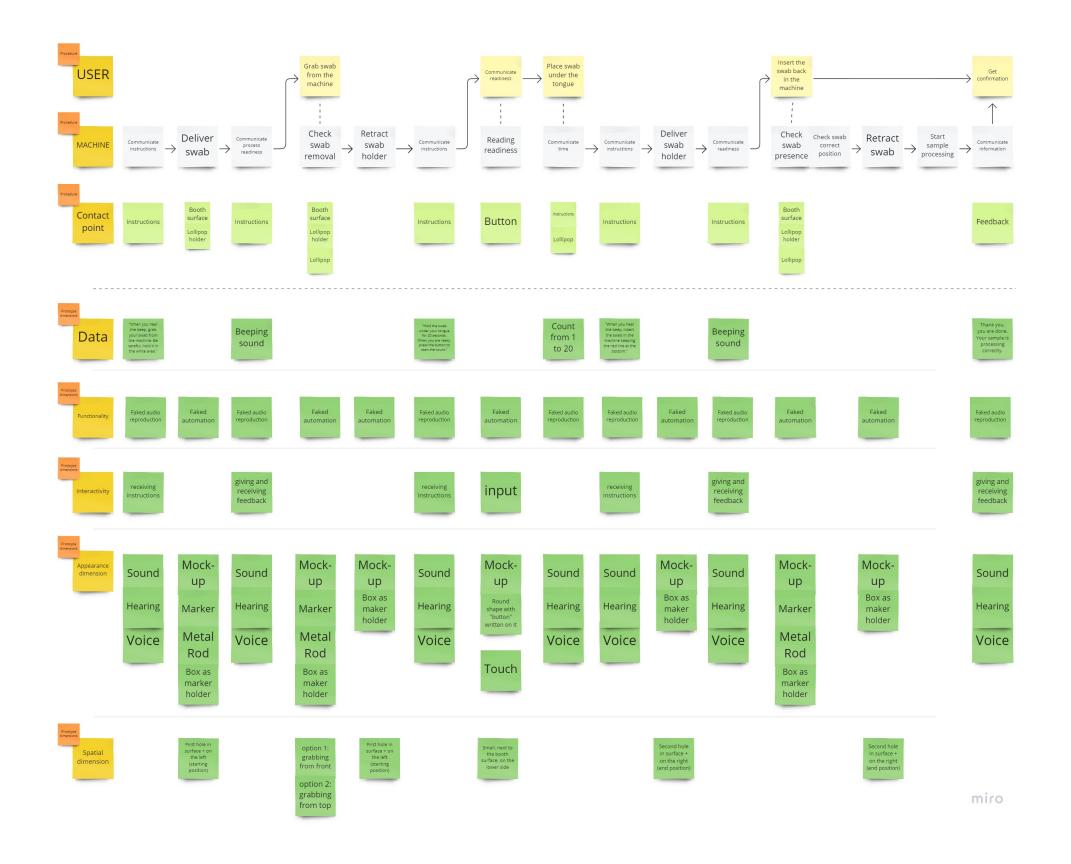
A8 - EXPERIENCE PROTOTYPING BREAKDOWN

Manual Iolliswab



A8 - EXPERIENCE PROTOTYPING BREAKDOWN

Automatic Iolliswab



A9 - EXPERIENCE PROTOTYPE: MANUAL SALIVA

Set up

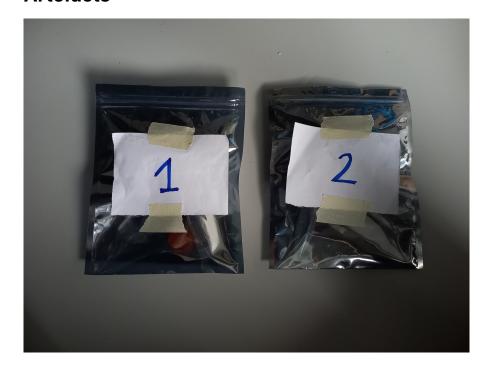




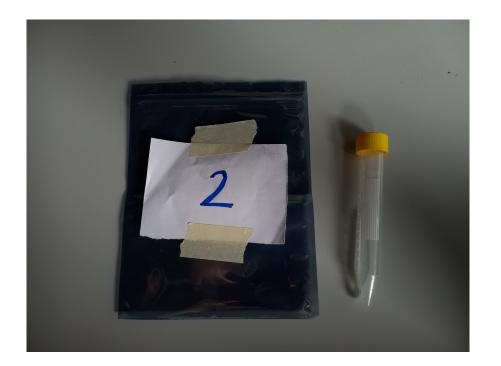




Artefacts







A10 - EXPERIENCE PROTOTYPE: MANUAL LOLLISWAB

Set up









Artefacts







A11 - EXPERIENCE PROTOTYPE: MANUAL LOLLISWAB

Set up









Artefacts







A12 - EXPERIENCE PROTOTYPE: QUANTITATIVE RESULTS

Total time of completion

EFFICIENCY MEASURE	MANUAL SALIVA	MANUAL LOLLISWAB	AUTOMATIC LOLLISWAB
P1	2.40	1.45	0.58
P2	2.42	1.34	1.05
P3	4.05	1.52	1.10
P4	2.03	2.10	1.04
P5	2.45	1.11	0.57
P6	2.40	2.10	1.22
P7	3.20	2.29	1.05
P8	1.76	1.20	1.05
P9	3.15	2.30	0.59
P10	2.02	1.20	1.00
P11	2.25	2.01	1.38

	MANUAL SALIVA	MANUAL LOLLISWAB	AUTOMATIC LOLLISWAB
P12	2.06	1.58	1.15
P13	3.06	2.29	1.11
P14	1.76	1.20	1.05
P15	2.00	1.30	1.11
P16	3.33	1.58	1.15
P17	3.06	2.29	0.59
P18	2.09	1.10	1.00
P19	3.14	2.19	1.07
P20	2.22	1.39	1.05
P21	2.02	1.32	0.58
average	2.5	1.66	1.1

Number of errors

EFFECTIVENESS MEASURE	MANUAL SALIVA	MANUAL LOLLISWAB	AUTOMATIC LOLLISWAB
P1	0	0	0
P2	1	1	1
Р3	5	2	1
P4	3	2	0
P5	3	0	0
P6	3	0	0
P7	7	0	0
P8	2	2	1
P9	1	0	0
P10	3	1	0
P11	0	2	1

	MANUAL SALIVA	MANUAL LOLLISWAB	AUTOMATIC LOLLISWAB
P12	2	0	1
P13	2	1	0
P14	3	2	0
P15	4	1	0
P16	3	0	0
P17	1	1	0
P18	2	2	1
P19	2	1	0
P20	0	1	0
P21	3	1	1

0

A13 - SERVICE WALKTHROUGH BREAKDOWN

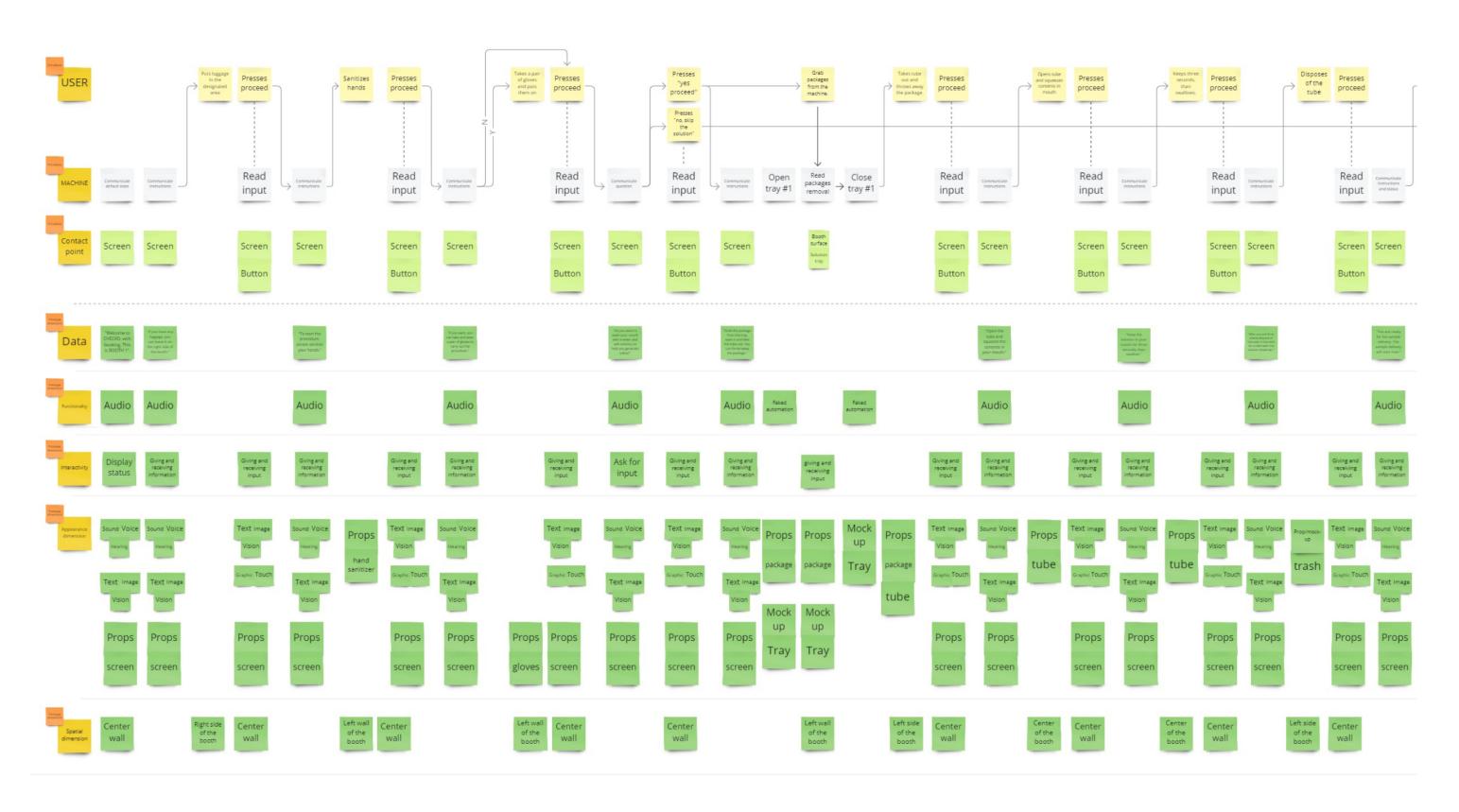
Check-in



miro

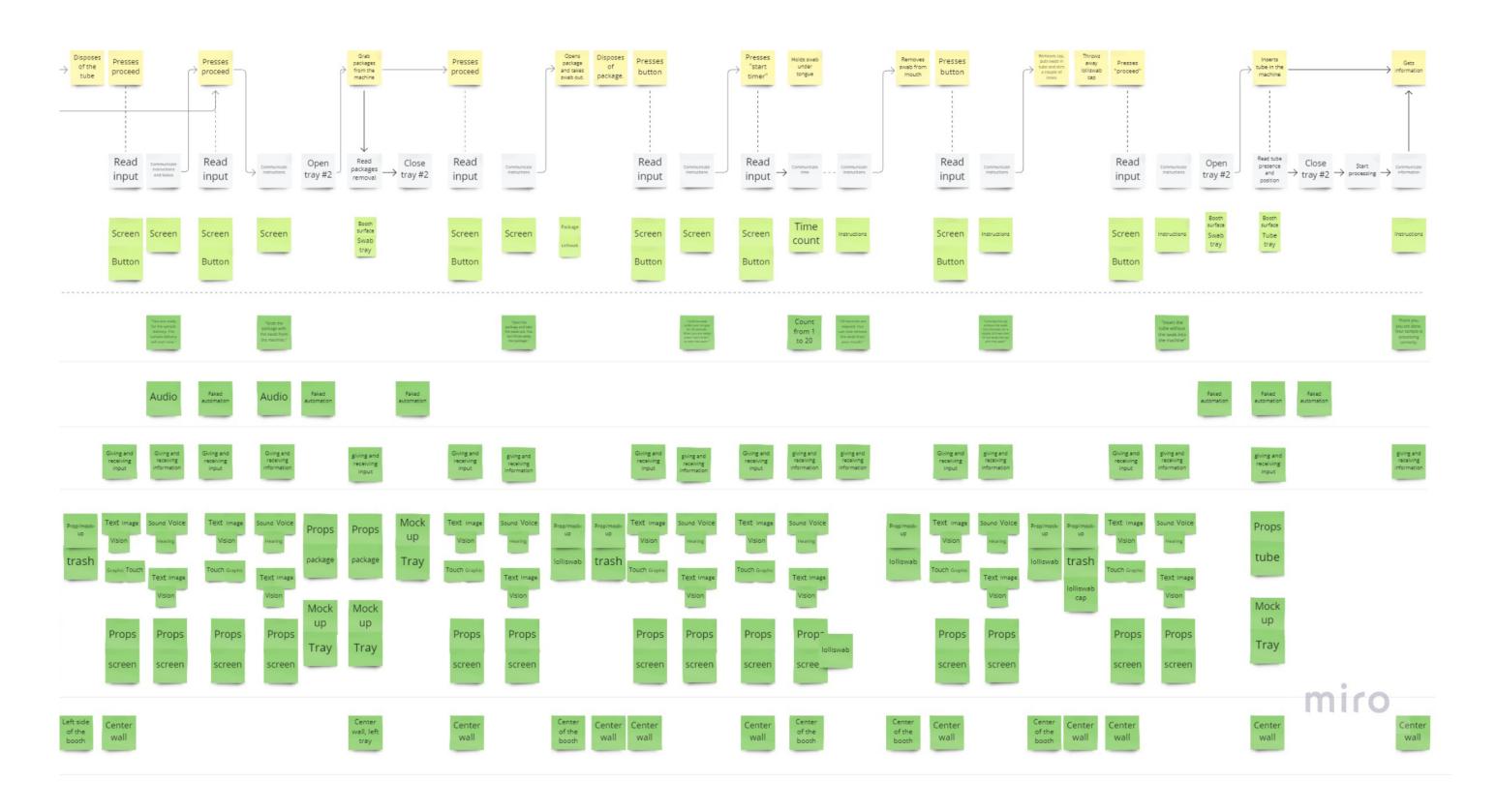
A13 - SERVICE WALKTHROUGH BREAKDOWN

Sample collection procedure

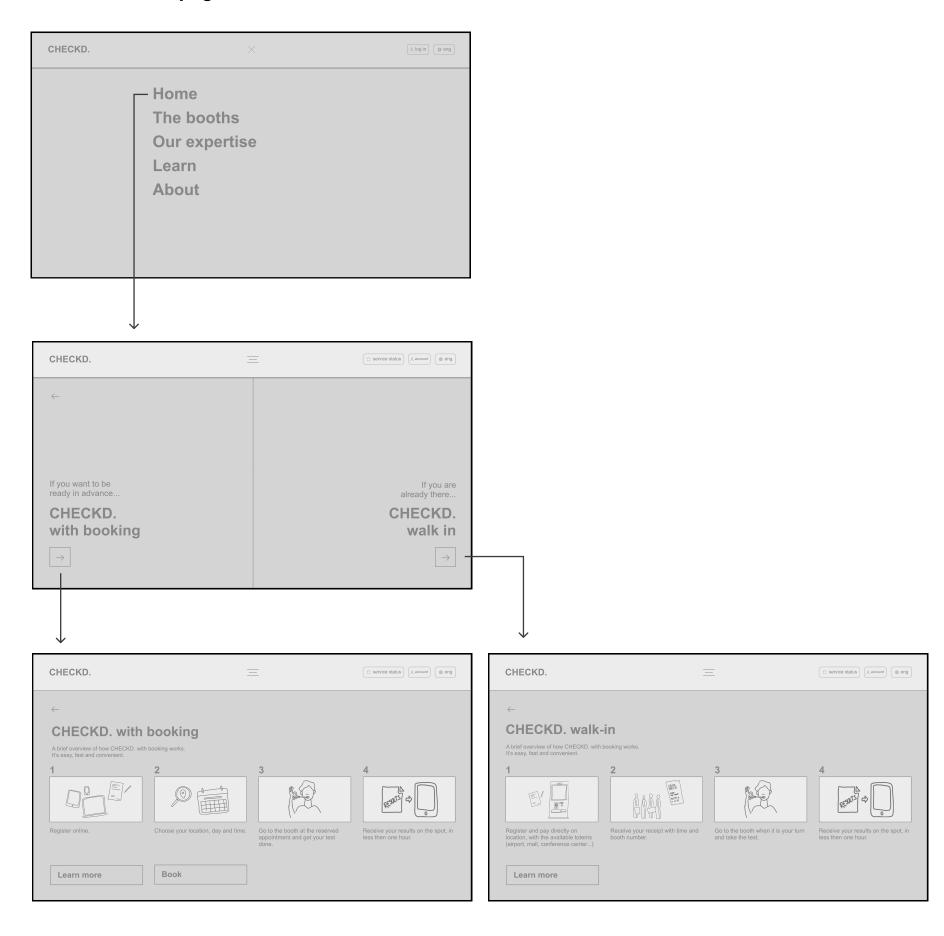


A13 - SERVICE WALKTHROUGH BREAKDOWN

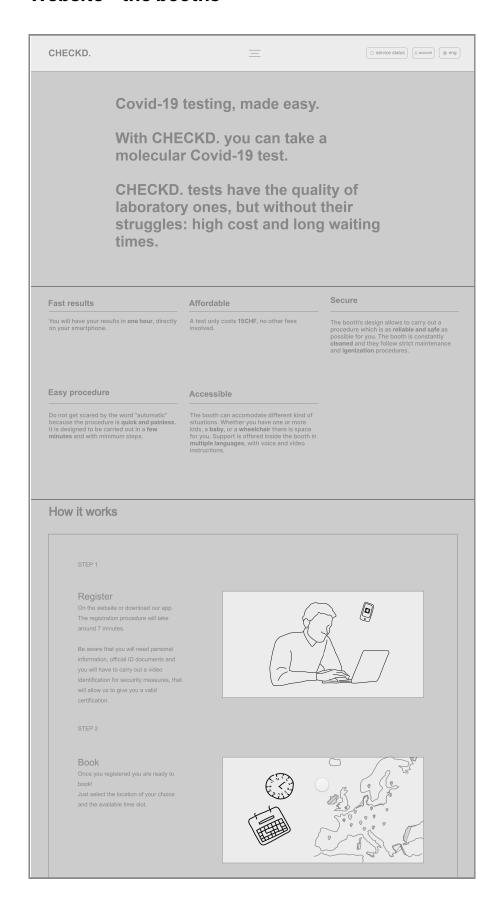
Sample collection procedure

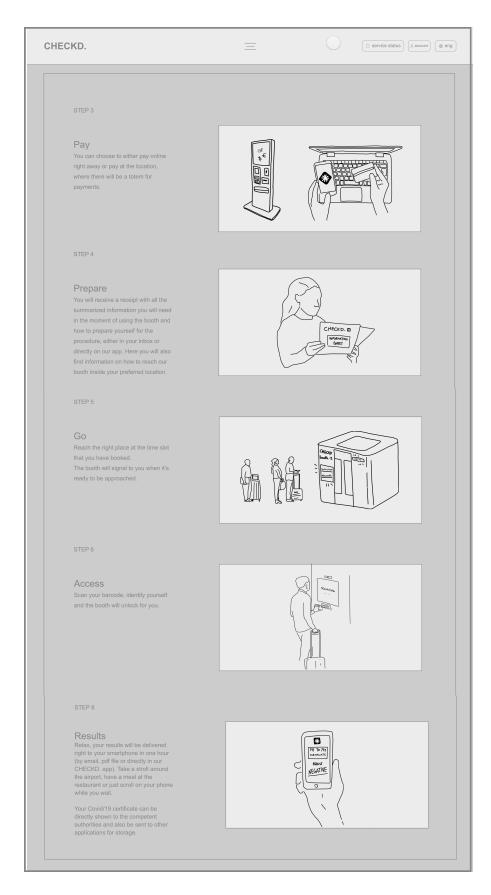


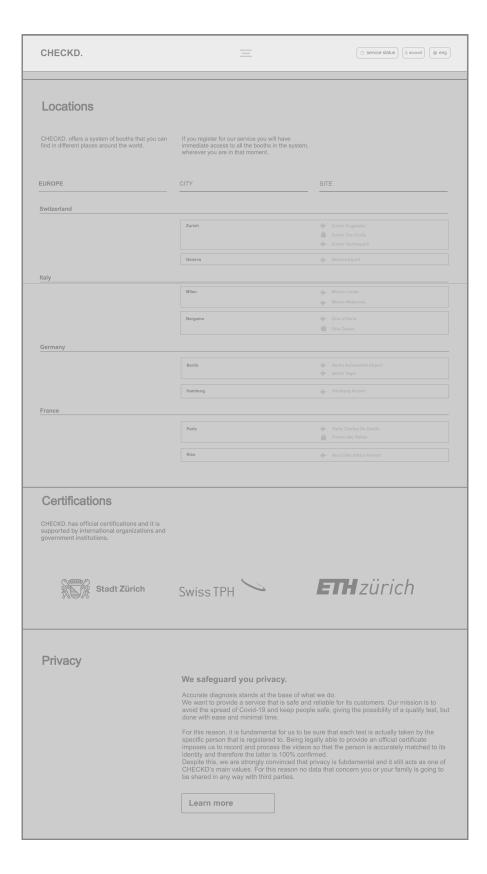
Website - home page



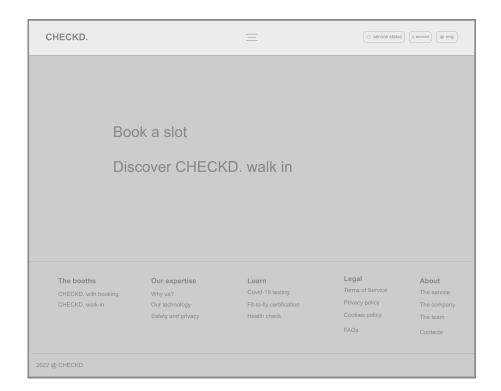
Website - the booths

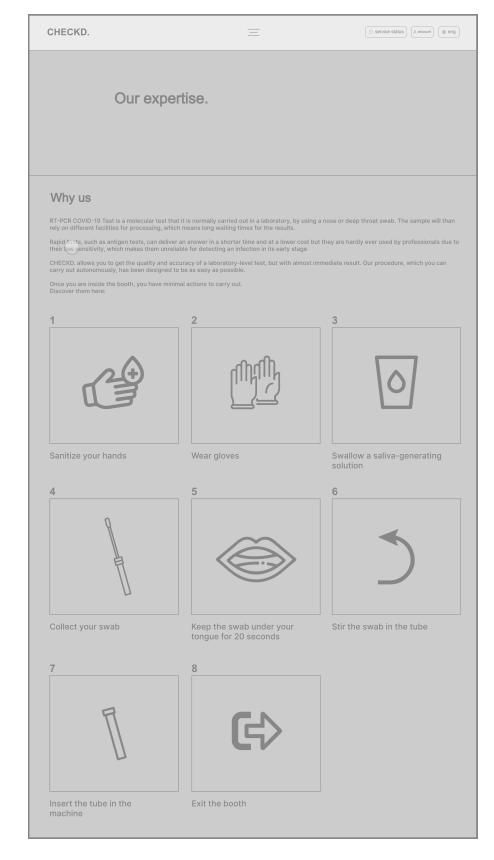


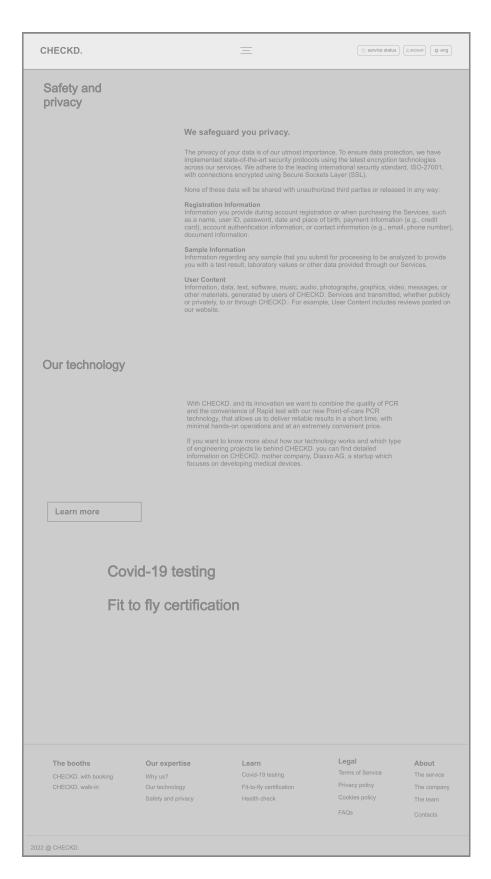




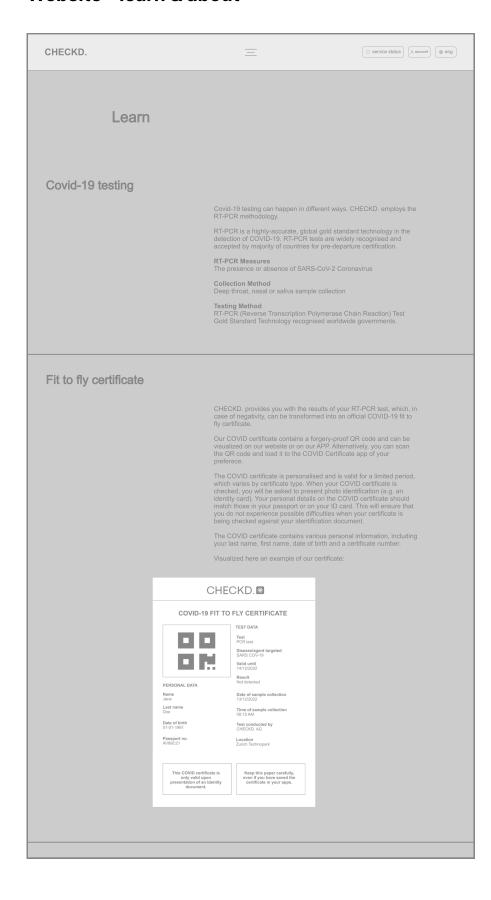
Website - our expertise

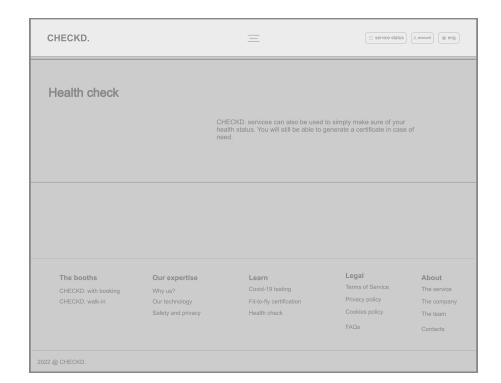


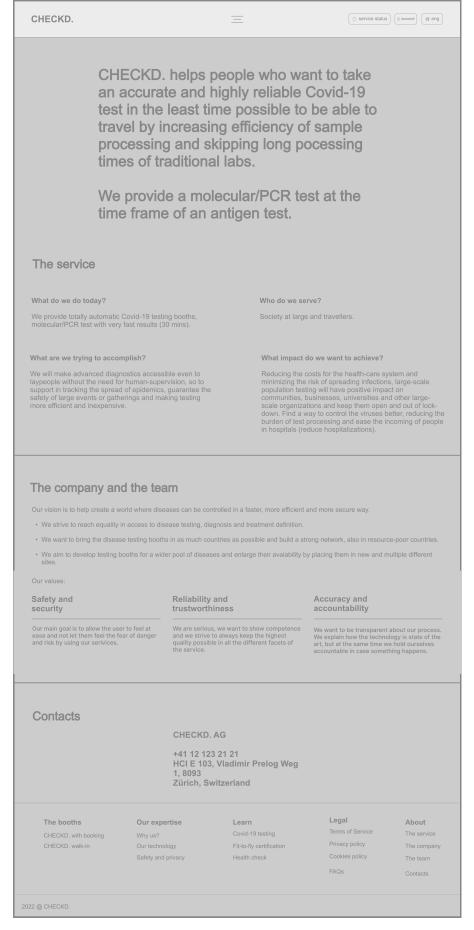




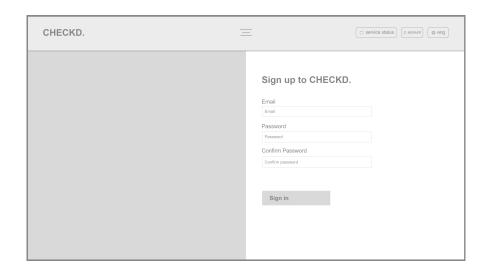
Website - learn & about

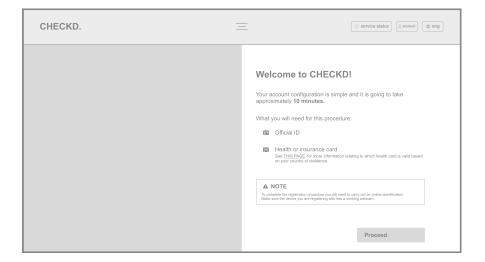


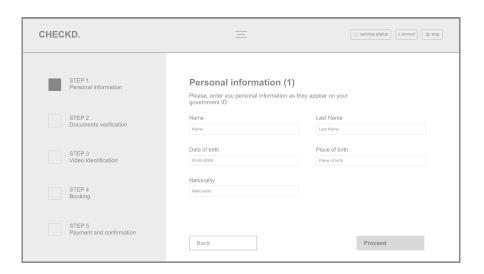


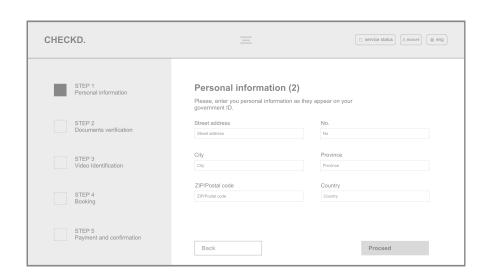


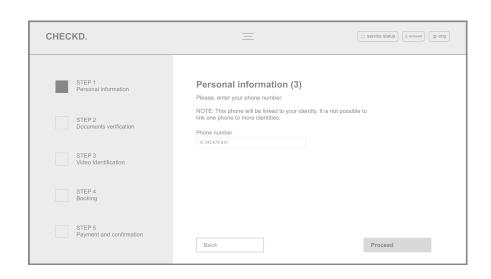
Website - registration

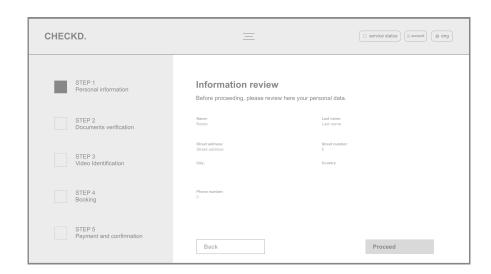


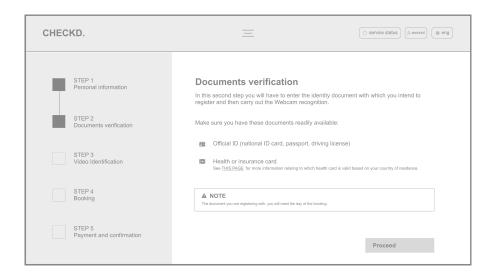


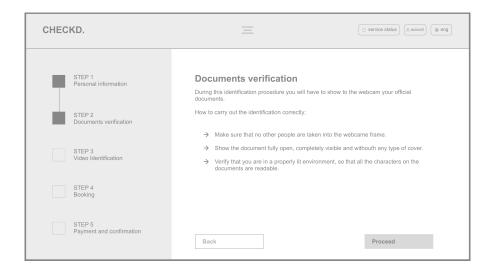


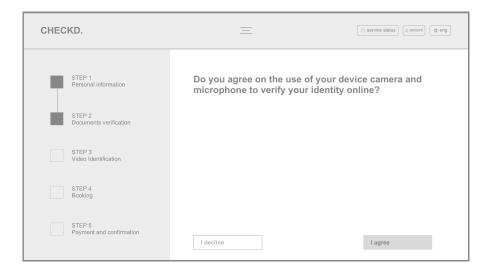




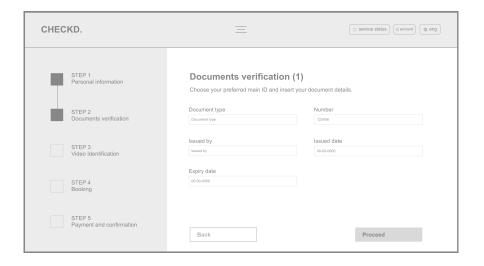


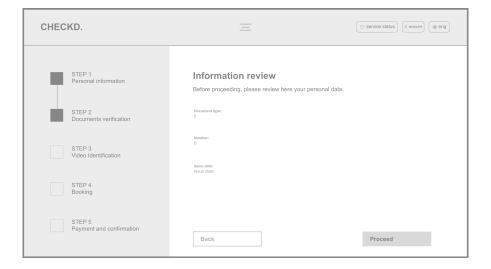


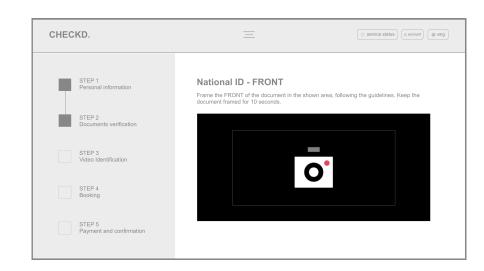


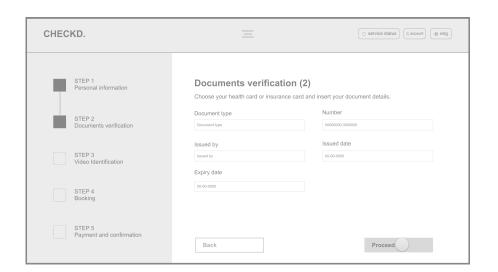


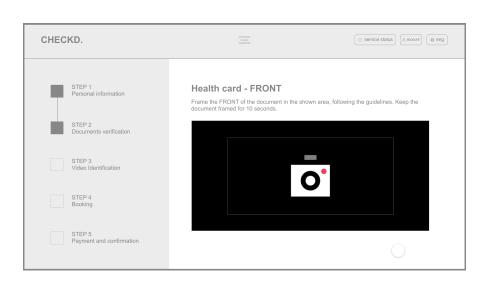
Website - registration

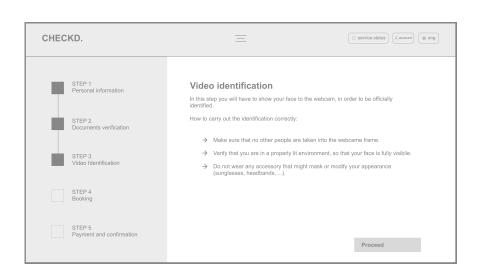


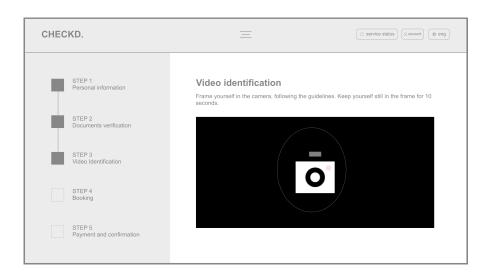


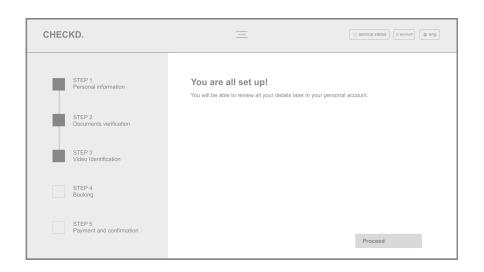


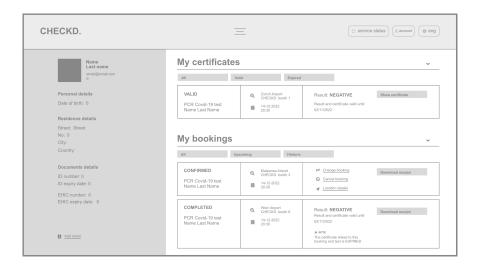




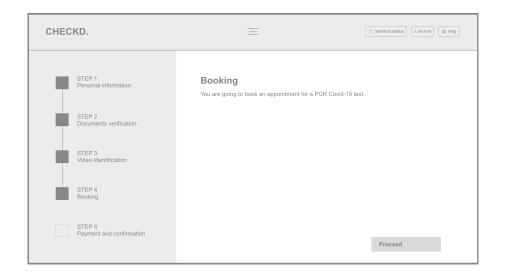


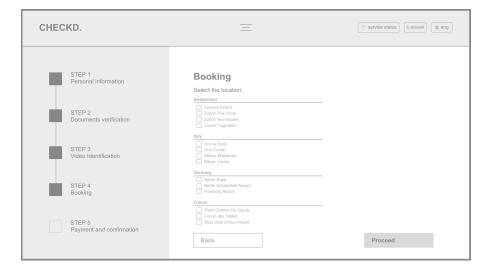


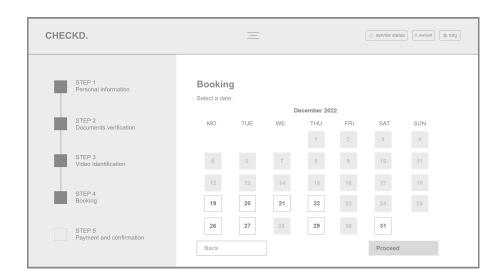


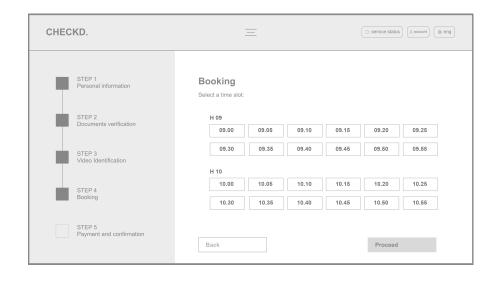


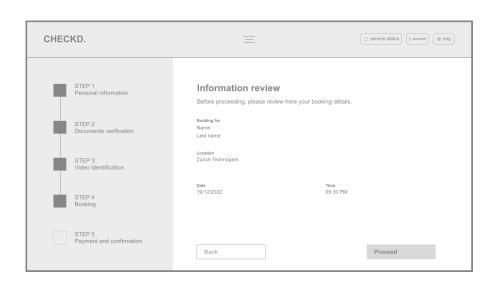
Website - booking

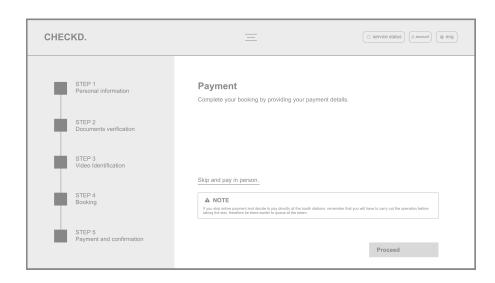


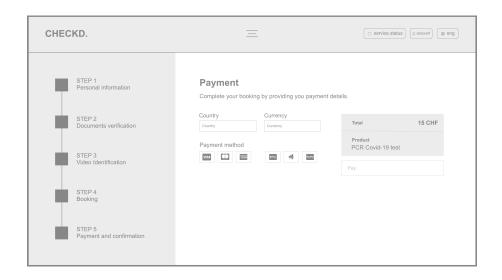


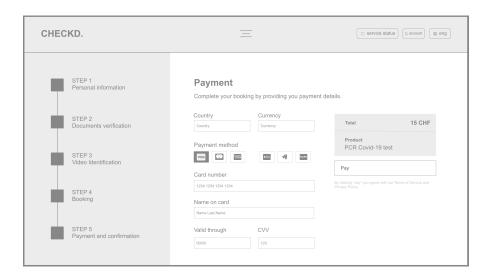


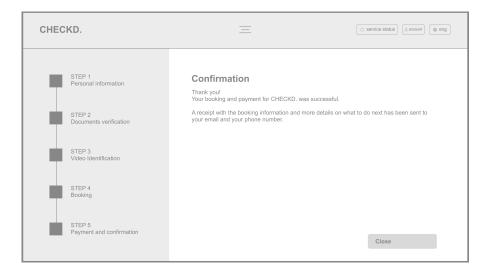




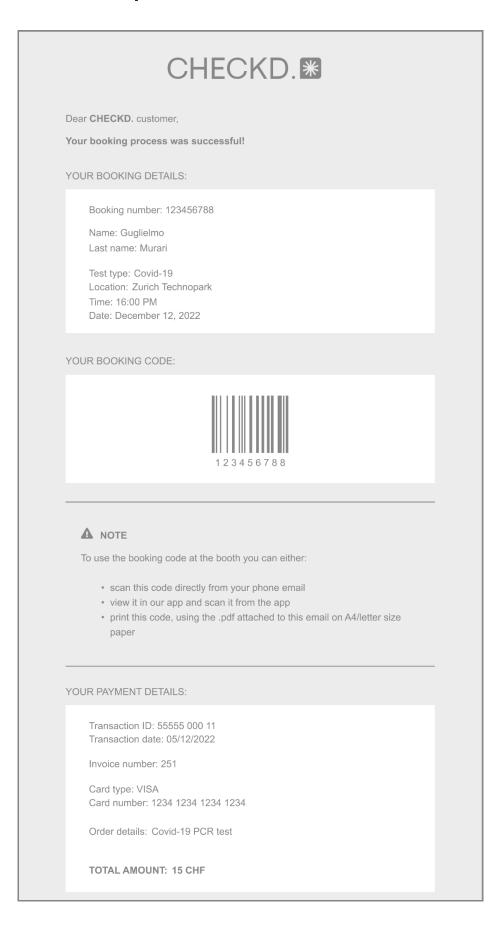


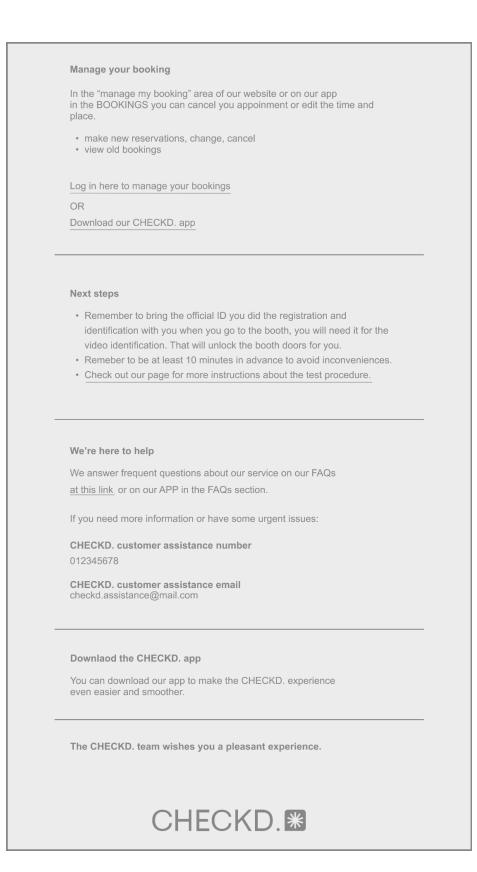


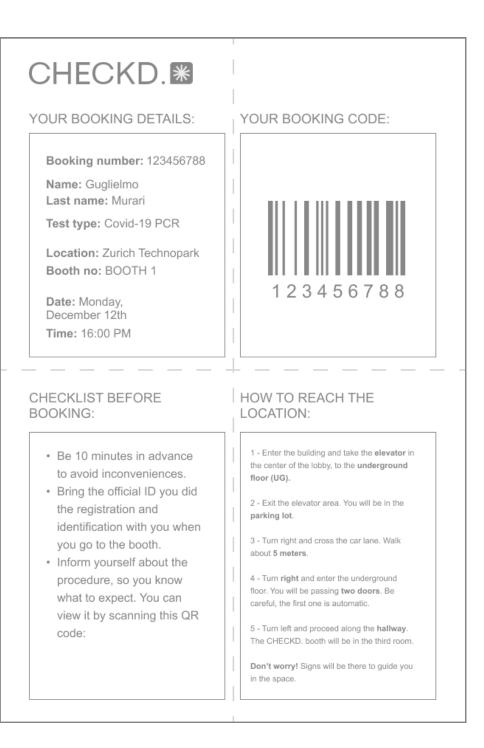




Email & receipt







Email & certificate

CHECKD. **

Dear CHECKD. customer,

your COVID-19 PCR test results are here!

This email contains your FIT TO FLY CERTIFICATE in a .pdf format. You can directly show the .pdf attached to this email to the competent authorities.

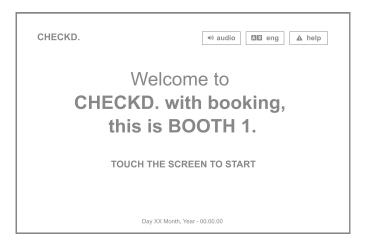
NOTE

You can find and download this certificate also from your personal account on the CHECK website or on our APP.

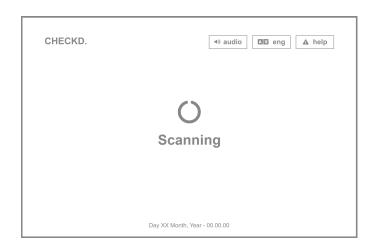
Happy travelling! The CHECKD. team.

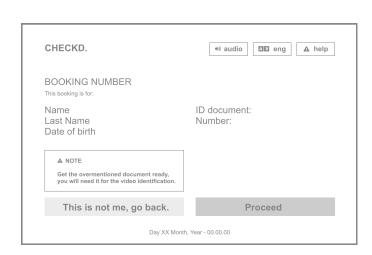


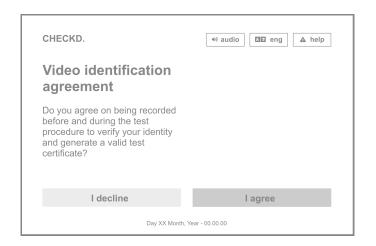
Check-in

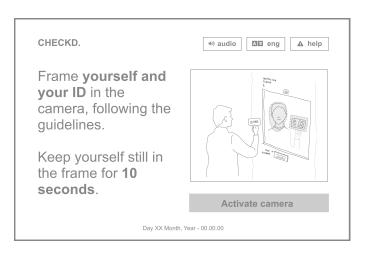


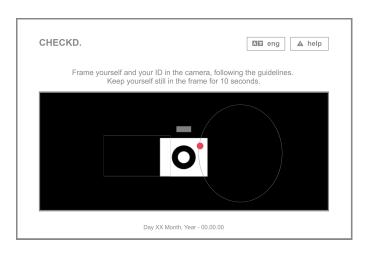


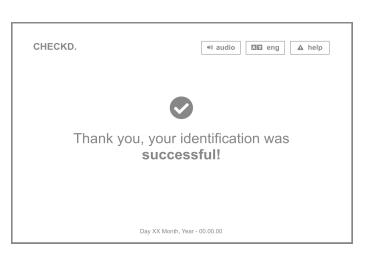






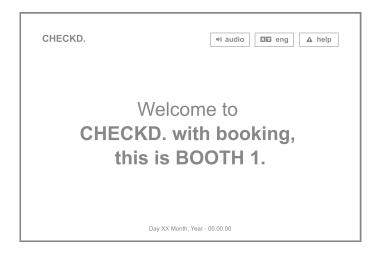


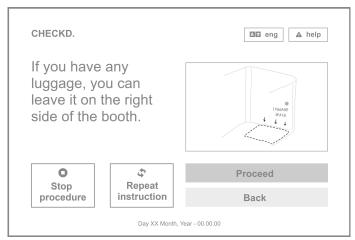




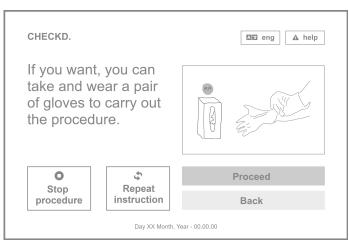


Sample collection



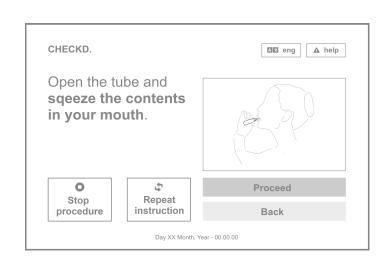


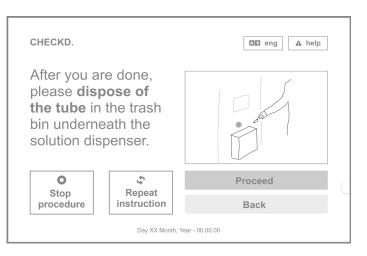






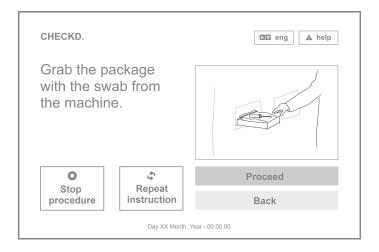


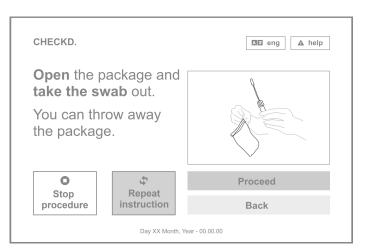




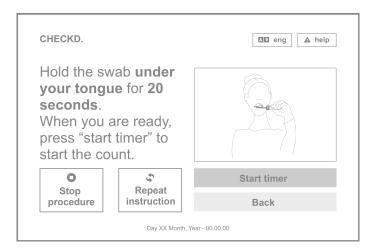


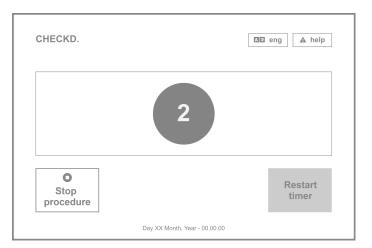




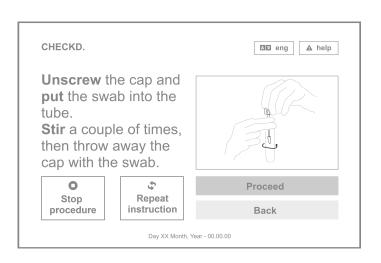


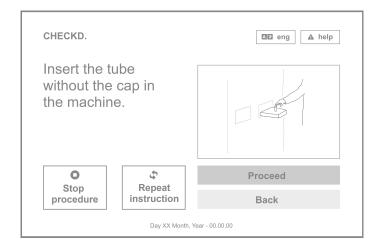
Sample collection

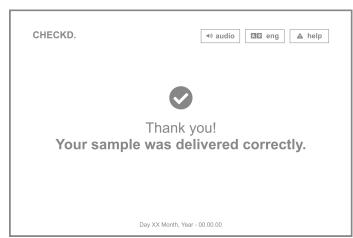


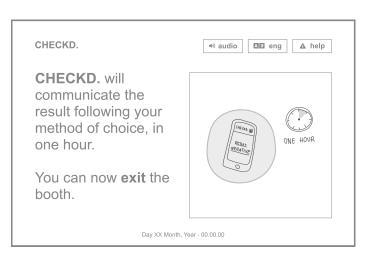


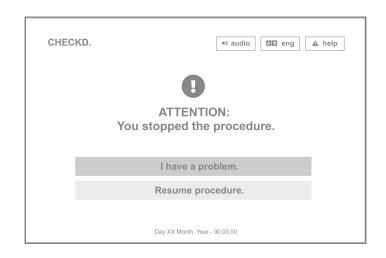




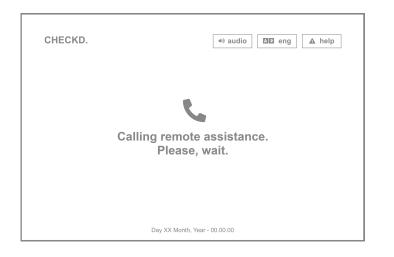










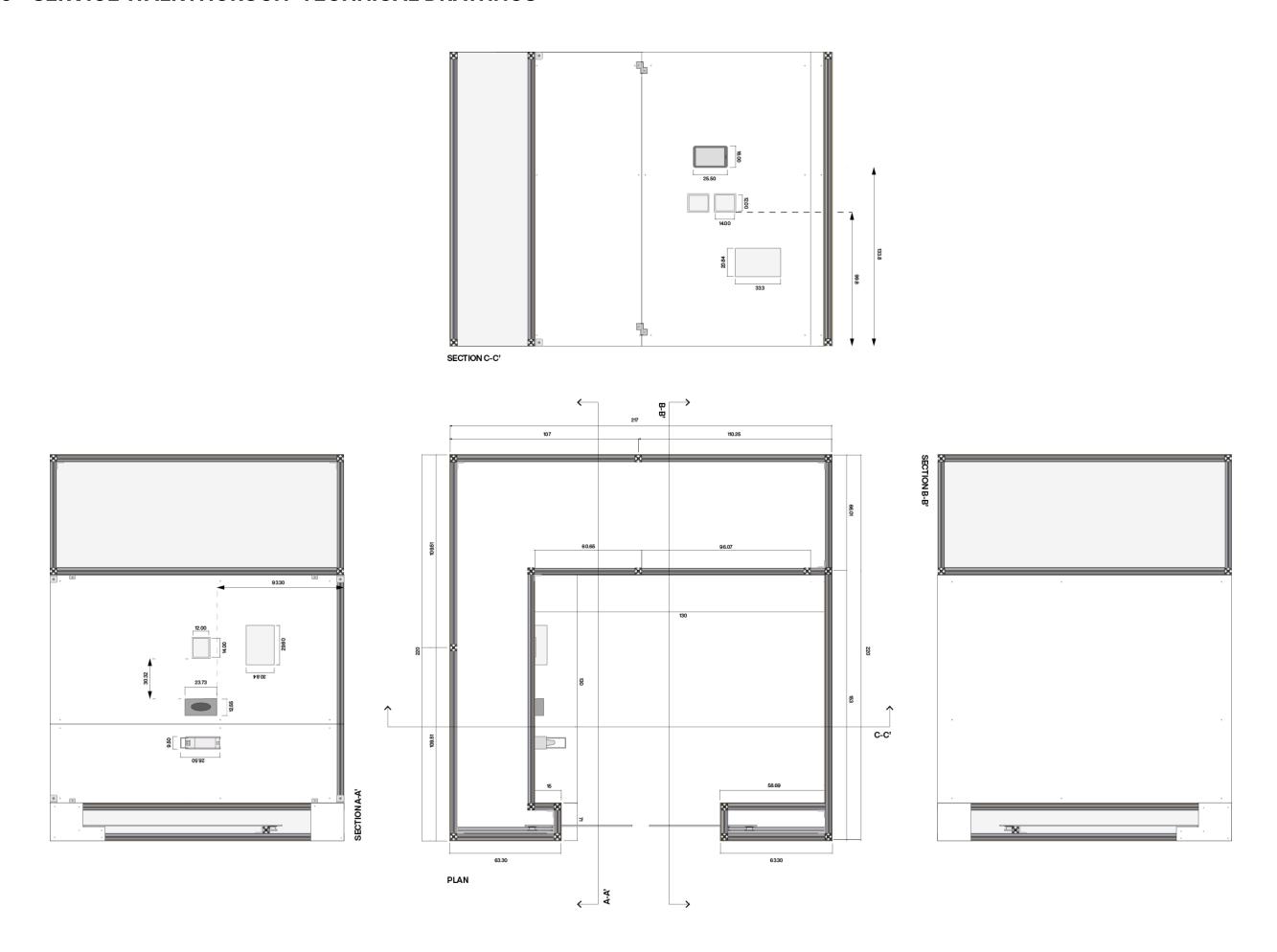


A15 - SERVICE WALKTHORUGH: QUANTITATIVE RESULTS

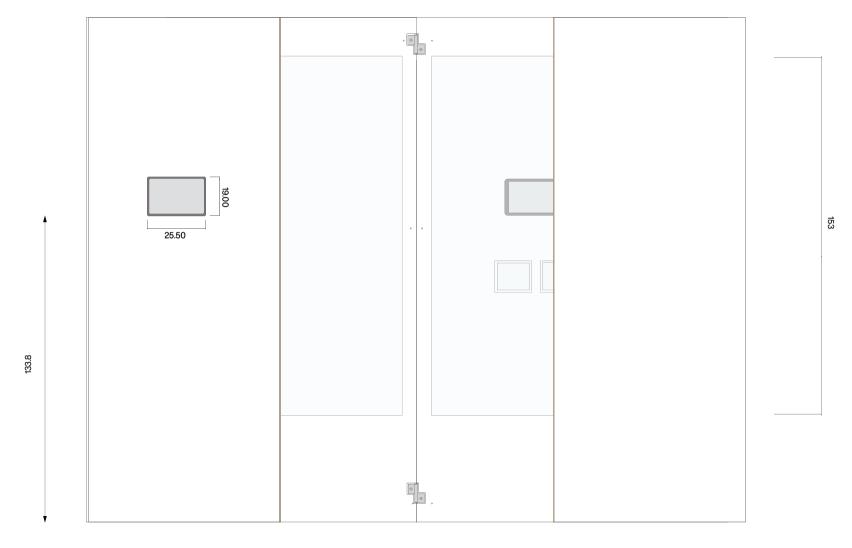
Time

EFFICIENCY MEASURE	BROWSING	REGISTERING	BOOKING	CHECK IN	SAMPLE COLLECTION
P1	2.40	1.45	0.58	1.45	0.58
P2	2.42	1.34	1.05	1.34	1.05
P3	4.05	1.52	1.10	1.52	1.10
P4	2.03	2.10	1.04	2.10	1.04
P5	2.45	1.11	0.57	1.11	0.57
P6	2.40	2.10	1.22	2.10	1.22
P7	3.20	2.29	1.05	2.29	1.05
P8	2.40	1.45	0.58	1.45	0.58
P9	2.42	1.34	1.05	1.34	1.05
P10	4.05	1.52	1.10	1.52	1.10
P11	2.03	2.10	1.04	2.10	1.04
P12	2.45	3.53	0.57	1.11	0.57
P13	2.40	2.10	1.22	2.10	1.22
P14	3.20	2.29	1.05	2.29	1.05

A16 - SERVICE WALKTHORUGH: TECHNICAL DRAWINGS



A16 - SERVICE WALKTHORUGH: TECHNICAL DRAWINGS



ELEVATION

Overview

The prototype structure described in the following APPENDIX sections is the final optimized version, approved by the stakeholders after two other previous proposals I made.

The person in charge of the design of the proposals, the procurement of the materials and the construction itself was the Author of this thesis. The structure was build over a month time circa (from 26/10 to 28/11), with the help of another person.

In order to give the option of creating new ones or dismantling and rebuilding the existing structure for more prototyping activities, an assembly guide is provided.

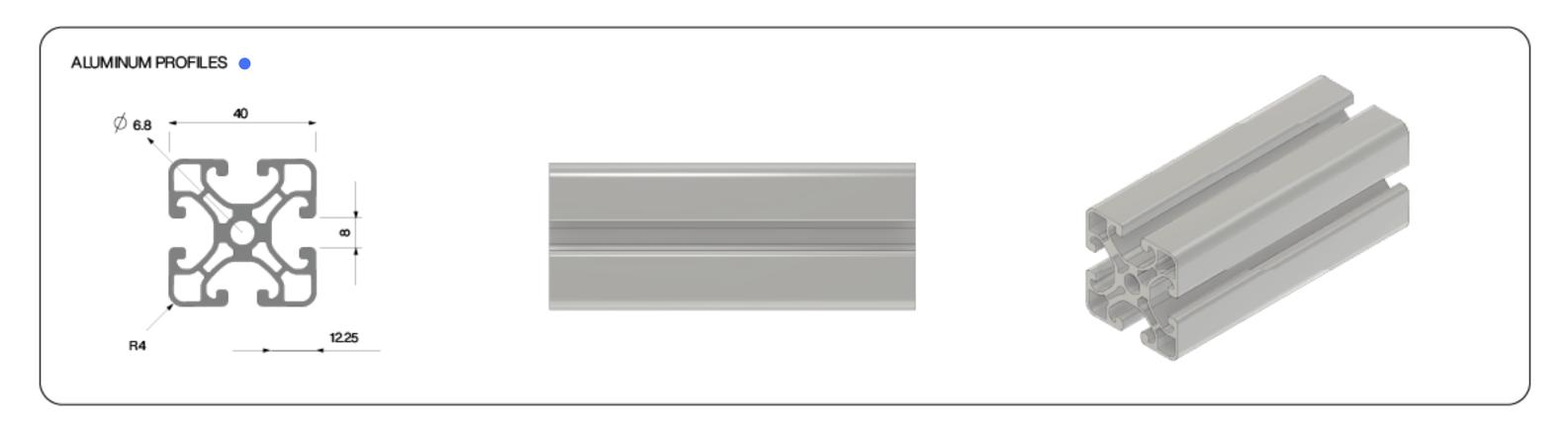
Materials

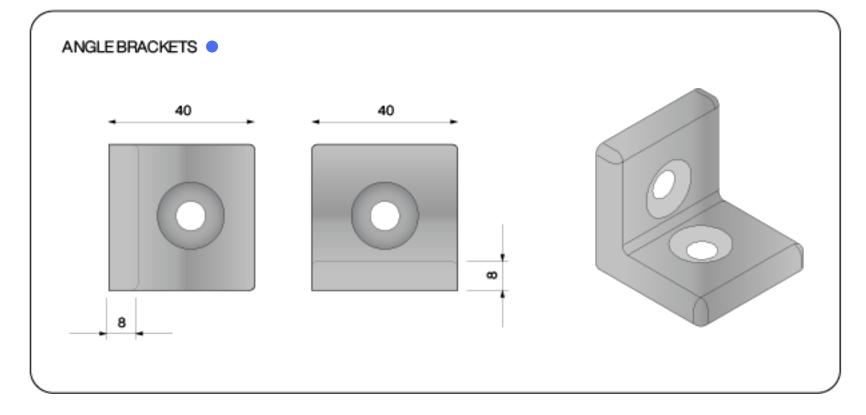
DENOMINATION	SUPPLIER	LENGHT (mm)	QUANTITY (pcs)
Aluminum Profile 8 40×40 E, natural	itemSchweiz		
Struts - full		2200	10
Struts - middle		2120	5
Cover/base - S		550	6
Cover/base - doors		130	4
Cover/base - EW		2110	4
Cover/base - W internal		1340	2
Cover/base - SW internal		150	2
Cover/base - NW		1010	2
Cover/base - NE + NE internal		1040	4
Openings hor - NW internal		570	2
Openings hor - N		875.9	2
Openings hor- W1		350	2
Openings hor - W2		778	2
Openings ver - N + W1 + W2		2108	6
Doors supports		630	4
Angle Bracket V 8 40 Zn	itemSchweiz	//	80
Multiblock 8 PA, grey	itemSchweiz	//	126
Safety Fastening Set Multiblock 8	itemSchweiz	//	126
T-Slot Nut V 8 St M8, bright zinc-plated	itemSchweiz	//	30

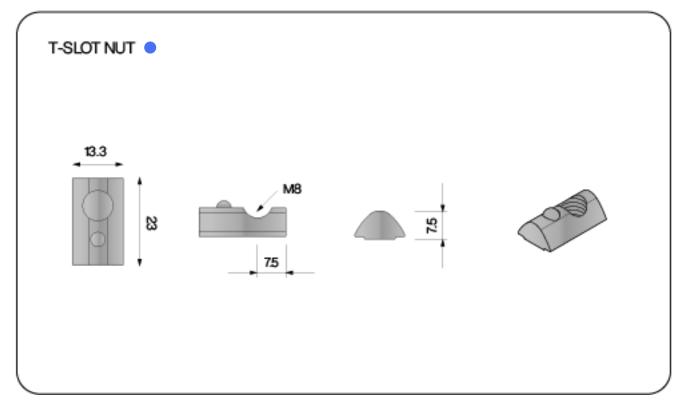
DENOMINATION	SUPPLIER	DIMENSIONS (mm)	QUANTITY (pcs)
Hinge 8 Al PPO, light duty	itemSchweiz	//	6
MDF panels, white 3mm	Hornbach		
Front		636×2200	2
Exterior - E		1585×2200	1
		64×2200ù	1
Exterior - N		2200×2200	1
		1075×2200	1
Exterior - W		1095×2200	2
Interior - NW		150X2200	1
Interior - W		435×2200	1
		865×2200	1
Interior - N		610×2200	1
		960×2200	1
		85×2200	1
Interior - E		1350×2200	1
Interior - NE		59×2200	1
Sliding bearing wheels, ø 30mm	dörner+helemer	52×24×15	8
Double wall plate, polycabornate 4 mm	Jumbo	150×105 cm	1

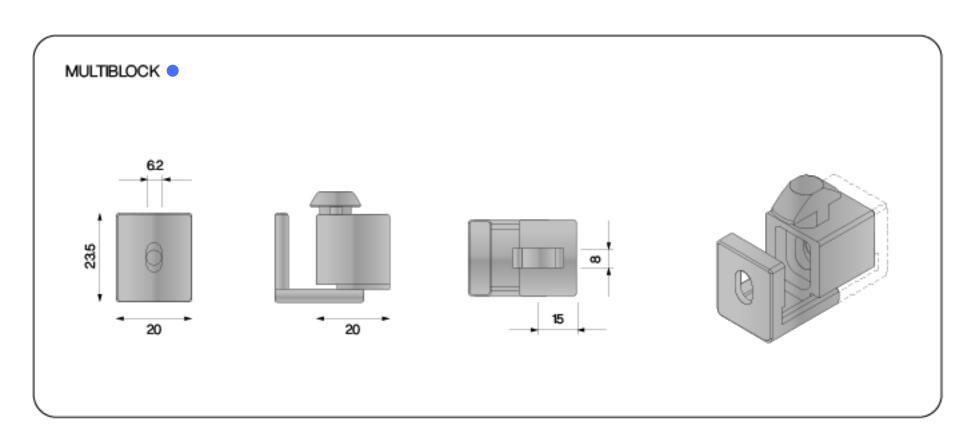
Existing components, scale 1:1 •

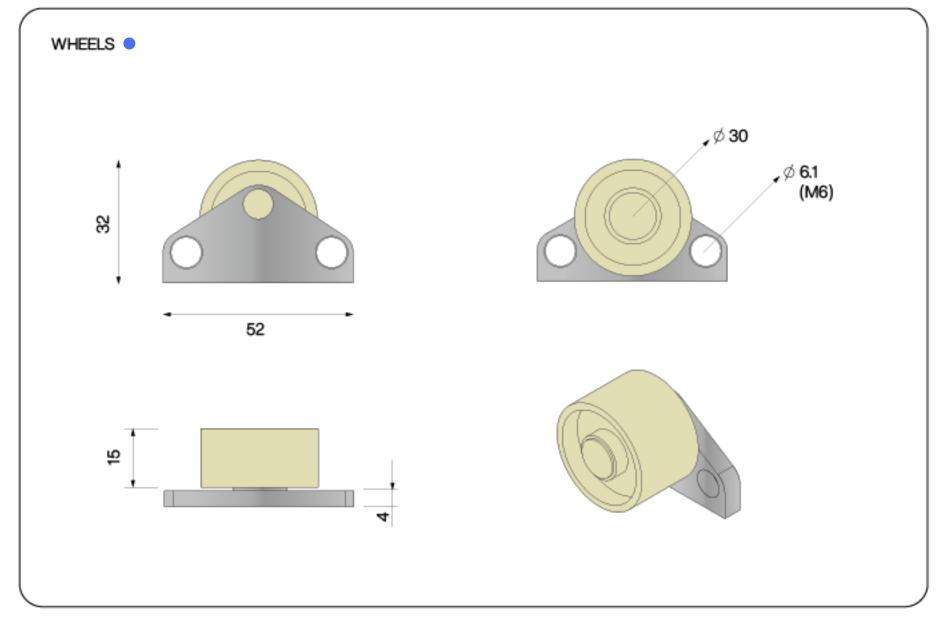
Custom components, scale 1:2

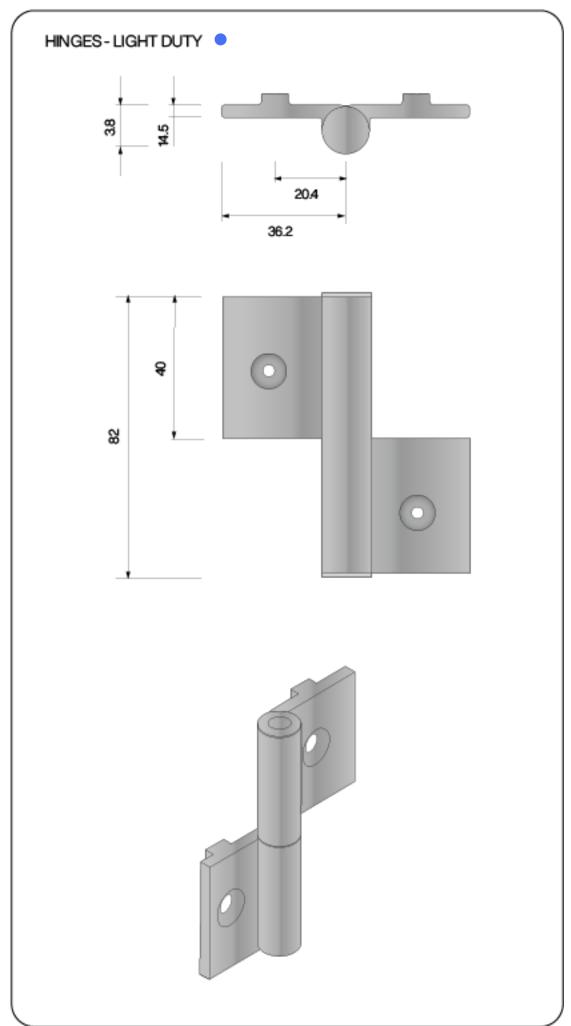


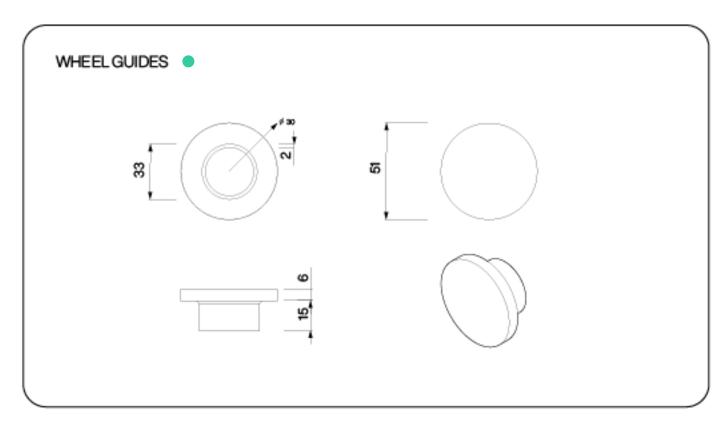


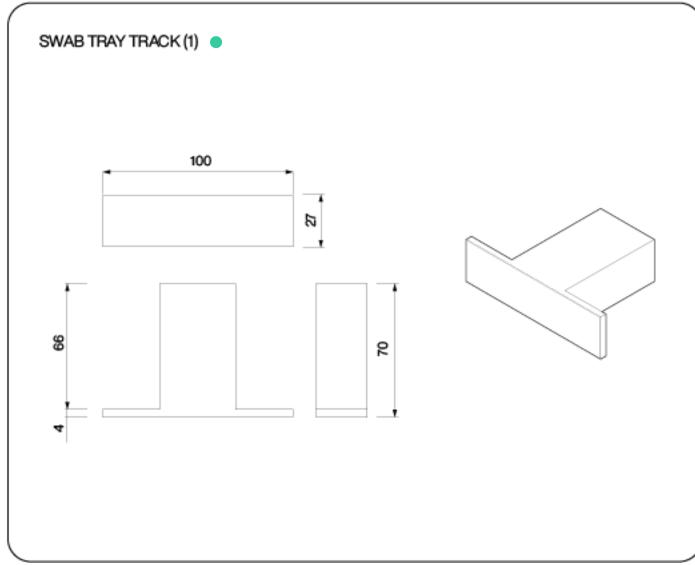


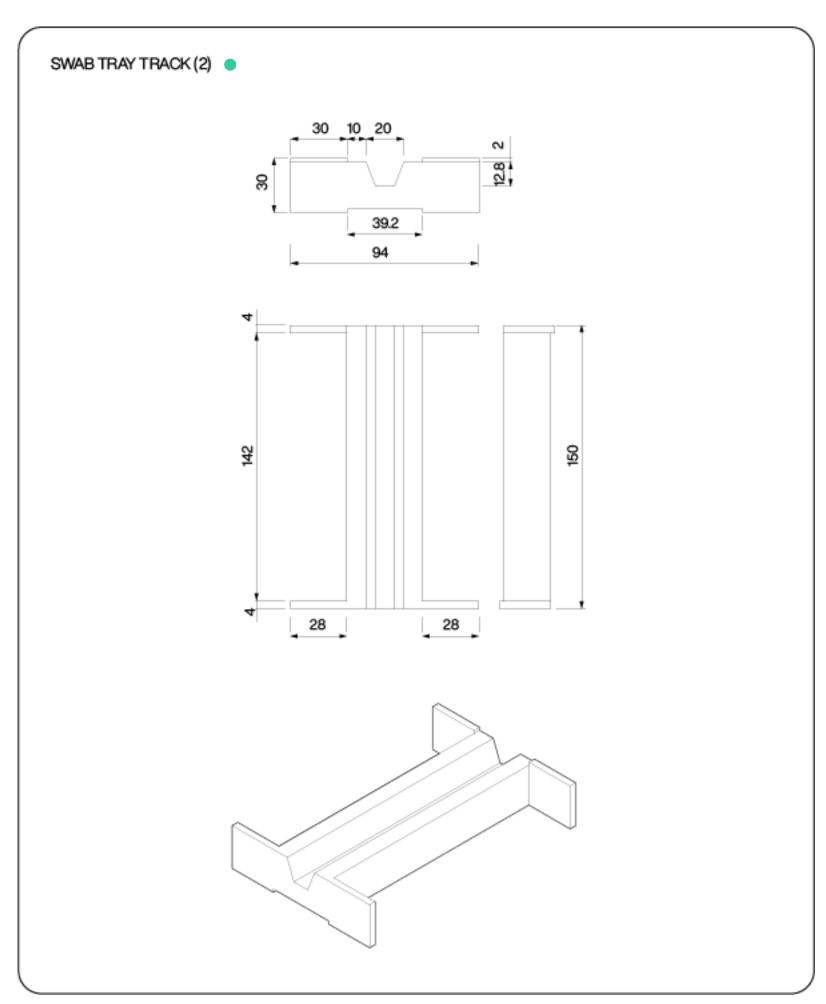


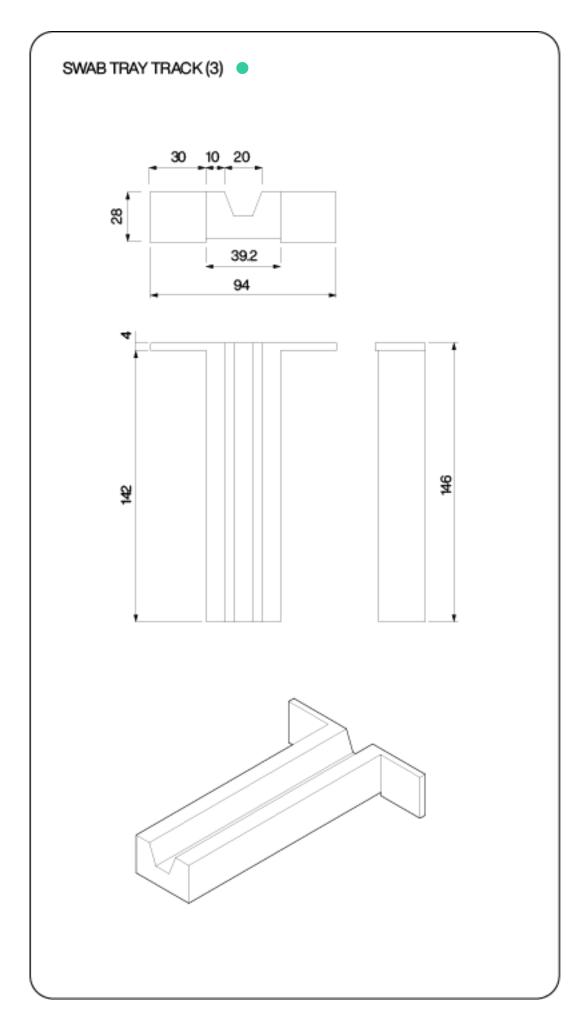


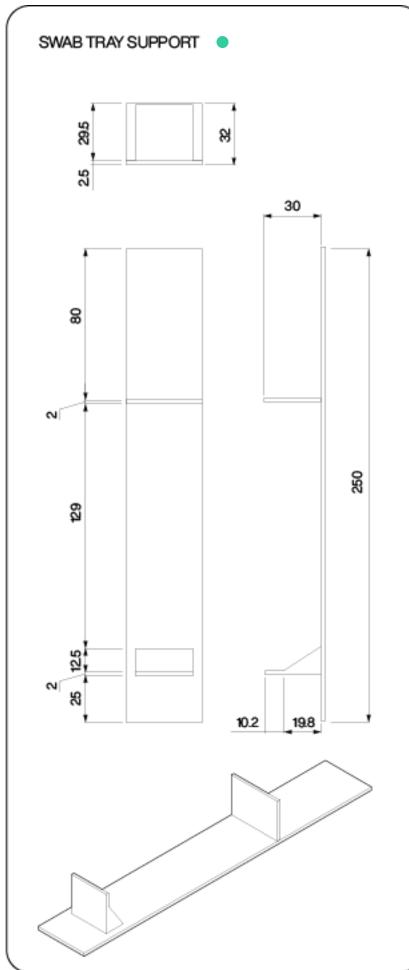


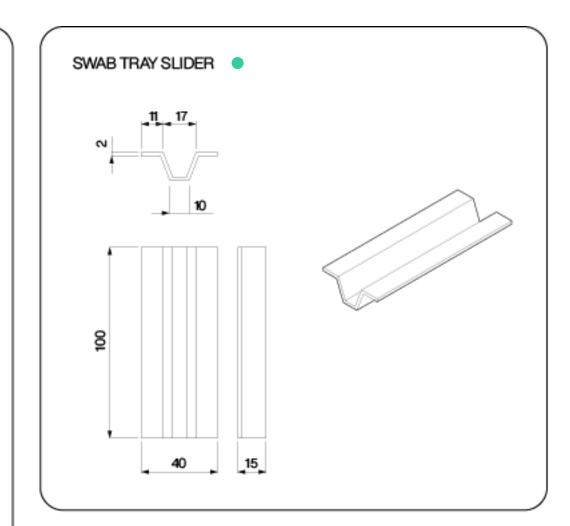


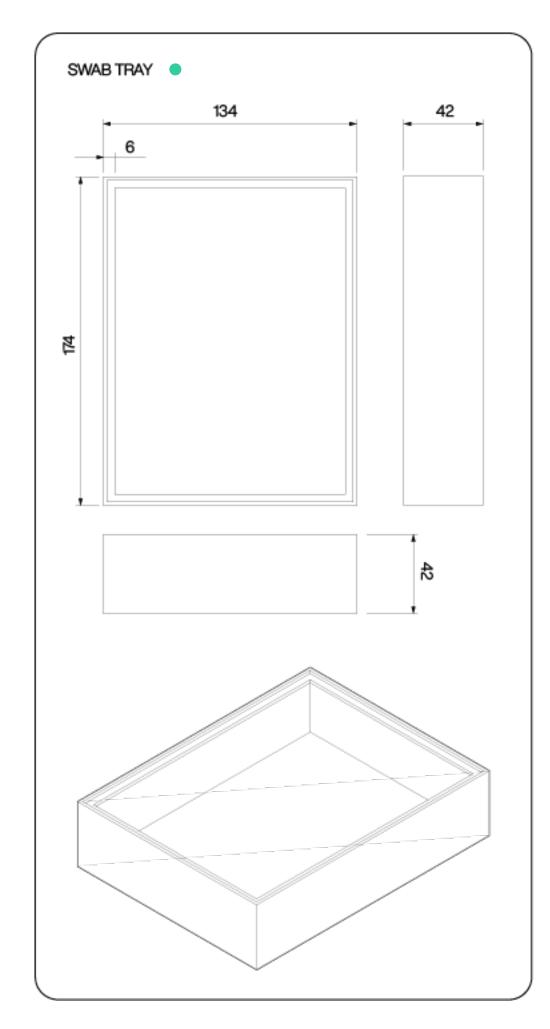


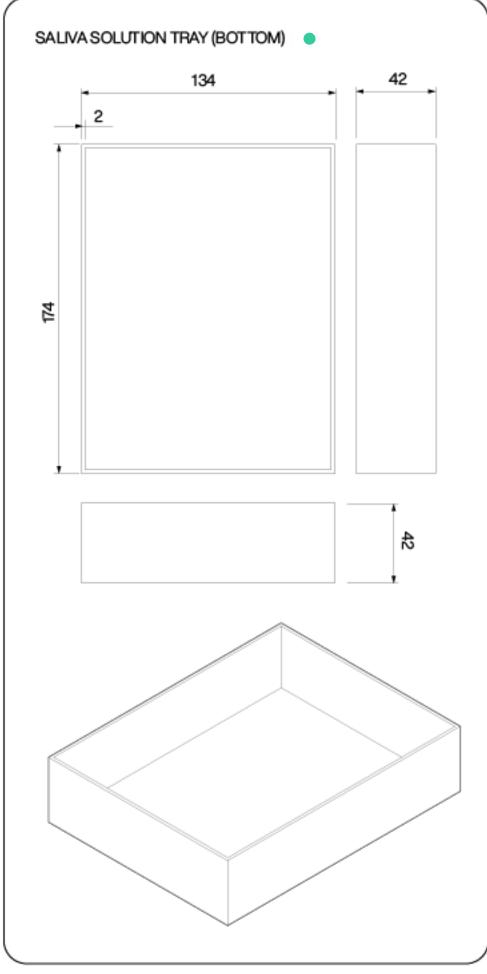


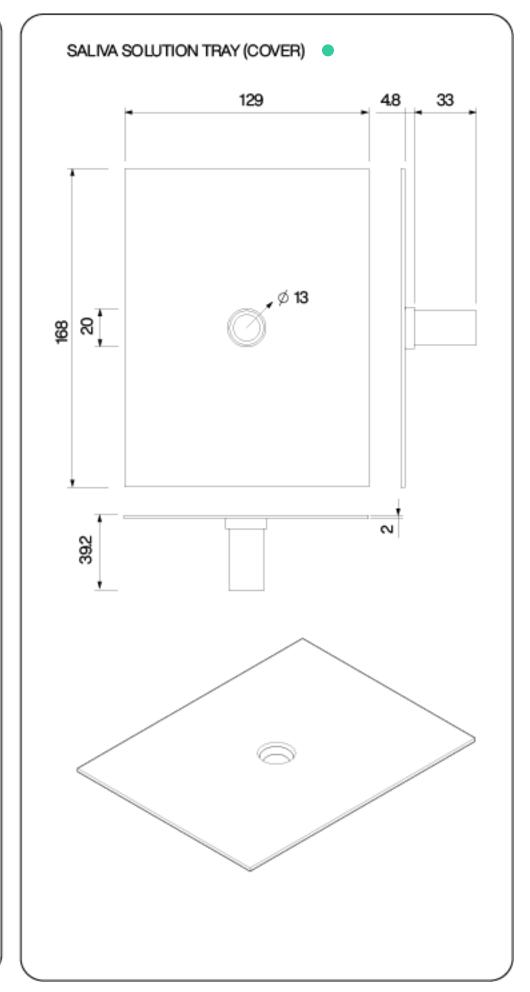






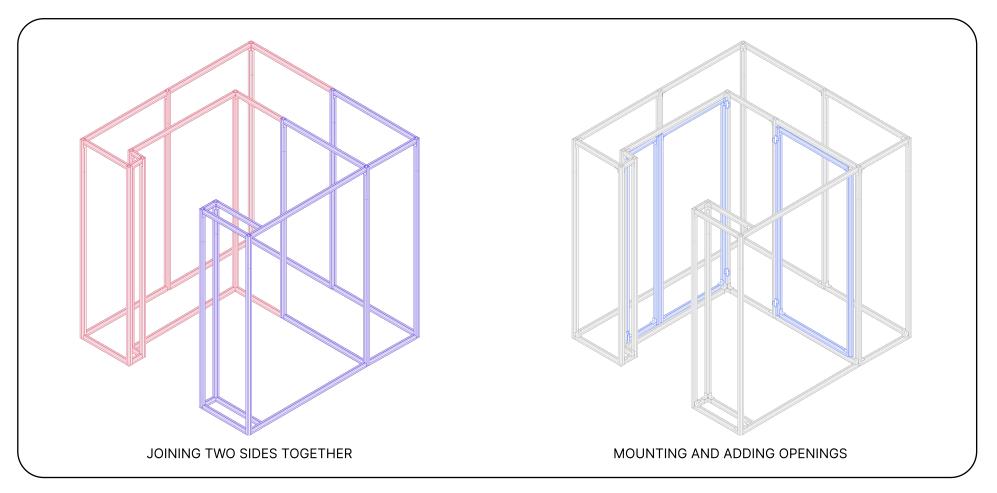


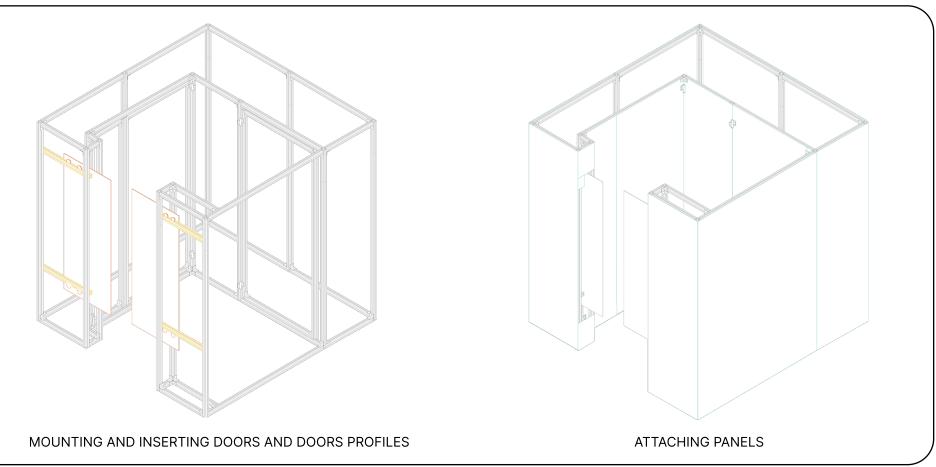




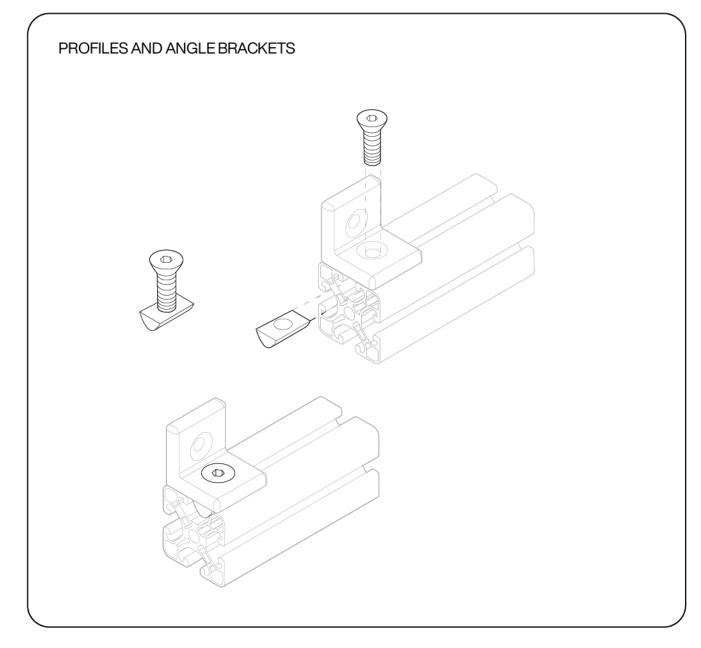
Steps

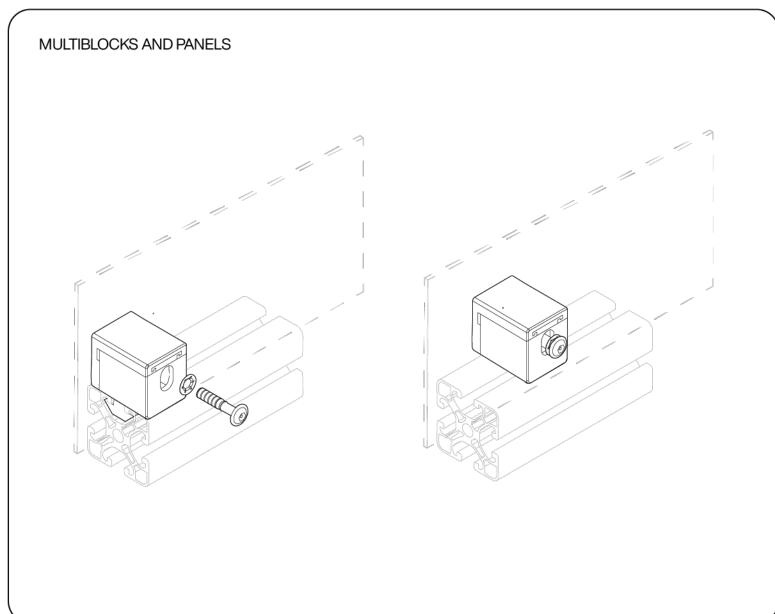
- 1. Order materials (list provided in next page).
- 2. Remove square joint detail from angle brackets using a metal bandsaw.
- 3. Measure aluminium profile pieces and divide them by length.
- 4. Write length and position (vertical or horizontal) on the piece following a coding system that divides left or right side, vertical and horizontal pieces and coupling.
- 5. Position profiles that make up the base of the structure, possibly the left side, as you would lay out a plan.
- 6. Position the respective struts and attach them.
- 7. Join the struts with the top profiles.
- 8. Attach the profiles that make up the openings and assemble the joints.
- 9. Build the right side as the left side.
- 10. Join the two sides together.
- 11. Attach hinges to structure and then fix opening to joints (and structure).
- 12. Divide panels by measurements and placements.
- 13. Fix multiblocks in profiles (at least three per side, with a total of 6 to 8 multiblock for panel).
- 14. 3D print wheel doors guides.
- 15. Attach profiles to entrance.
- 16. Cut transparent acrylic for doors and attach two wheel per panel.
- 17. Position wheels into 3d printed door guides and slide them into the profiles.
- 18. Retouch panels cutting out hinges, angle brackets spaces and opening for the swab trays.
- 19. Screw them in using at least 6 screws per panel.
- 20. Cover hinges and angle brackets spaces with custom 3D printed parts.
- 21. Cut out signage and attach to panels.
- 22. Attach screens and other elements with strong double sided tape.

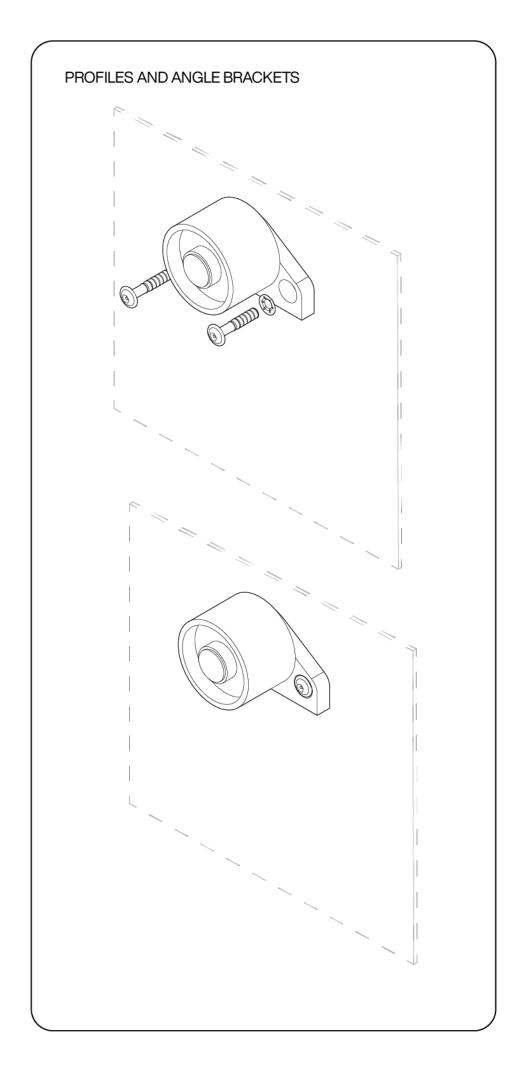


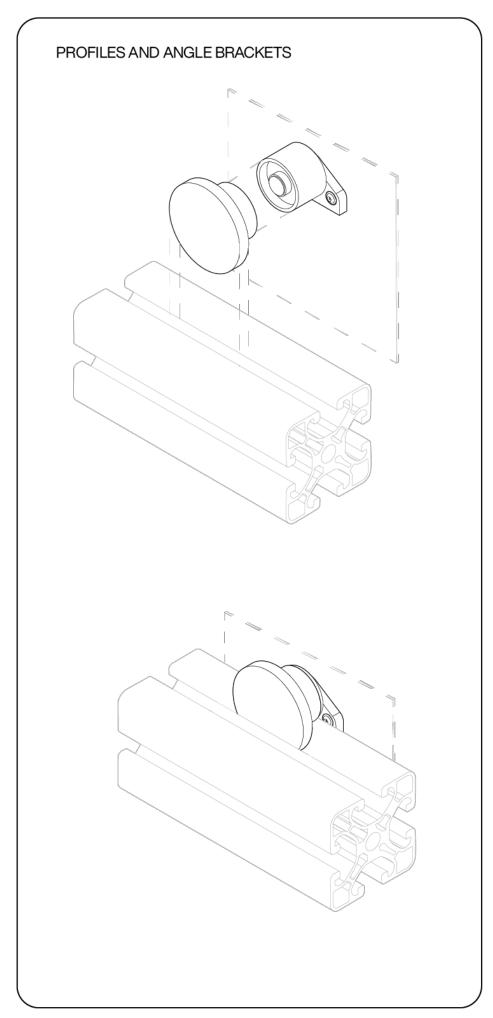


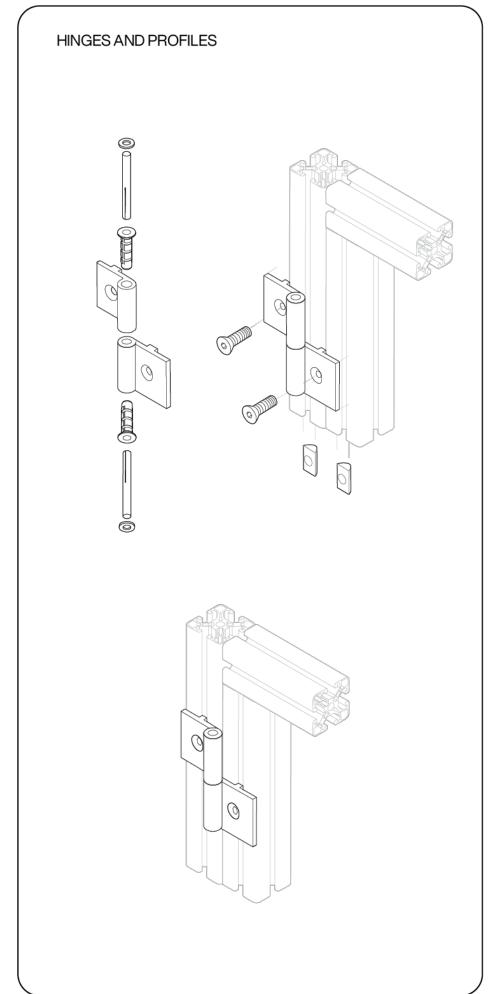
Assembly details

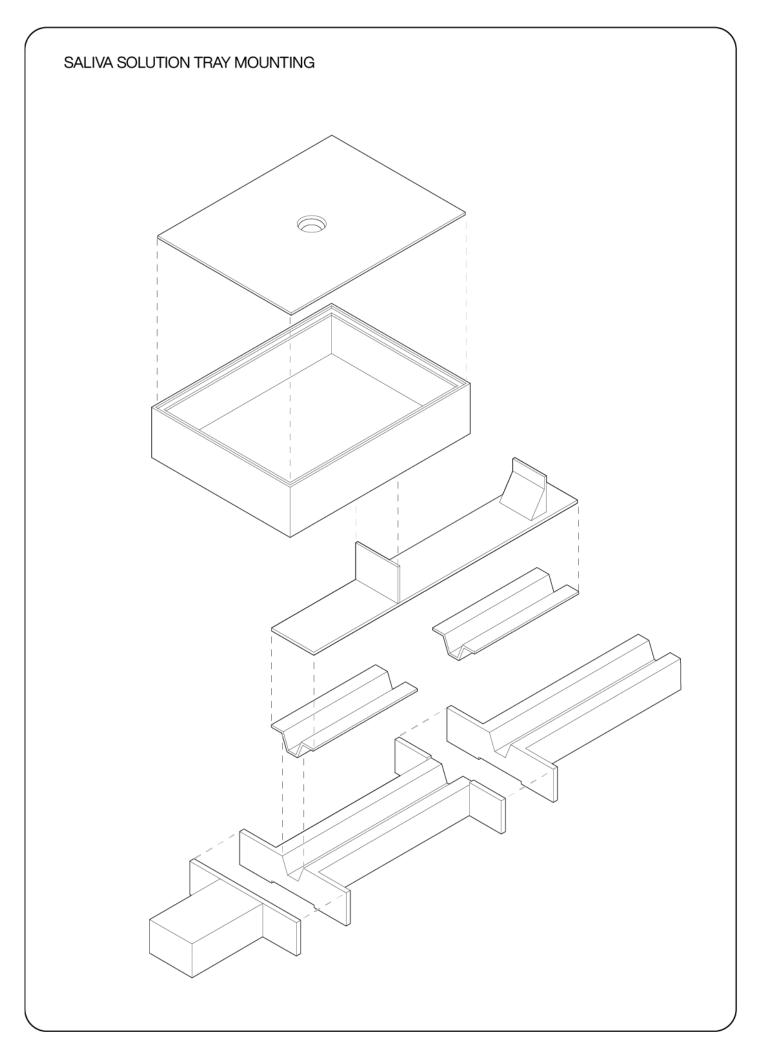


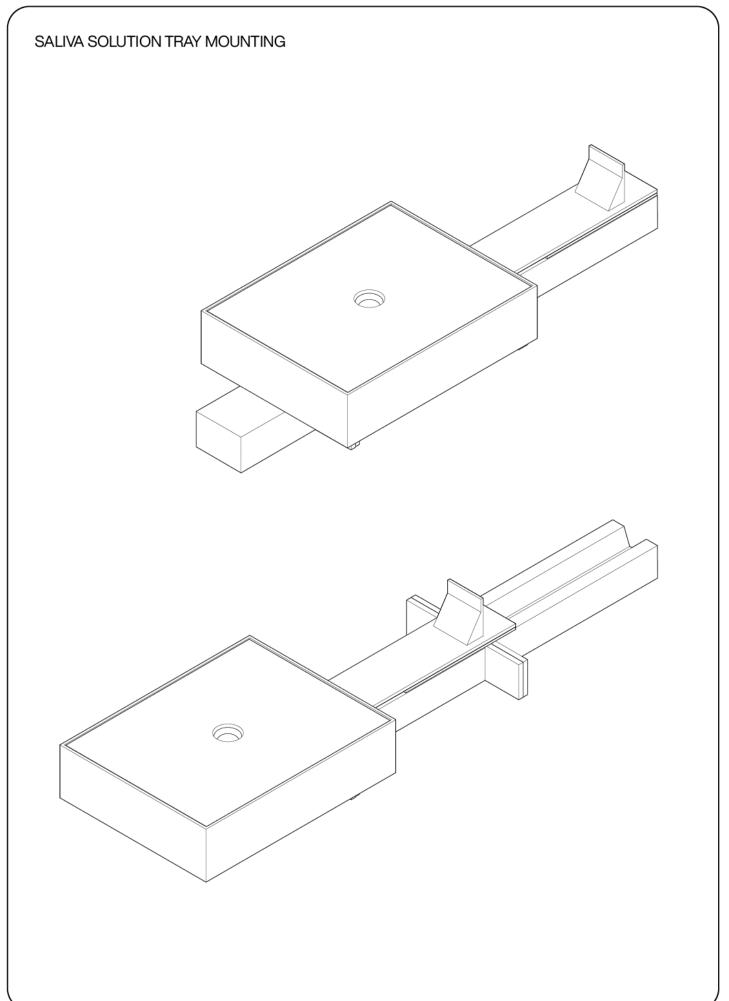


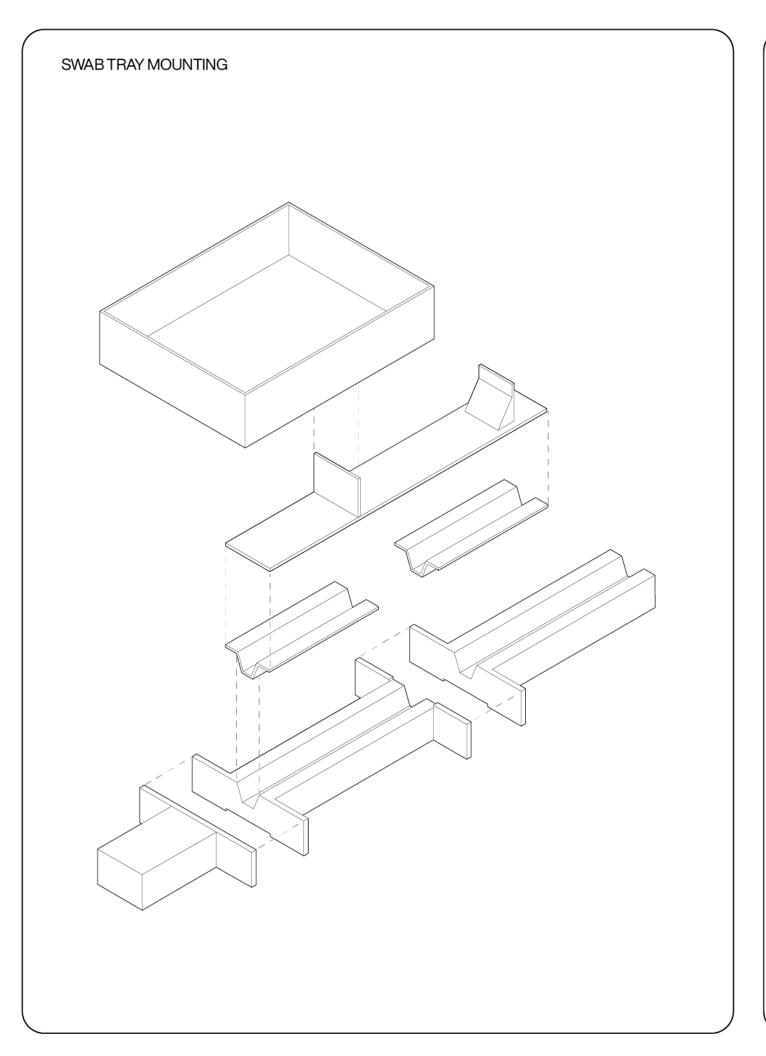


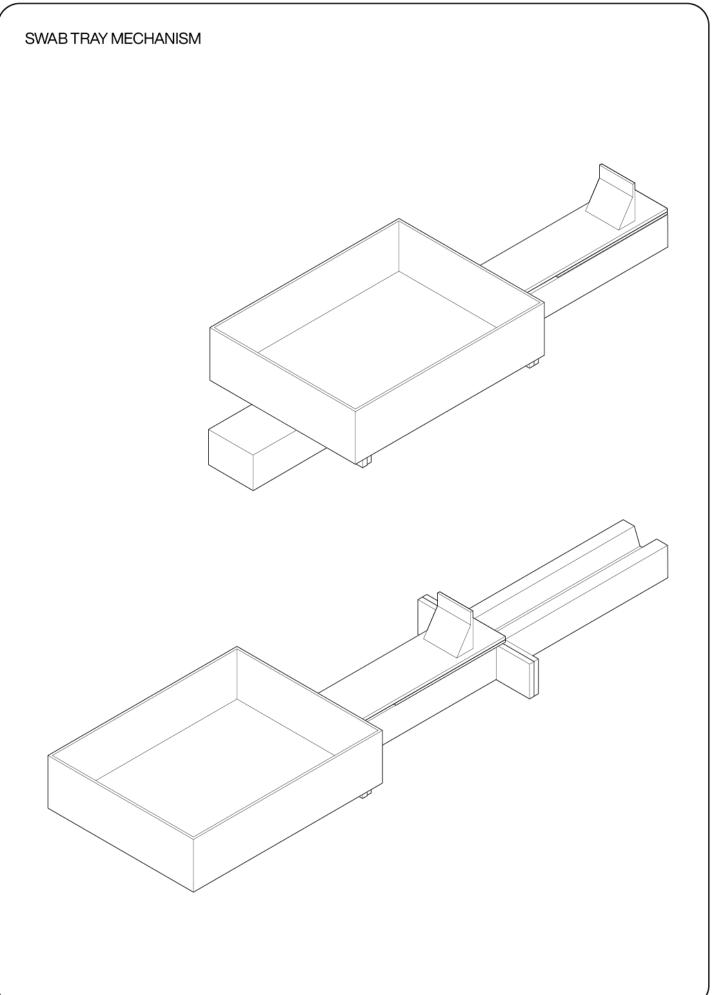




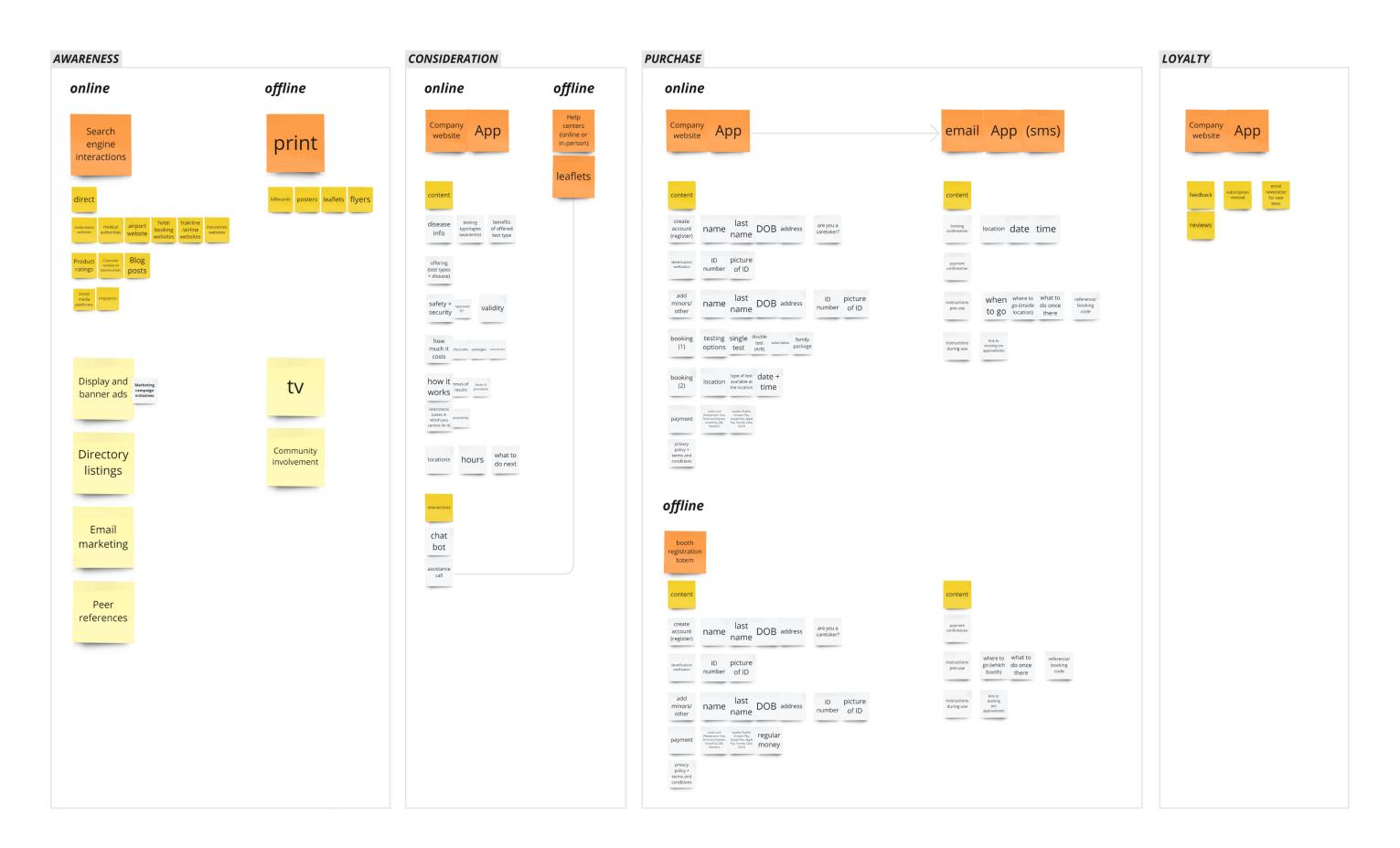




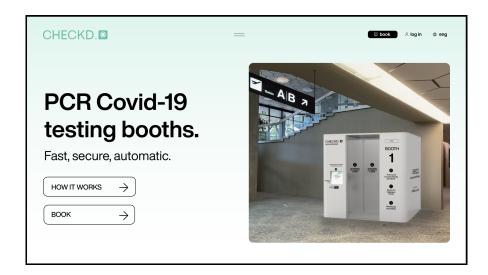




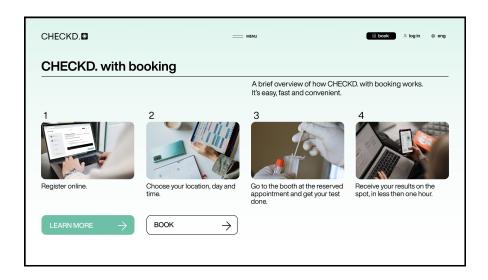
A18 - TOUCHPOINT MAP

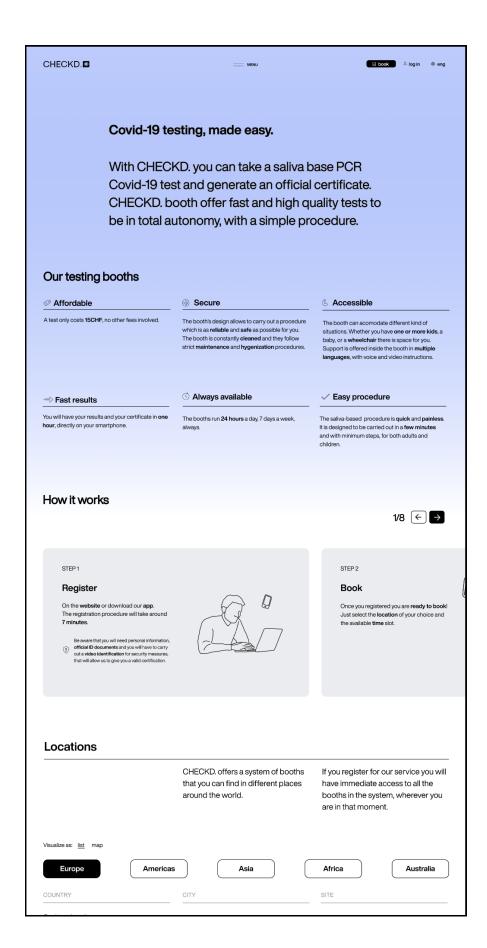


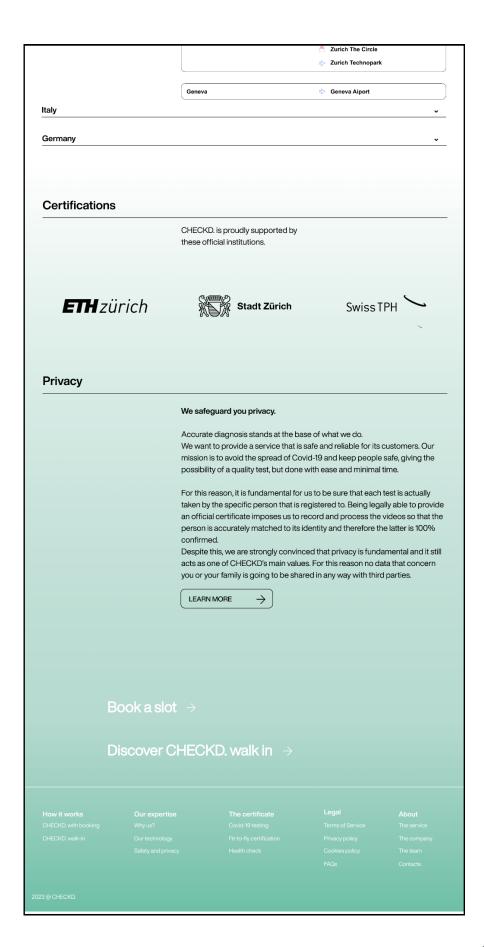
Website - exemplar pages



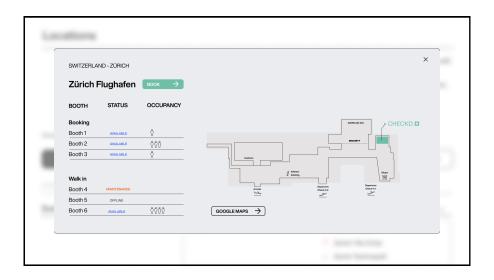


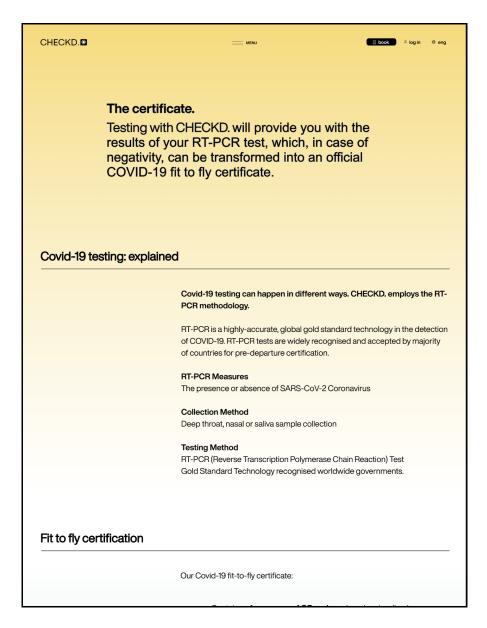


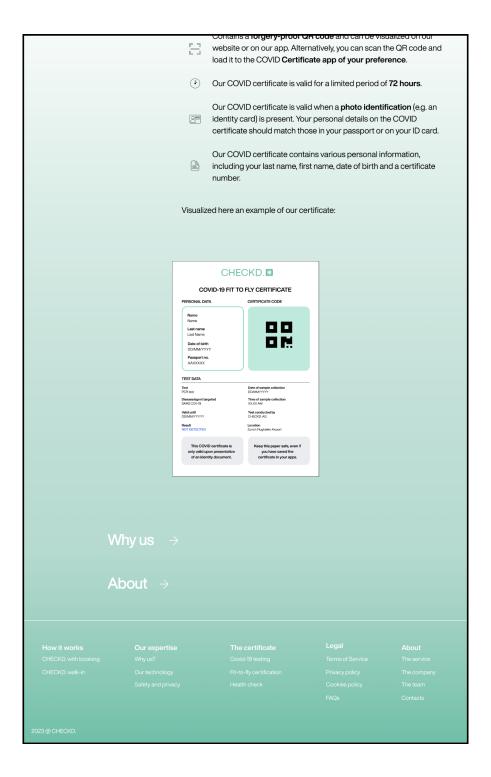




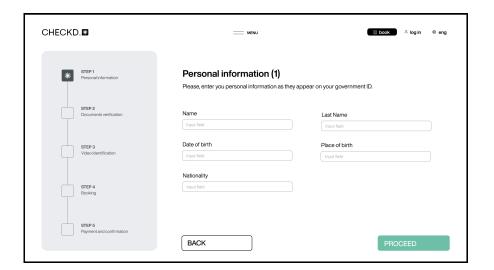
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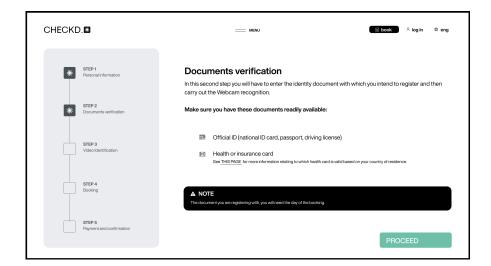


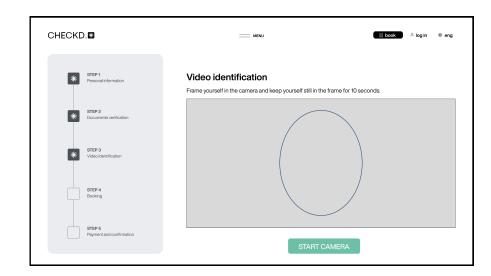


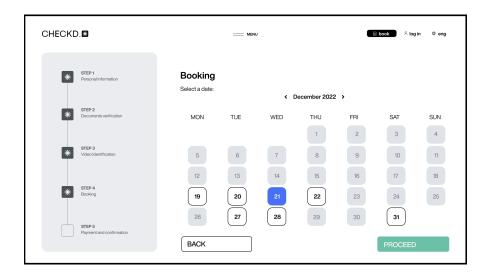


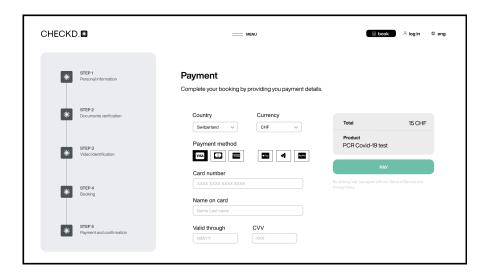
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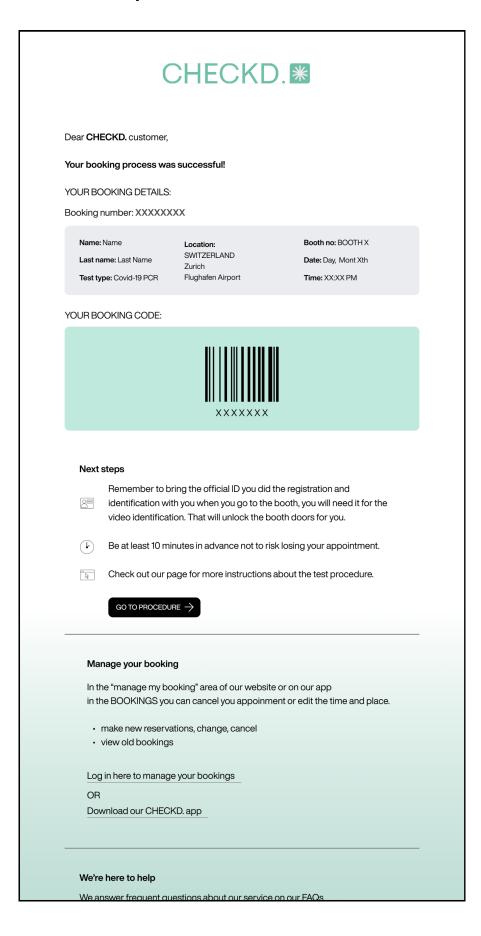


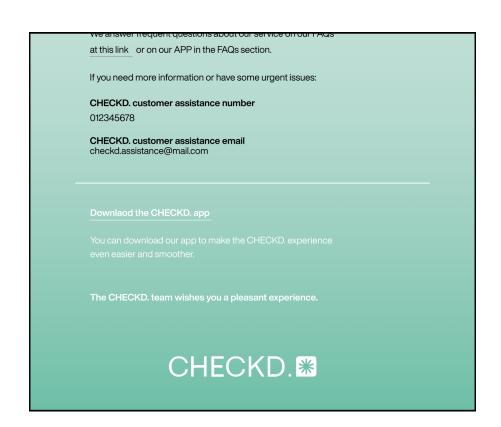


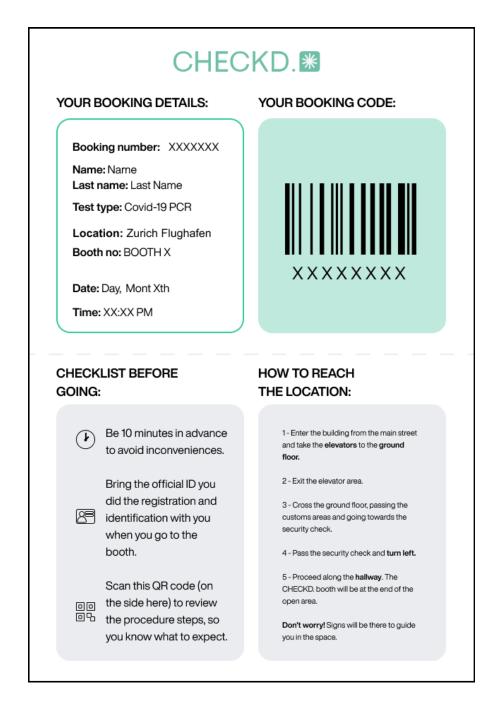




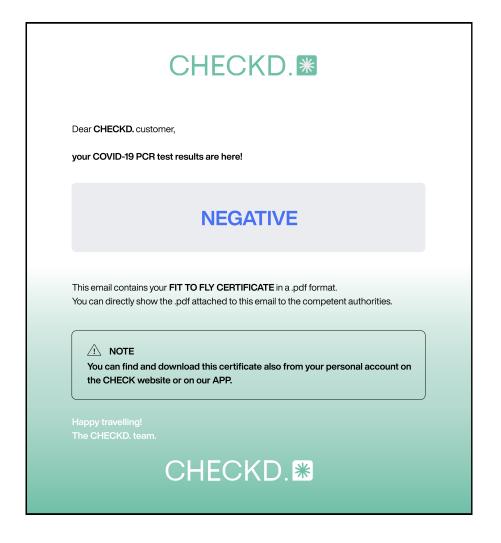
Email & receipt

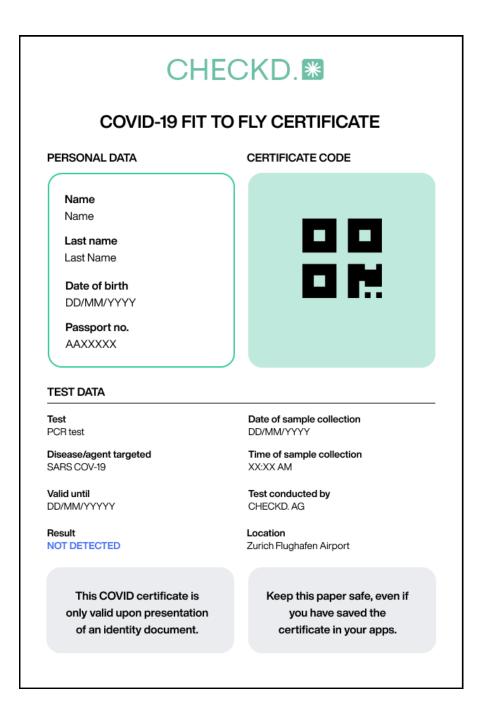




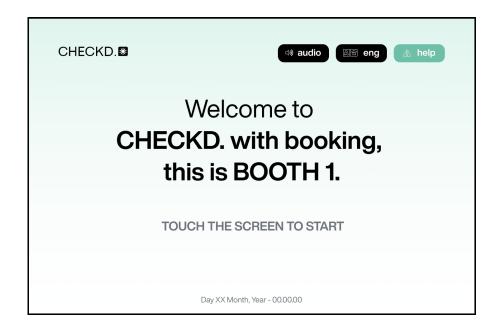


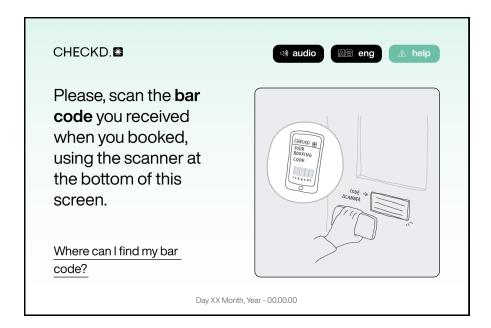
Email & certificate

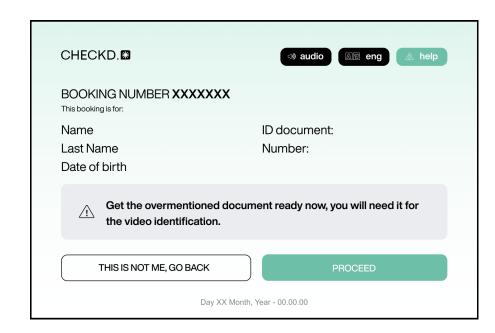


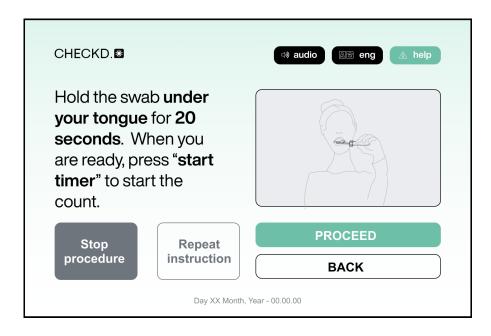


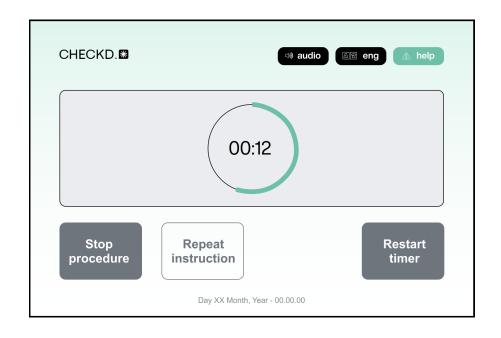
Booth interfaces

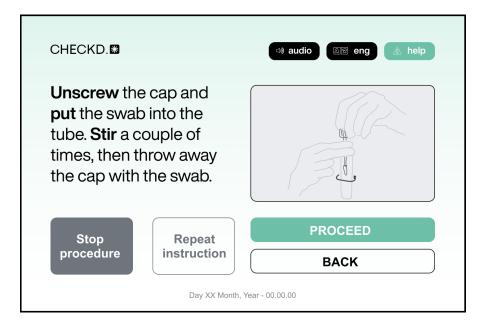




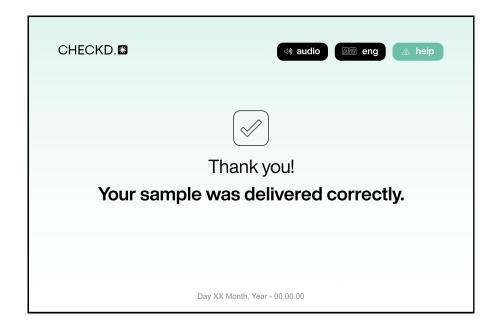


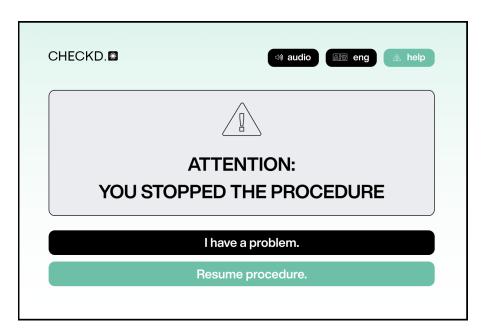


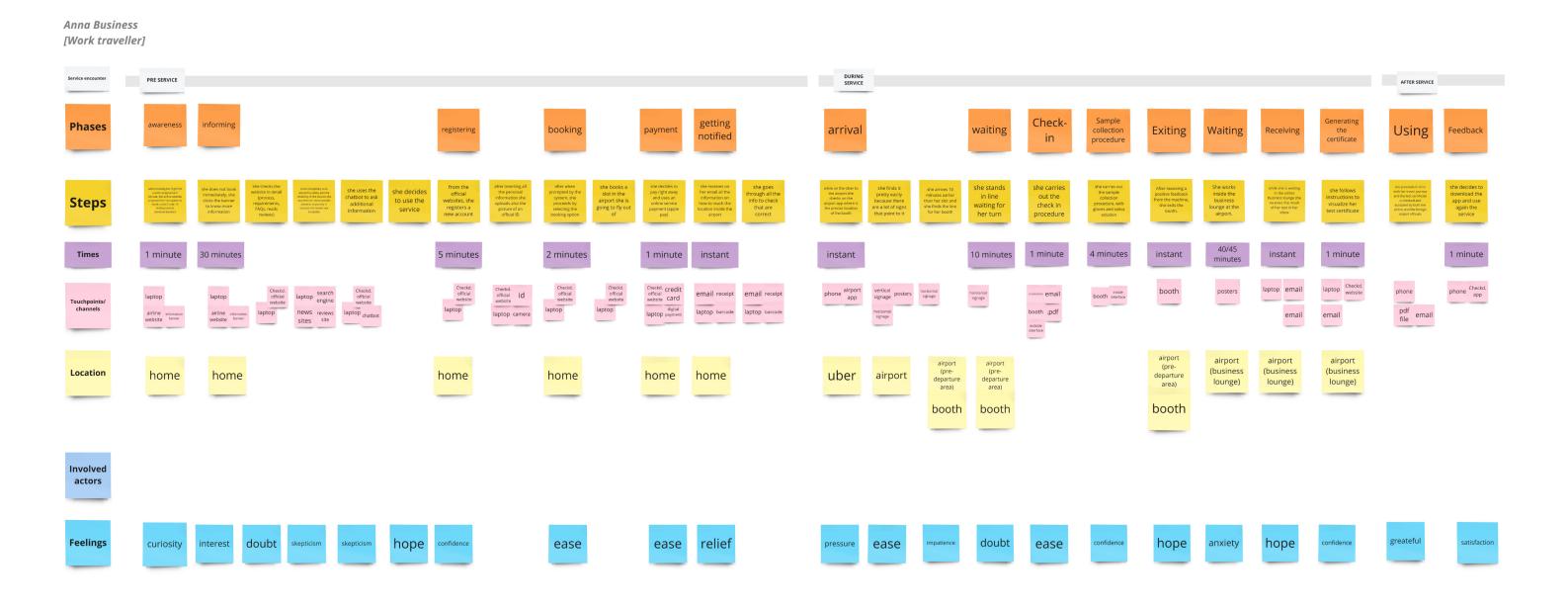


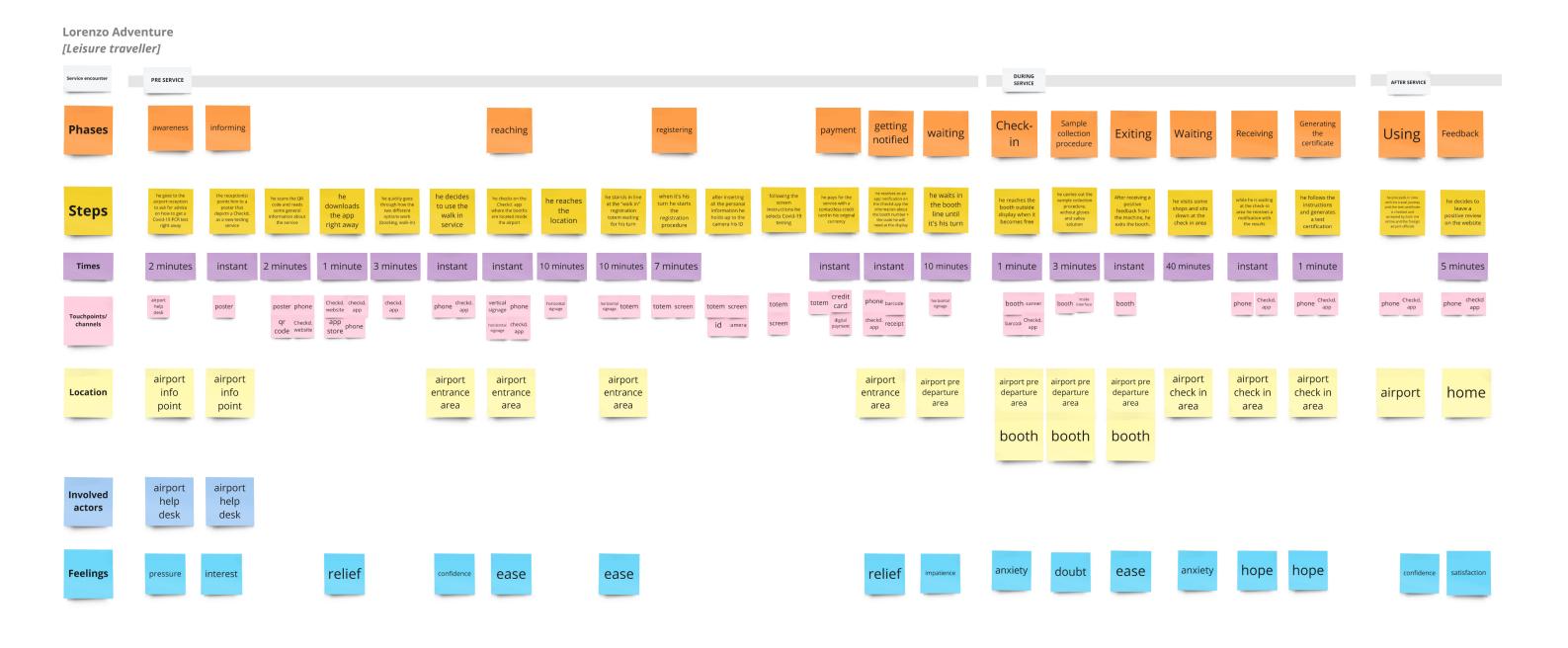


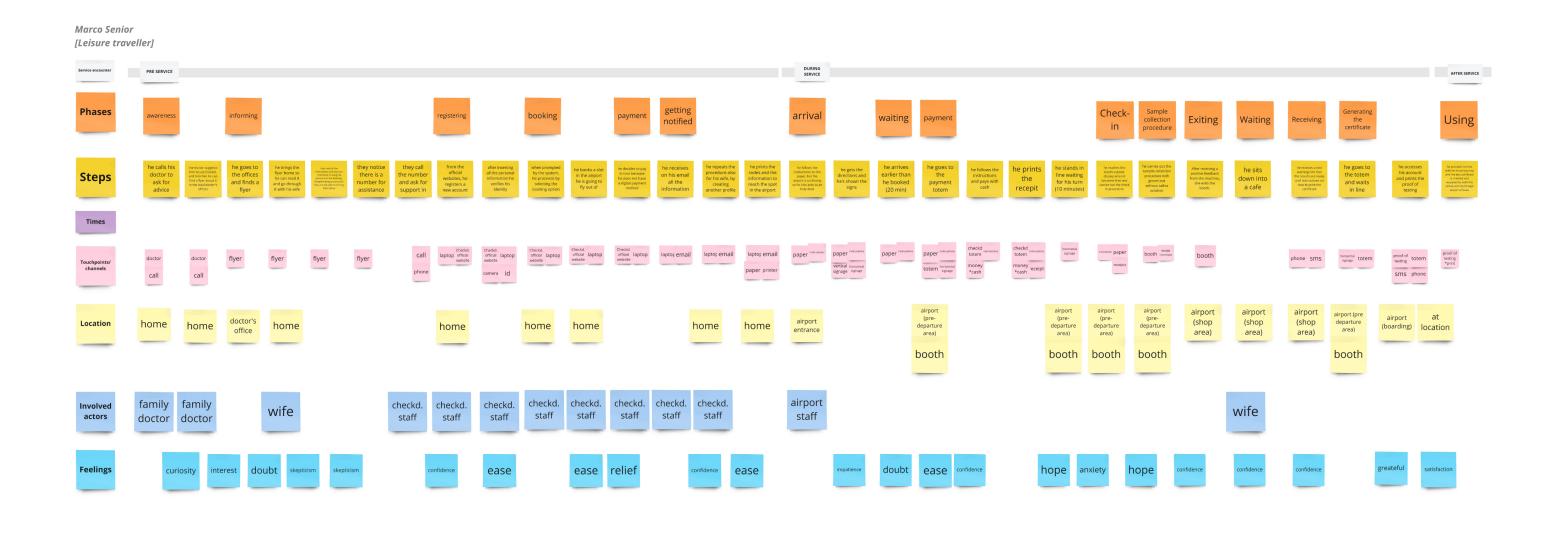
Booth interfaces

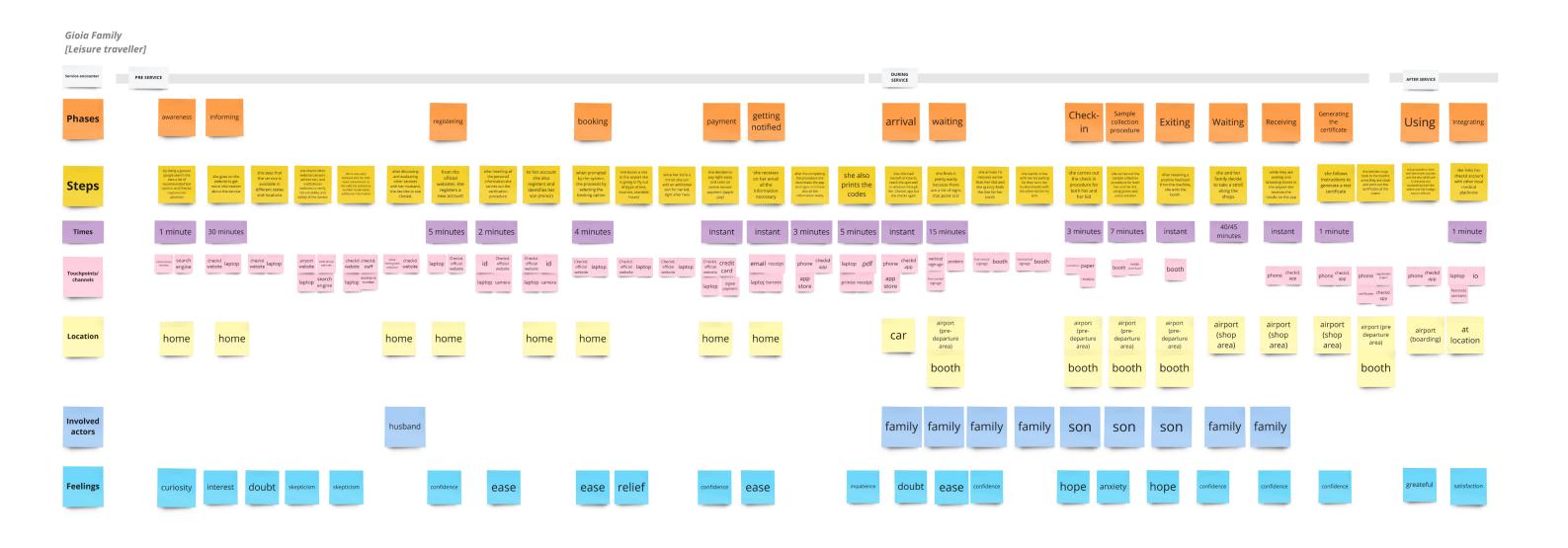




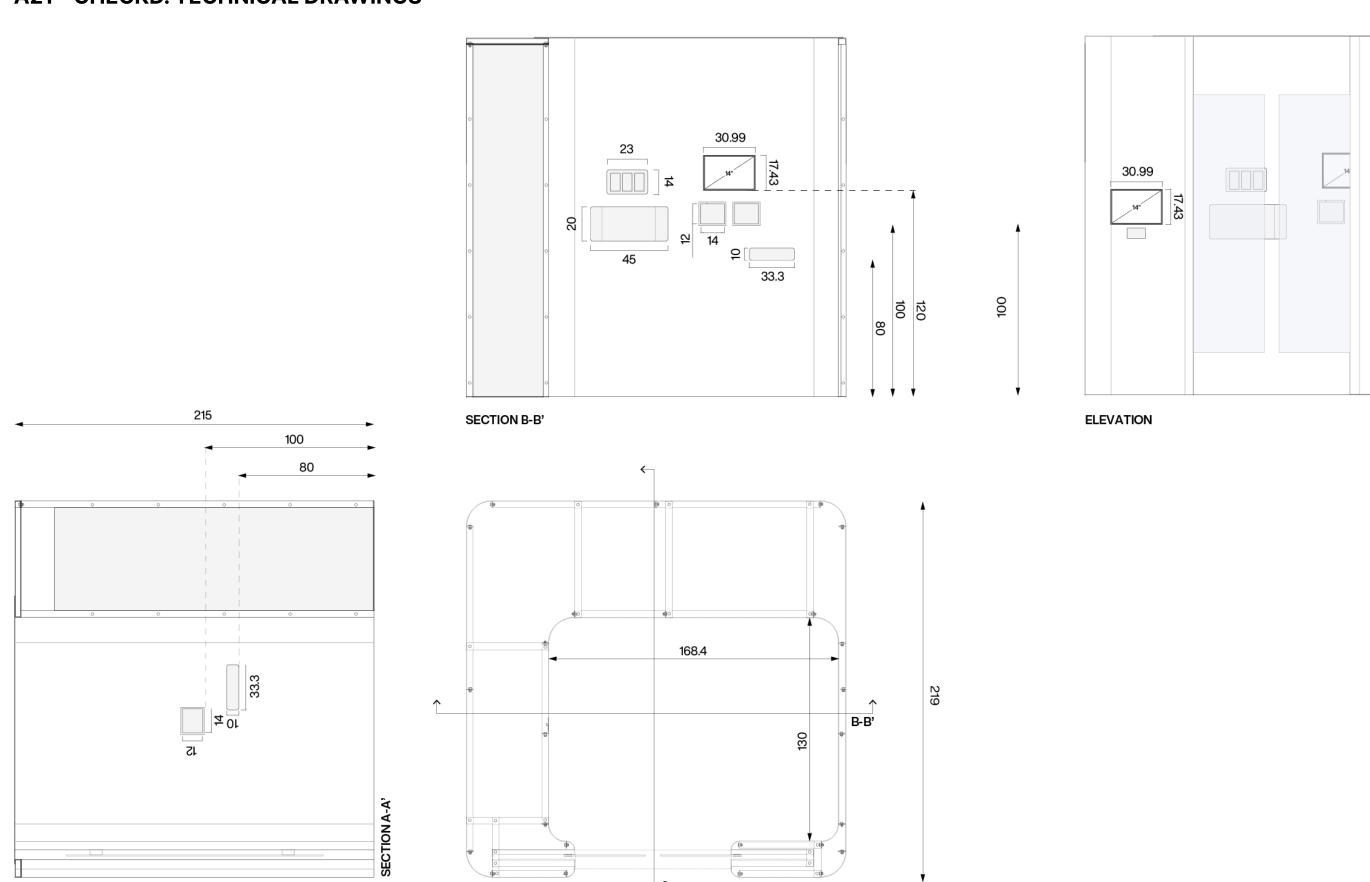








A21 - CHECKD. TECHNICAL DRAWINGS



2210

PLAN