Creating a value-driven Digital Identity Future

APPENDICIES

DESIGN FOR our future

TU Delft

IDE Master Graduation

Project team, Procedural checks and personal Project brief

This document contains the agreements made between student and supervisory team about the student's IDE Master Graduation Project. This document can also include the involvement of an external organisation, however, it does not cover any legal employment relationship that the student and the client (might) agree upon. Next to that, this document facilitates the required procedural checks. In this document:

- The student defines the team, what he/she is going to do/deliver and how that will come about.
- SSC E&SA (Shared Service Center, Education & Student Affairs) reports on the student's registration and study progress.
- IDE's Board of Examiners confirms if the student is allowed to start the Graduation Project.

USE ADOBE ACROBAT READER TO OPEN, EDIT AND SAVE THIS DOCUMENT
Download again and reopen in case you tried other software, such as Preview (Mac) or a webbrowser.

STUDENT DATA & MASTER PROGRAMME

Save this form according the format "IDE Master Graduation Project Brief_familyname_firstname_studentnumber_dd-mm-yyyy".
Complete all blue parts of the form and include the approved Project Brief in your Graduation Report as Appendix 1 !

family name: Kramer
initials: M. N. given name: Melissa
student number:
street & no.:
zipcode & city:
country:
phone:
email:

Your master programme (only select the options that apply to you):

IDE master(s): ( ) IPD ( ) DfI (★) SPD
2nd non-IDE master:
individual programme: - - (give date of approval)
honours programme: ( ) Honours Programme Master
specialisation / annotation: ( ) Medisign
( ) Tech. in Sustainable Design
( ) Entrepeneurship

SUPERVISORY TEAM **

Fill in the required data for the supervisory team members. Please check the instructions on the right !

** chair: Ruud van Heur dept. / section: HCD – AED
** mentor: Peter Lloyd dept. / section: DOS - MOD
2nd mentor: Maurítz
organisation: INNOPAY BV
city: Amsterdam country: The Netherlands

comments (optional)

Chair should request the IDE Board of Examiners for approval of a non-IDE mentor, including a motivation letter and c.v..

Second mentor only applies in case the assignment is hosted by an external organisation.

Ensure a heterogeneous team. In case you wish to include two team members from the same section, please explain why.

APPROVAL PROJECT BRIEF

To be filled in by the chair of the supervisory team.

chair Ruud van Heur date - - signature

CHECK STUDY PROGRESS

To be filled in by the SSC E&SA (Shared Service Center, Education & Student Affairs), after approval of the project brief by the Chair.
The study progress will be checked for a 2nd time just before the green light meeting.

Master electives no. of EC accumulated in total: _____ EC

Of which, taking the conditional requirements into account, can be part of the exam programme _____ EC

List of electives obtained before the third semester without approval of the BoE

YES all 1st year master courses passed

NO missing 1st year master courses are:

name date - - signature

FORMAL APPROVAL GRADUATION PROJECT

To be filled in by the Board of Examiners of IDE TU Delft. Please check the supervisory team and study the parts of the brief marked **.
Next, please assess, (dis)approve and sign this Project Brief, by using the criteria below.

- Does the project fit within the (MSc)-programme of the student (taking into account, if described, the activities done next to the obligatory MSc specific courses)?
- Is the level of the project challenging enough for a MSc IDE graduating student?
- Is the project expected to be doable within 100 working days/20 weeks ?
- Does the composition of the supervisory team comply with the regulations and fit the assignment ?

Content: APPROVED NOT APPROVED

Procedure: APPROVED NOT APPROVED

comments

name date - - signature

Initials & Name M. N. Kramer Student number

Title of Project A multi-stakeholder value-based design for digital identity solutions

A multi-stakeholder value-based design for digital identity solutions

project title

Please state the title of your graduation project (above) and the start date and end date (below). Keep the title compact and simple. Do not use abbreviations. The remainder of this document allows you to define and clarify your graduation project.

start date 03 - 10 - 2022 10 - 04 - 2023 end date

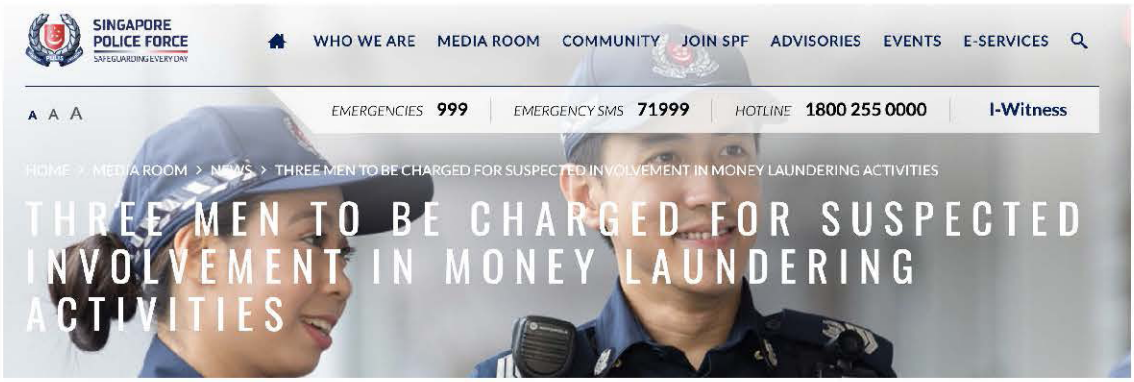
INTRODUCTION **

Please describe, the context of your project, and address the main stakeholders (interests) within this context in a concise yet complete manner. Who are involved, what do they value and how do they currently operate within the given context? What are the main opportunities and limitations you are currently aware of (cultural- and social norms, resources (time, money,...), technology, ...).

Digital Identity can be defined as a digital representation of a human, company or object consisting of different attributes that express specific aspects of the real-life entity (Innopay, 2022). At the moment more than 100+ Digital Identities are being used for different services in different domains to make sure that it is really us accessing the service (Innopay, 2022).
According to the Council of the European Union, diverse sectors should accept the new digital identity solution in form of a European Wallet. Included are areas of transport, energy, banking and financial services, social security, health, drinking water, postal services, digital infrastructure, education and telecommunications (Council of the European Union, 2021).
Europe is not the first part of the world looking into digital identity solutions. The topic is heterogeneous and different solutions have been built in different parts of the world also including interoperability across borders and how different systems can be established as one in a digital identity solution (Innopay, 2022).
The whole framework around digital identity is still in the design phase including the rules and laws. Only in June 2021, the European Union proposed a new framework of Digital Identity that should be made accessible to all EU citizens in form of a European Wallet. This proposal is supposed to establish the framework for a service with fewer hurdles when accessing services like opening a bank account (European Commission, 2021). The responsible contractor will release the first prototype of the wallet around the time of Q4/2023 (European Digital Identity Wallet, 2022). The European Commission is also asking for help to discover, analyse and recommend on behalf of digital identity solutions. eIDAS Observatory is a community of stakeholders to understand the issues regarding the implementation of eiDAS regulations. Crucial topics around trust and transparency are mentioned mostly. For example to analyse the functioning and use of electronic identification which includes the trust of a service. Moreover to provide solutions and ideas to foster market digitisation and transparency (European Commission, 05.2021). We can learn from other examples of digital identity solutions. Many nations are discussing and implementing the first versions of digital identity solutions because identity is crucial to interact with services like healthcare. One example is Singpass which allows citizens to access services more convenient without the fear of risk (Singpass - Your Improved Digital ID, 2022). Nevertheless, there are fraud and security issues with the solution of Singpass where citizens managed to drive around with a car using the Identity of someone else (Police Advisory – Phishing Scam Involving Singpass, 2022).
The aim of the digital identity is that it is accessible for everyone that wants to use it, that it is widely useable in the public and private sector and that users are in control of their own data.
Self- Sovereign Identity (SSI) is one of the options that makes people in control over their own data in a decentralized system. The ten principles of SSI define the values and goals that need to be integrated into the idea and technology as published by Chrisopher Allen (da Jacopo Sesana, 2021).
In the future of 2030 public services should be available online and medical records can be accessed like that. Also, around 80% should use eID solutions (European Commission, 2021). According to Innopay with the EU proposal there are new regulations that might come into place and everyone who is working in the field of digital identity needs to adapt accordingly (30.08.2022).
Innopay is a consultancy that specialised in digital transactions. The core business is focused on helping other companies to establish themselves and find business opportunities in the digital era. The main areas Innopay is operating in are digital identity, data sharing and payments. Staying up to date and building up knowledge is crucial to the business. For Innopay to be able to be a front runner in this field is important to consult other parties but also be able to act on the new proposal with a strategy that is future-proof and enables the creation of action instead of reacting to what is happening at the European Commission.

space available for images / figures on next page

introduction (continued): space for images



NEWS

FEATURES

PUBLICATIONS

SPEECHES

STATISTICS

Three men, aged between 17 and 22, will be charged in court on 29 July 2022 for their suspected involvement in money laundering activities.

Between July 2021 and February 2022, the three men had allegedly responded to a Telegram message to disclose their User IDs and Passwords of their Singpass accounts to unknown persons for monetary gains and for cheating banks into opening bank accounts. These newly opened bank accounts were then given over to unknown persons to enable unauthorised access to the banks' computer material. The Singpass accounts were used by criminals to open bank accounts online.

These compromised bank accounts were employed to launder proceeds of crime derived from various scams. At least eight persons became victims in these scams, and a total of more than $500,000 were lost.

The three men are believed to have been promised amounts ranging from $200 to $2,000 each, in return for giving up their internet-banking login credentials and Singpass credentials to the unknown parties.

The offence of unauthorised disclosure of access code, under Section 8 of the Computer Misuse Act 1993, carries an imprisonment term of up to three years and fined up to $10,000, or both, for first-time offenders. For repeat offenders, the imprisonment term can go up to five years and fined up to $20,000, or both.

image / figure 1: New Digital Identity solution Singpass gets misused

Iteration process using Value Sensitive Design as starting point.

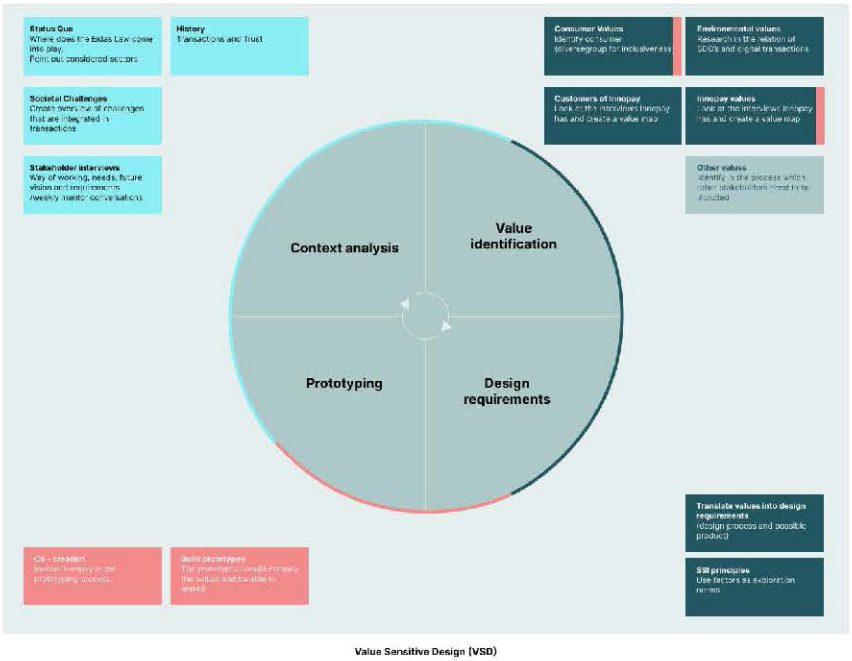


image / figure 2: Value sensitive design to inform the design process

Initials & Name M. N. Kramer Student number

Title of Project A multi-stakeholder value-based design for digital identity solutions

PROBLEM DEFINITION **

Limit and define the scope and solution space of your project to one that is manageable within one Master Graduation Project of 30 EC (= 20 full time weeks or 100 working days) and clearly indicate what issue(s) should be addressed in this project.

Innopay is a company that wants to stay up to date on the newest updates around laws and technologies to be able to act as consultants knowledgeable on the topic of digital identity.
Therefore they are looking for diving deep dive into the possibilities of creating digital identity solutions that make the ecosystem around it visible and include all stakeholders in the picture. Digital Identity solutions will be made accessible and also obligated for different sectors like banking and financial services, health or education (Council of the European Union, 2021). In every sector, different stakeholders need to share credentials in order to make service happen when working with digital identity solutions. Use cases can start from users wanting to enter service for example applying for a job or parties that need information, for example, such getting tax information. The interplay between parties needs to be thought through regarding the values of each stakeholder involved. That also includes regulations from the eIDas 2.0 and the discussion on centralized vs. decentralized. And the attributes which need to be included in the credentials. For example at which point in time do we actually just need to share our grades instead of our whole life including gender and so on? Innopay is working user and customer-focused in service design and therefore has the need to include the whole ecosystem in consideration including the values of each stakeholder involved. Looking at digital identity in Innopays opinion, too many of these new, upcoming solutions are not actually user (and other stakeholders) centric. They are designed with certain assumptions on user needs, preferences, and abilities in mind while pushing new technology. The question is what can the real value behind Digital Identity really be for all parties involved? Overall the goal is to design, prototype and test a visual concept with different stakeholder groups on what a digital identity solution can look like. Here the value of every stakeholder in the chosen sector needs to be included to find a well researched balance. Not to forget I will analyze the overall picture including trust issues and fraud detection to include it in the design requirements. Therefore my research questions are:
1.0 How might we create a well balanced digital identity solution that includes the values of all stakeholders involved?
1.1 How might we capture the values in a solution / 1.2 How might we find out the values

ASSIGNMENT **

State in 2 or 3 sentences what you are going to research, design, create and / or generate, that will solve (part of) the issue(s) pointed out in "problem definition". Then illustrate this assignment by indicating what kind of solution you expect and / or aim to deliver, for instance: a product, a product-service combination, a strategy illustrated through product or product-service combination ideas, ... In case of a Specialisation and/or Annotation, make sure the assignment reflects this/these.

Overall the goal is to design, prototype and test a tangible concept with different stakeholder groups on how a digital identity solution can look including the value of every stakeholder involved. It includes a strategy for solution adaption looking at the mechanics in the market.

During my research, I am going to explore the values of different stakeholder groups following the framework of value-sensitive design (Hoven, J. v. d., et al., 2015).
Phase 1: Context analysis (1.1 Developments, trends, principles and states 1.2 History analysis around wallets and trust 1.3 Analyze societal challenges and their influence regarding this domain. 1.4 Define possible sectors I want to compare with each other)
Phase 2: Value Identification of multiple stakeholders (Creative Problem Solving Techniques, Observation, and Interviewing Techniques using Metaphors and Surprise as key elements. Metaphors & Analogies)
Phase 3: Design Requirements (Translate values into design requirements)
Phase 4: Prototype & Finalise (Involvement of Innopay in a co-creation process as well as user groups)
Phase 5: Evaluation (Next Steps and further recommendations)

The first step is about gathering the important context and value factors to understand the big picture. From here the goal is to visualise the findings and set the important requirements for the design phase based on the information. The visualisation is necessary to make participation possible to engage in the conceptual theme of digital identity and get on the same page with different stakeholders. From the researched values the goal is to find a balance in the values and extract design solutions / concepts.

Initials & Name M. N. Kramer Student number

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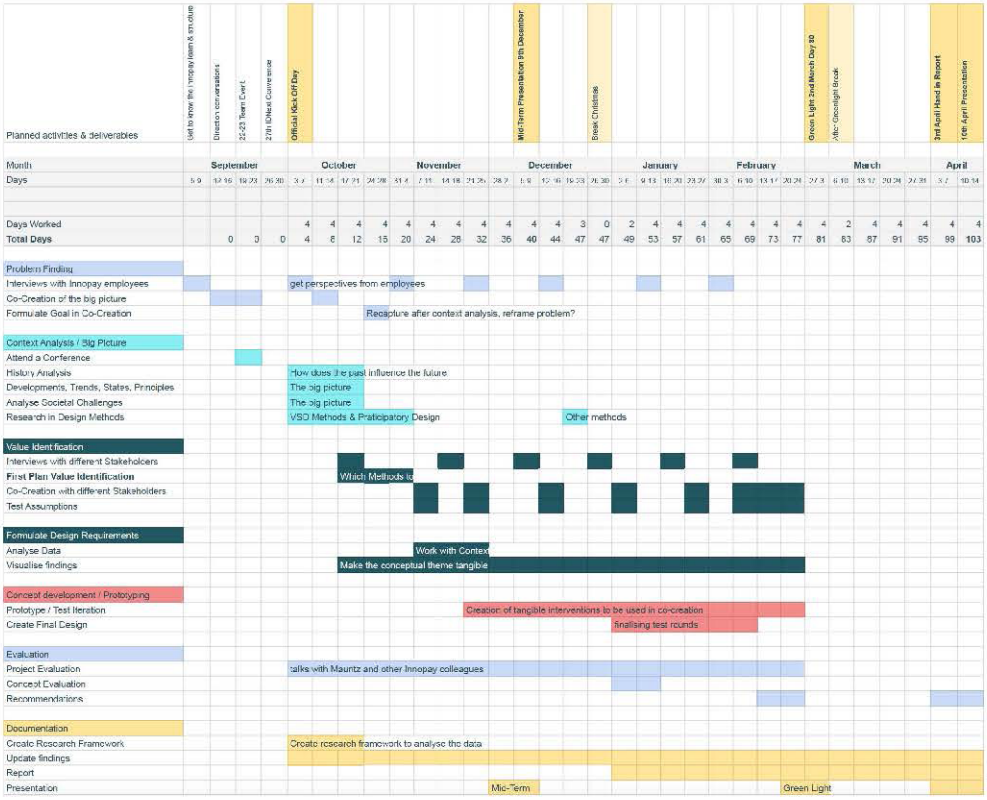
PLANNING AND APPROACH **

Include a Gantt Chart (replace the example below - more examples can be found in Manual 2) that shows the different phases of your project, deliverables you have in mind, meetings, and how you plan to spend your time. Please note that all activities should fit within the given net time of 30 EC = 20 full time weeks or 100 working days, and your planning should include a kick-off meeting, mid-term meeting, green light meeting and graduation ceremony. Illustrate your Gantt Chart by, for instance, explaining your approach, and please indicate periods of part-time activities and/or periods of not spending time on your graduation project, if any, for instance because of holidays or parallel activities.

start date 3 - 10 - 2022 10 - 4 - 2023 end date



I am doing my graduation 4 days per week.
My Mid Term is in the beginning of December. I will take a Christmas break and take a view days off after the Greenlight in the beginning of March. I will hand in my report in the beginning of April and have my presentation one week later.

1 In the first phase I will dive into the the Problem finding phase doing a context analysis and following the framework of Value Sensitive Design as described in the Assignment part.
2 Context Analysis including all the current solutions and principles around digital identity solutions
2.1 Research Value Senstive Design Methods
3 Make a plan for the research around Value Identification and plan Co-Creation with different Stakeholder over the time of the whole project.
4 Formulate Design Goals and Requirement
5 Concept Development and Prototyping. This phase is interacting with the value identification as this is all about what is needed and wanted.
6 Evaluation includes the weekly conversation with my mentor at Innopay to talk about the project.
My mentor at Innopay provides me with two time slots in a week to discuss and explore the assignment further.

In general I will spend a lot of time in co-creation and testing different ways to find out ways to make values tangible.

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MOTIVATION AND PERSONAL AMBITIONS

Explain why you set up this project, what competences you want to prove and learn. For example: acquired competences from your MSc programme, the elective semester, extra-curricular activities (etc.) and point out the competences you have yet developed. Optionally, describe which personal learning ambitions you explicitly want to address in this project, on top of the learning objectives of the Graduation Project, such as: in depth knowledge a on specific subject, broadening your competences or experimenting with a specific tool and/or methodology, ... Stick to no more than five ambitions.

I believe that exploring the values of different stakeholder groups is really important to find common ground and be able to implement something that has a positive impact on society in the future.
In my whole study, I have investigated finding out what the drivers of people are and their passions to create solutions that are able to see the big picture and help to see new perspectives.
This graduation gives me the opportunity to explore a completely new area using techniques I enjoy like Interviewing, and creating analogies for a conceptual theme like digital identity. This gives me the opportunity to see what design can really bring in an organization with smart people that are knowledgeable in their field.
I am especially looking forward to working in a multidisciplinary environment that is open to help and provides me with the needed resources like knowledge in the field to be able to explore methods and tools to reach a design goal. This will be really useful for me in the future. I also hope to spark some creativity into Innopay during my Graduation Internship.

Cassetta, M., Di Mambro, A., Giansanti, M., & Brandetti, G. (2017). A Sobrevida dos Implantes de Conexão Cone Morse com Plataforma Reduzida. THE INTERNATIONAL JOURNAL OF ORAL AND MAXILLOFACIAL IMPLANTS, 02(01), 204. https://doi.org/10.20432/jomi2017204

Council of the European Union. (2021). Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Regulation (EU). Retrieved September 25, 2022, from https://op.europa.eu/en/publication-detail/-/publication/df76cecd-3b49-11ed-9c68-01aa75ed71a1/language-en

da Jacopo Sesana. (2021). The 10 principles of Self-Sovereign Identity (SSI). SSI. https://www.selfsovereignidentity.it/the-10-principles-of-self-sovereign-identity-ssi/

European Commission. (2021). Commission proposes a trusted and secure Digital Identity for all Europeans. September 18, 2022, from https://ec.europa.eu/commission/presscorner/detail/en/ip_21_2663

European Commission. (05.2021). FUTURIUM - European Commission. Retrieved September 26, 2022, from https://ec.europa.eu/futurium/en/node/1290.html

European Digital Identity Wallet. (2022). Shaping Europe's digital future. Abgerufen am 18. September 2022, von https://digital-strategy.ec.europa.eu/en/funding/european-digital-identity-wallet

Hoven, J. v. d., et al. (2015). Handbook of ethics, values, and technological design : sources, theory, values and application domains. Dordrecht, SpringerReference.

Police Advisory – Phishing Scam Involving Singpass. (2022). Singapore Police Force. Retrieved September 18, 2022, from https://www.police.gov.sg/media-room/news/20220318_police_advisory_phishing_scam_involving_singpass

Singpass - Your Improved Digital ID. (2022). Singpass . September 18, 2022 from https://www.singpass.gov.sg/main

FINAL COMMENTS

In case your project brief needs final comments, please add any information you think is relevant.

Thanks for reading my brief. I am excited to get started.

Initials & Name M. N. Kramer Student number

Title of Project A multi-stakeholder value-based design for digital identity solutions

Overview:

Appendix 1: Balancing Acts

Oversight

User

Relying Party

WORKABLE FOR MULTIPLE CONTEXTS MRI & HOME

Security vs Privacy

SHOW ME WHAT YOU WILL DO WITH THE DATA I HAVE TO UNDERSTAND IT, IMAGINE the process .....

Consent vs Privacy

DESIGN FOR A USER FORGETTING THE AUTHENTICATOR AT THE DESK

Security vs Autonomy

0 KNOWLEDGE PRROF

Security vs Privacy

MULTIPLE LAYERS OF PRIVACY

Security vs Privacy

ONLY SHOWING A GREEN LIGHT

Reliability vs Privacy

“TELL ME WHY THE PROCESS TAKES LONGER”

Security vs Privacy

ENGAGE THE USER IN TIMES OF CHANGE TO USE A NEW SOLUTION

Ease vs Trust

CREATING DOUBLE BLINDNESS

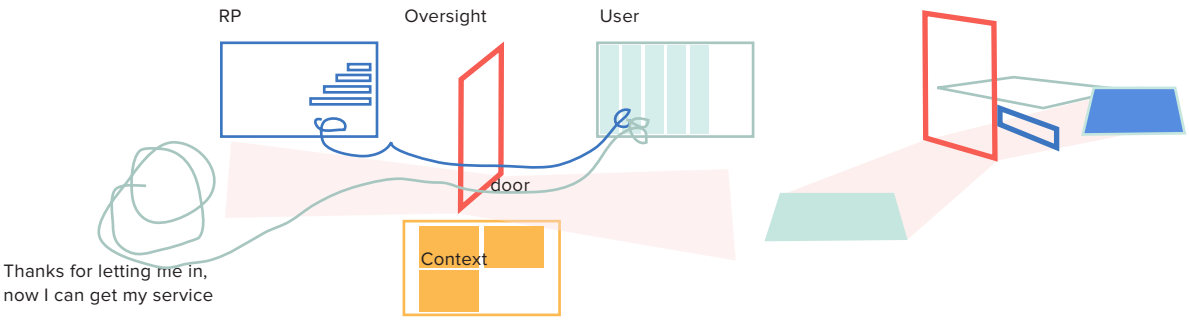
Security vs Privacy

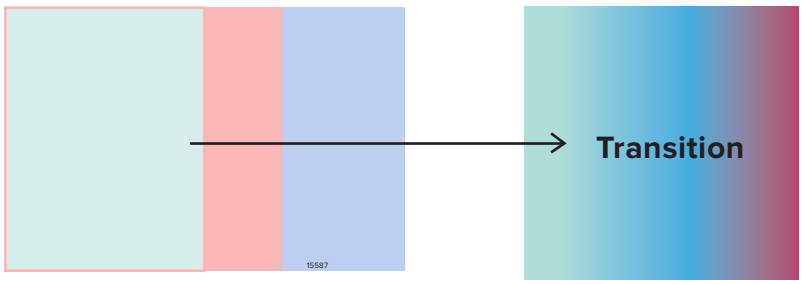
ALIGN ON ATTRIBUTES WITHIN THE NETWORK AND WHAT THEY MEAN FOR THE FUTURE

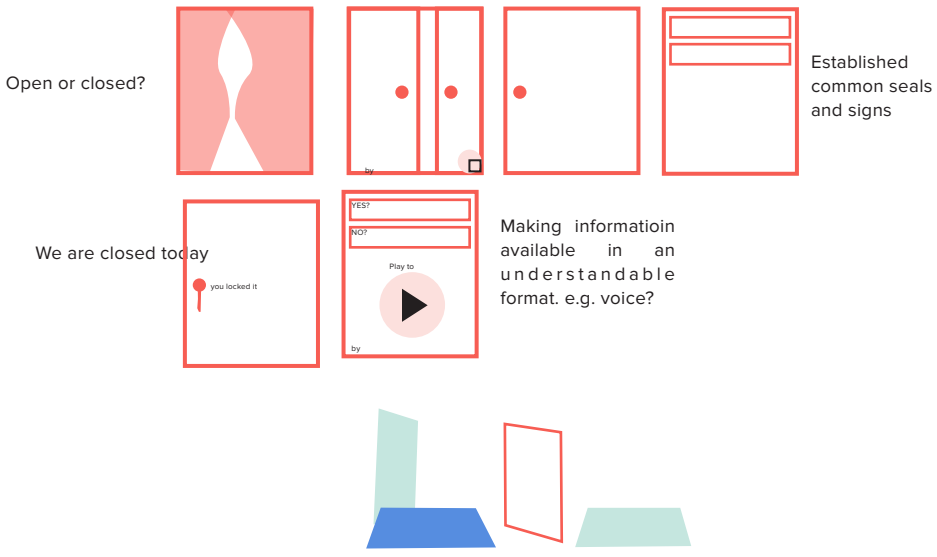
Reliability & Personalisation
vs
Privacy (Inclusiveness)

Appendix 1.1 Building Metaphors, Scenarios and Vision towards the Common ground

For the final design I tried to think in metaphors and create emotional flavour. By creating elements that could stand for a connection, like the transition element in which all three groups merge into a common transitional colour or a door that symbolises the meeting area but also the place of discussion I wanted to add more understanding to the interaction between the parties. On the right I tried to formulate imaginative stories in order to meet mental model and context examples and inspire the process of balancing values in the ‘common ground’.

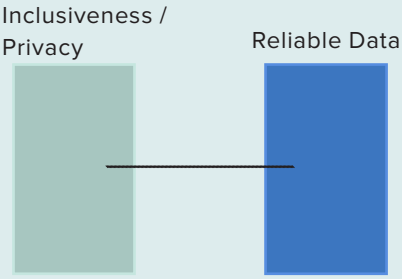






Scenario Creation

Conceptual believes, that got expressed during the research. Re framed into states of mind rather then quotes. To understand where the believe is coming from better



I want the personal identity data because then we can provide more personalized services, as we need more users to gain sufficient conversion. Our relationship is fluctuating.

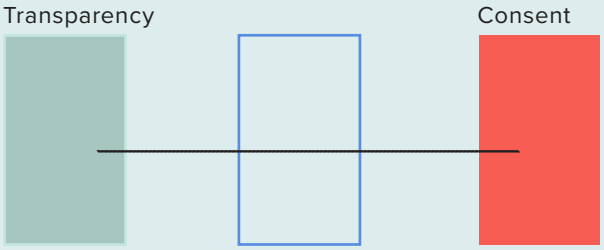
Trust is personal

I want to provide less ease to a user because they experienced that users tend to not trusting anymore the easy processes and the aim is to gain trust in the system

Familiarity > Trust
People Trust People

I want to provide transparency to the user in the right amount because by sharing too much we generate and overload and also we can not share all details, because we experienced that it might lead to distrust

Believes Build up within new experiences

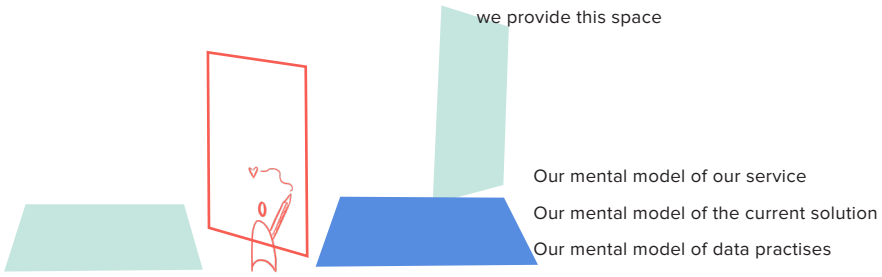


I want to have transparency as a user, because I experience the unethical consent practises at the moment

My mental model of going to the GP

My mental model of shopping online

My mental model of verification at work



The door as means to an other end, as the user is using digital identtiy to go somewhere else in an best possible way

The door as means to establish long term relatinships, as we are combining long term relationships like tracking with identity to safeeguard for identitiy theft.

Appendix 2.1: Testing the Common Ground

Set Up
2 INNOPAY'ers Participated to test the approaching which they got a Figma code and started to walk through the board. The board was facilitating itself, as seen on the right.

Assumption Testing:

1. Assumption: It will work, because every step is explained in detail and I established thinking patterns for every party to link to their mental model like: We want , ..., because currently we experience... (in the context of)...
(see images on the right)
1.1 What happened: It worked (yey)

Implementing thinking patterns

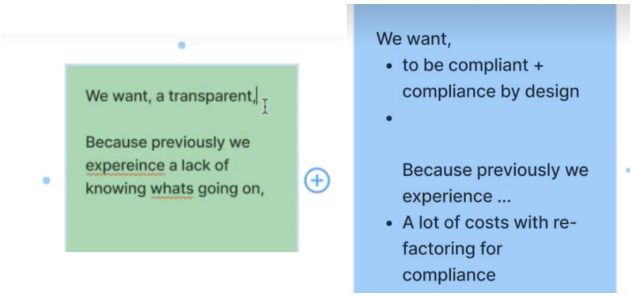


Figure: Participant interactions

2. **Assumption:** I should make a video, but I don't have time anymore
What happened: While reading the story they started to discuss and already got sensitized. Reflection: Maybe storytelling in parts and reading it really helps to start the discussion about tensions and values... / Testing before making a big effort definitely helps
> Don't do a video (yet), might depend on the moment in time when it is needed

3. Assumption the roles are clear
What happened: The participants reflected that it should be a bit better explained. Maybe make them a bit more labelled to the themes presented in that role
> Nr the parts and explain what they mean.

3. Assumption : The word intervention is positive
What happened: The word intervention was discussed as negative

4. Assumption: Balancing cards lead to reflection
What happened: Yes they do

5. Assumption: Balance in the common ground area.
What happened: they just used it as inspiration overview going to act in the common ground and balance but the board in the top was used

Reasoning Reflections

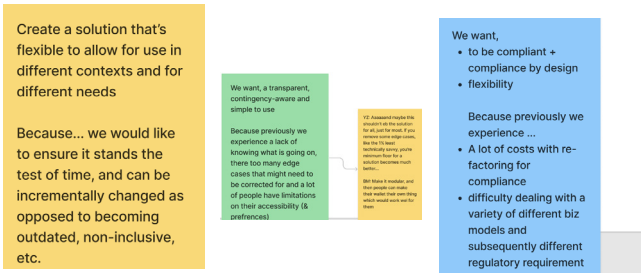
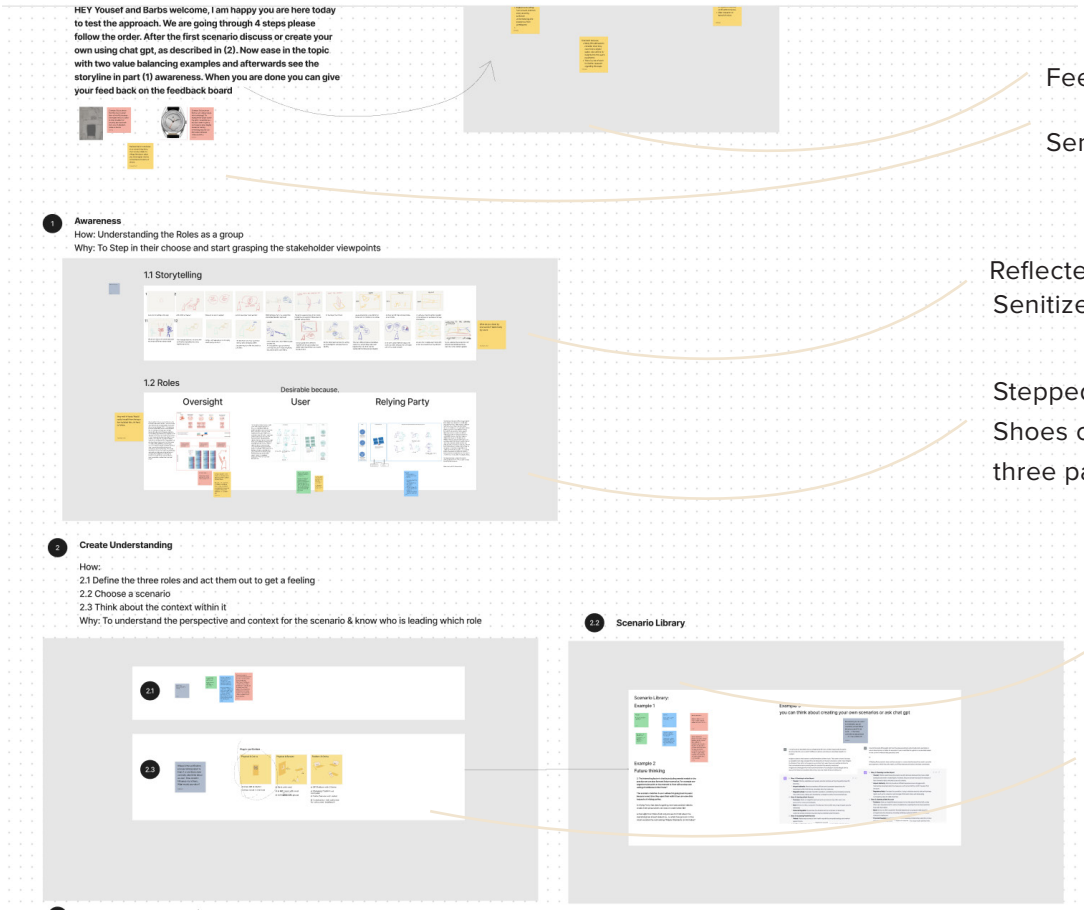
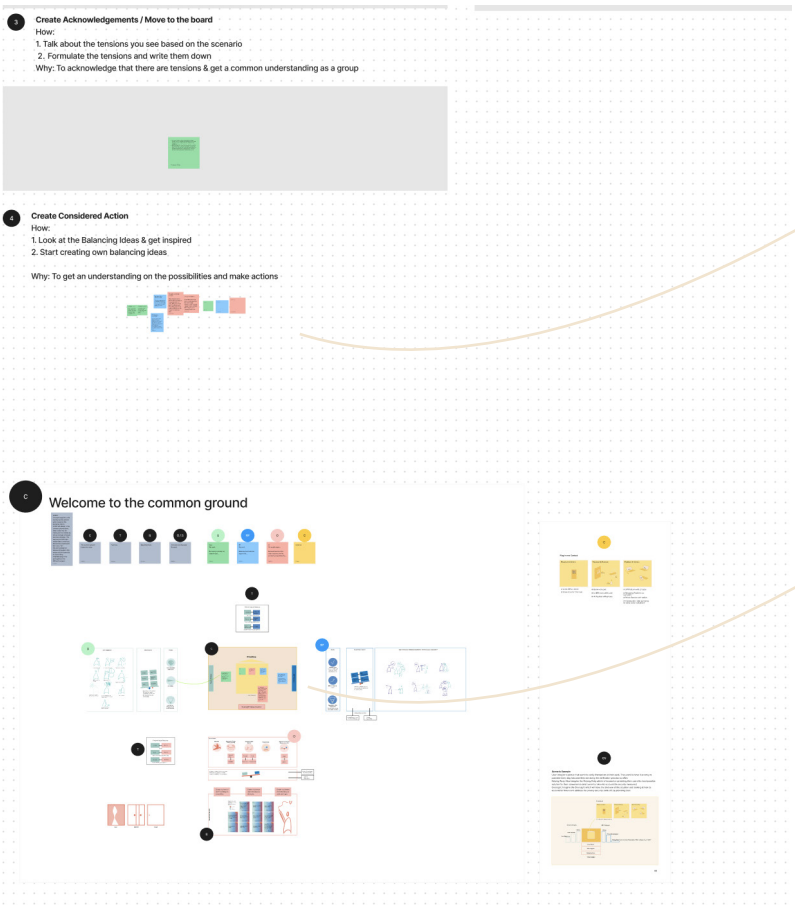


Figure: Participant interactions

Overview of the Test Environment





Appendix 3 [Method Overview]

Short Descriptions:

(A) Autonomy Future Scenarios
(B) Prototypes from the Future
(C) Speculative Ecosystem map
(D) Envisioning Cards
(E) EUDI Wallet Prototype
(F) EU Vision Storytelling
(G) Forecasting Method
(H) Clustering the interaction Vision
(I) Stakeholder Engagement
(J) Mental Models
(K) Research Phase 2 Method Iterations
(L) INNOPAY activities
(M) Semi Structured Interviews

(next page)
(N) Focus Group
(O) Moral Card Reflection Practise
(P) Strategic Dialogue

Method Iteration 1
Method Iteration 2
Method Iteration 3
Method Iteration 4
Method Iteration 5
.

Post on Linked In


Observation IDnext Utrech 2022 -
Of other experts and me in the mirror

A

Set Up: 6 INNOPAY'ers from different backgrounds and origins to make it most diverse
What: Speculative Design Research
How: 1 Present Strategic design and the vision of creating balanced futures within morality, 2 Present Future Scenario - show video of a planet in 30 years from now to sensitize , 3 Brainwriting, 4 Read out Digital Identity Future about autonomy, 5 Start speculation into the future and draw it out
Why: What will a moral future look like with advancing technology

"A chip implanted in your body""Then it is biometrics at extreme and just about surveillance"

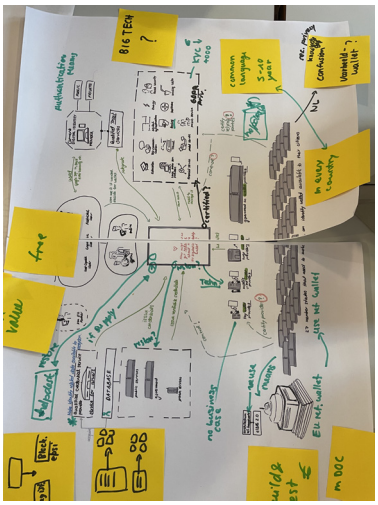
B

(included in N)
What: A A3 'wallet' as interactive element in the focus group

C

Set Up : C1 Printed Ecosystem Map, C2 Map in on the Ipad & collaborative drawing, C3 Screen sharing and indicate drawing
What: A speculative ecosystem map to understand the system and learn new things about the development, by letting the participants explore what is happening
How: C1,C2,C3 Show the map and let the participants draw on them alone or with them based on scenario
Why: To understand the system and create a participatory approach

Outcome: One of my favourite approaches. It either helped the participants (RP) to know where they are themselves in the system or me to understand the development process (with Oversight) or with users to explain them what is going on and spark interest. e.g. user over zoom



D

Set Up: Used within the Focus group (2 INNOPAYers + 2 Users)
What: Create envisioning by using cards that represent a future scenario e.g. What are you doing in case of fraud?
How: They pick the card in the game
Why: To understand what their fears are

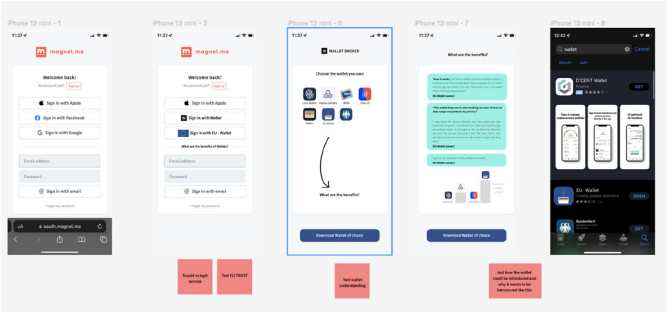
“Hard to trust again if there was fraud once”; “I would like a help desk”

(see N)

E

Set Up: 1 User Test
What: Trust Research based on EU Logo and Wallet
How: Let them hold the Prototype and click through and see what they do
Why: To find out how the EU logo influences them

“I wouldn’t like that they know where I am shopping”



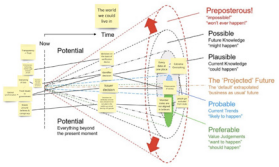
F

What: Storyline for EU Vision
How: Easy story with all simple identtiy elements
Why: To get everyone in the same future mindset (Users, RP, Oversight)

(see Digital Identity Basics)

G

Set Up: Alone
What: Forecasting Risks
How: Looking at the future risks and cluster them within the future cone in order
Why: To understand the risks, that I see most important to be solved, when looking at the future. Including ViP factors in the Analysis (Appendix A - Factor Collection Vision in Design Approach)



H

Set Up: Alone with post it’s and within Figma
What: Understanding the Future
How: Looking for factors and mapping them out based on the risks and tensions mentioned of the Experts, users and RP’s - Final mapping in the Ecosystem Map (see Synthesis)
Why: Because I wanted to understand how the current development process could possibly influencing the future

see Appendix A - Factor Collection Vision in Design Approach)

I

Set Up: Calling the Participants before the interview
What: Participant conversations
How: Phone or Teams
Why: To understand who they are and how to structure the method based on what they might say. I didn't wanted to go blond in the conversation, because I realized that people take you much more serious, if you are more knowledgeable, otherwise they just tell the basics.

J

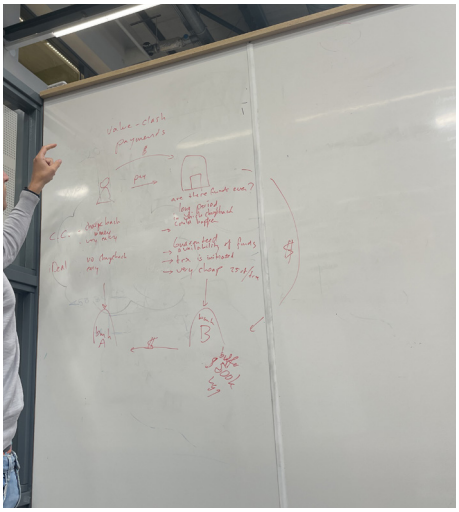
Set Up : Alone in Figma and Miro
What: Mapping mental models
How: By looking at the data and mapping it out.
Why: to understand the thinking process to grasp the bigger picture of digital identity, as I just had a small scope, when comparing to the whole ecosystem

K

Set Up: Users, Relying Parties and Experts within online and offline environment, group and 1on1 set ups
What: Iteration of methods
How: (see Method Iteration 1-5))
Why: to find out values and a method that can be useful in balancing moral reflection and personal value finding

L

Set Up: Mostly at the drawing board or with Ipad interaction
What: Draw out different parts of digital identity system, 4 corner models
How: Interactive with the drawing board
Why: to understand 2 sidedness of a market or to understand the digital identity space in general



M

Set Up: Online and Offline with drawing tablet or Screen-sharing in Miro environment
What: Semi - Structured interview with experts
How: Online / Miro & Screen sharing + Offline with whiteboard or drawing tablet to let them draw with me together
Theme 1 - General Role in Digital Identity
Theme 2 - EUDI Wallet context (surprises, feelings, concerns, hopes)
Theme 3 - Imagine the Future (Ask for future vision and present vision for imagination)
Why: Reflect back, what they said and repeat it to be sure, that I understand correctly

N

Set Up: Used within the Focus group (2 INNOPAYers + 2 Users)
What: Focus Group
How:
1) Material: Envision cards, yes/no cards, A3 Wallet mock Up, post it's
2) Time line: 1. Introduce the topic, 2 Let the participants introduce themselves the other make notes in the meanwhile and the post it's end up in the wallet of the participant that just talked, 3 everyone sorts out their attributes (this is how I explained attributes), 4 .1 pick scenario card and decide yourself, what you want to share, 4.2. pick scenario card and say if you want to share, what you see on the card by playing the yes/no card, 4.3 envisioning cards, 5. Brain writing on value posters: Privacy, Security, Trust, Consent.
Why: To get a feeling of possible interactions with the wallet and the matter of consent within the future of attributes

"It needs to happen at the service kind of things"

Reflection: Fun Method.

O

Set Up : Within Method Iteration 5
What: Cards with values as prompts written on it to be sorted out in order based on the EU Vision.
Why: Provoking reflection

Reflection: It was really provoking for some participants

"I should have refused to order them because you can't"

P

"Welcome to the Common Ground"

Set Up: Final Version "Welcome to the Common Ground"
What: Strategic Dialogue
How: The participants are walking through a 4 step approach

1. Awareness

1.1 Tension Examples, 1.2 Storytelling board, 1.3 Role descriptions
Why: To Step in their choose and start grasping the stakeholder viewpoints

2. Create Understanding

2.1 Define the three roles and act them out to get a feeling
2.2 Choose a scenario
2.3 Think about the context within it
Why: To understand the perspective and context for the scenario & know who is leading which role.

3. Create Acknowledgements
How:
1. Talk about the tensions you see based on the scenario Formulate the tensions and write them down
Why: To acknowledge that there are tensions & get a common understanding as a group

4. Create Considered Action
How:
1. Look at the Balancing Ideas & get inspired
2. Start creating own balancing ideas
Why: To get an understanding on the possibilities and make reflective balancing actions

Why: (see Design Concept) collaborative practise, emphasize, learn about the other participants, create well

reflected balancing ideas
Set Up: Online and Offline with drawing tablet or Screensharing in Miro environment
What: Semi - Structured interview with experts
How: Online / Miro & Screen sharing + Offline with whiteboard or drawing tablet to let them draw with me together
Theme 1 - General Role in Digital Identity
Theme 2 - EUDI Wallet context (surprises, feelings, concerns, hopes)
Theme 3 - Imagine the Future (Ask for future vision and present vision for imagination)
Why: Reflect back, what they said and repeat it to be sure, that I understand correctly

Method Iteration 1

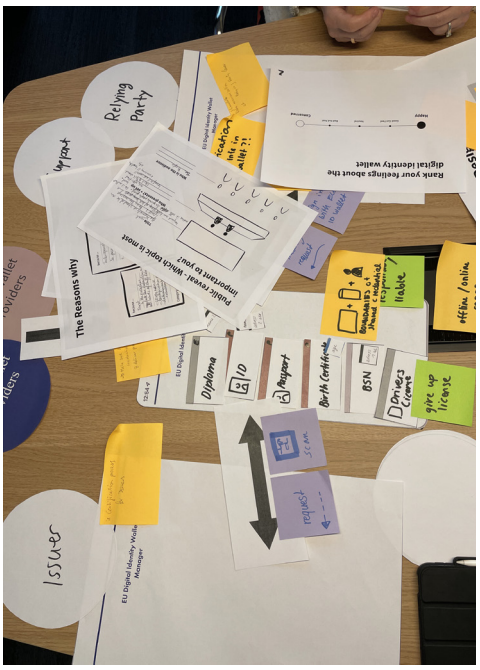
Set Up: Physical 1 on 1 Session (Pilot test at INNOPAY)
What: Value Finding Method
How: From present to future. Immerse the participant role by letting them fill in a sensitizer, then let them explore their own role.
Why: Get to know the values in relation to the ecosystem dynamics

/ Oversight:
1 Pick a scheme you worked on and explain what is important or what was important
2 Cluster in Good Bad Neutral
3 Move forward picking the good options and think about how to make the bad option better for the future.
4 Map out ideas on how to create the EUDI Wallet ecosystem based on your believe.
5 Pick the most relevant points
6 Prepare a public pitch who would give it and why

“Talk to the people”

/Relying Party - Similar
1 Make up a role - Picked - Traveling Sector
2 Fill in sensitizer kit - who are you what is your role, which attributes are important in your business and why
3 What do you notice in your current practice in relation to digital identity?
4 Map into bad, good neutral
5 Move forward picking the good options and think about how to make the bad option better for the future.
6 Map out ideas on how to create the EUDI Wallet ecosystem based on your believe.
7 Pick the most relevant points
8 Prepare a public pitch who would give it and why

“I would talk to the project manager, why do we need the attribute”



Method Iteration 2

Set Up: The session was originally planned physical with 4 people, but the it got moved online, so I prepared a Figma Jam board
What: Value Finding Method
How: From present to future. Engage the stakeholders within the environment
Why: To find out their values (ecosystem got cancelled)

“Why don’t we talk about the future, we are already in it”

Reflection: 5 different people in Figma jam and value finding is not the best idea.

Method Iteration 3

Set Up1 : Physical 1 on 1 Session Oversight
What: Value Finding Method
How:
1 Sensitizer storytelling
2 Let them explain their role in digital identity
3 What do you notice within the EUDI Wallet development 3.1 Draw in ecosystem Map
4 Write out post its together about important facts to include
5 Move to UALo - Present the exercise show it and engage the participants to follow (worked) and map out the factors
6 Pick the three most important things
Why: UALo - To converge and explore , Ecosystem Map - Because it was an expert that is engaged int the Large Scale Pilot program

Noticed: UALo is useful for value finding and reflection
“ I noticed the most important thing to provide value for value” ; Example: “Voting”
“Semantics are the risk of failure”

Reflection: Ecosystem mapping showed new factors and important reflection processe on e.g. “helpdesks” or Turst: “We are looking into role models”

Set Up2: Online Via Screensharing with Ipad
What: Value Finding Method with Telecommunication sector and healthcare sector

Theme : Metaphor was used, what are you hyped about looking into the future around the EUDI Wallet
Why: Becasue value is not so stearing into a 'value for me' direction

How:
1: What is your role? and what is the relationship to digital identity in your professional role?
2. Storytelling
3 Indicate your position on the ecosystem map
4 How important is digital identity
5 Which attributes are needed
6 Which challenges do you encounter
Map into groups via screen sharing. F
7 Find three most important key takeaways.
8 Reflect on the three important values looking at values.

Why: because I wanted to make it interactive, so I used my Ipad - which worked pretty.
Reflection: Method Is not able to be done by INNOPAY in this format. I realized based on Iteration 2 that the users capabilities should be at the centre from each approach, but I had to balance it with reflection.

Set Up3: User group at INNOAPY
What: Value Finding Method Users
How:
1. based on 3 identities: Map out what you think and feel about them - brainwriting
2. Map in good bad neutral in collaboration
3. Map into UALo framework, providing prompts of sectors to create more awareness and showing images to create reflection
4. Draw it out and present to each other

(reflection process see Method Process)
Summary of the Questions:
But do you actually find out value tensions with your approach?
How can you overlay and map them easy? INNOPAY

Method Iteration 4

Set Up: Phone call with one participant
1 time screen sharing
What: Value Finding Method
How:
1. Ask the participant to reflect on value based on own experiences with verifications.
2. In moments the participant got stuck I created scenarios: Imagine you would want to act for ... what would you do.
3. Show metaphors 1 time of hackers or someone dropping their phone
4. ASk the participant to reflect back on what happens and find 3 most important things, that should be Included.

Key Takeaway: Users can reflect directly on values, however they need to be triggered with scenarios, that is why I started to create a method in which participant can provide stories to each other and create reflective processes, so I don't have to do too much work

Method Iteration 5

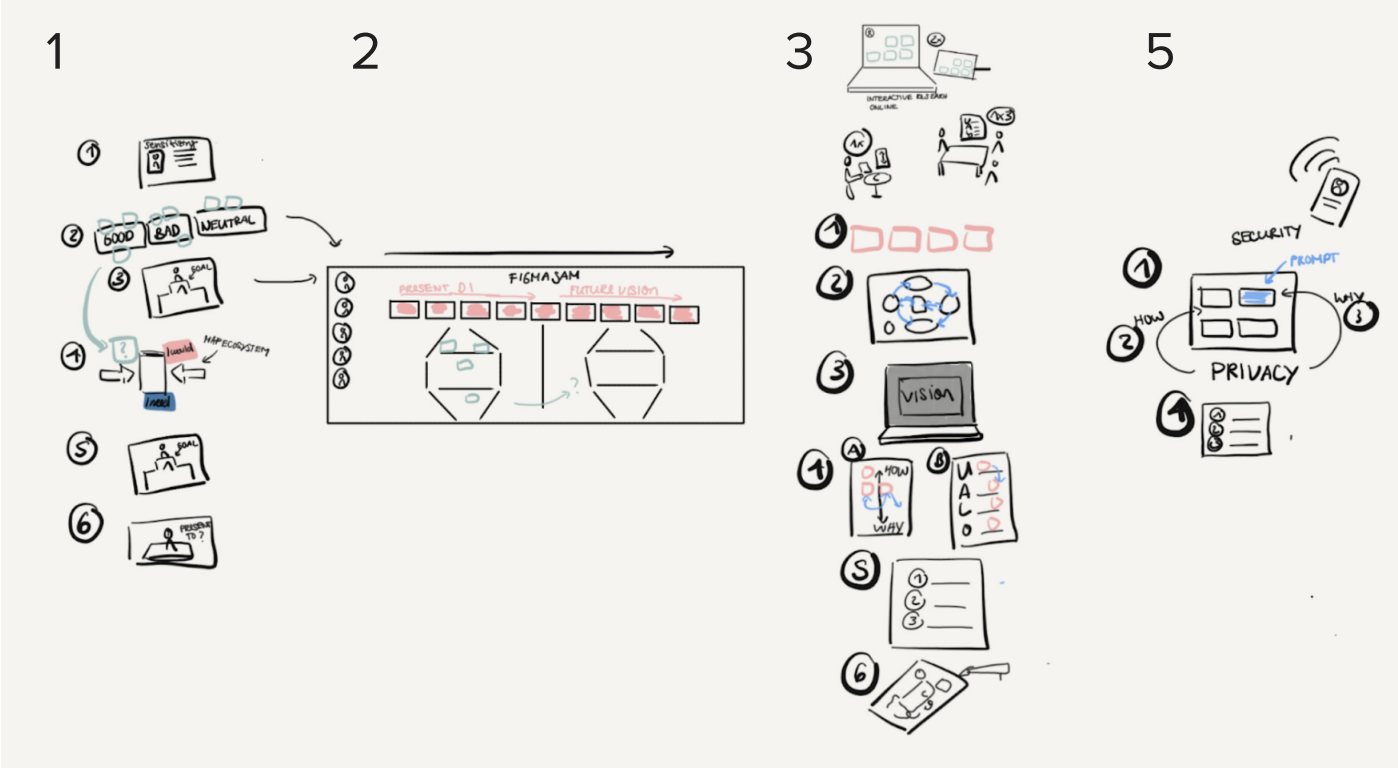
Set Up: 1 Participant or group

How:
(1) Sensitizer: immerse in current role & experience
(2) present the future (see Digital Identity Basics)
(3) Let the participants explore their values around the future by making them reflect
(4) Express core values or draw them out

(see method chapter)

Why:
1 The participants don't have too much time to be sensitized days before, so I created quick version for the process which takes 2-5 minutes.
2 Storytelling helped already before to engage in the scenarios in method Iteration 3.
3 Using the cards and putting them in order was enough to create a reflective practise.
4 Really important as the users are sensitizing and creating moral imagination (Werhane, 2006) for each other. However they have to reflect alone.

Reflection: I did this too late to also include it for experts, but it would have come handy analysing the data. On the other hand it ticked all the boxes mentioned on the right - 8 principles for the method.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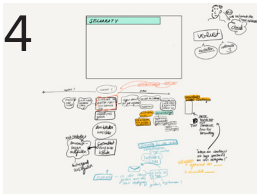
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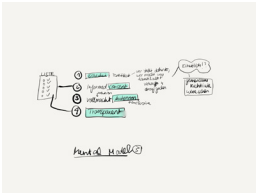
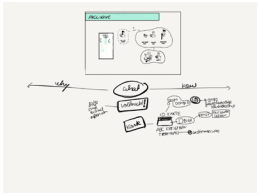
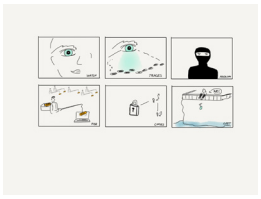






Method Reflection Section

Throughout the research different parts seamed to work pretty great, which are listed and reflected here.
1) Intuition & Leave pauses in the room: Help the participants to reflect on their own terms and ask questions in the right moment.
2) Ask what they notice, ask what surprises them, this shows where they are coming from and reveals different thinking patterns
3) In the final method ask why they picked the values and make them explain it in a story
4) Bring the participants in a future mindset / Present future scenarios: Imagine if, how would you feel about this?
5) Creative Facilitation Techniques like UALo and Why & How (Heijne & Van Der Meer, 2019) are perfect for one on one research, as they create reflection and engagement in an interactive and reflective way & helped the participants to realize what they find really important
6) In a group I encouraged participants to ask each other how and why questions to open up a conversation between the parties instead of being in the picture all the time.
7) Reflect again in the end what did you notice? This reveals the value of the conversation and research in general.

Appendix 4 Future Storytelling

Episode 1 Reliability (Commercial) vs. Privacy (User)

Reliability (Commercial) vs. Privacy (User)
Data quality gets more crucial as users are either ‘faking’ their name or typing their address wrong, or they move and just forget to change the address in the system. Relying Parties would therefore love to have an employee be able to verify the data quality of the user at their home address or better get access to quality data in real-time. What if we could always access real-time information? We do not need to see every user’s information just a green light in our system. That would be amazing to see if the attributes are still correct because we value the privacy of our users. However, it is still new and how would the user know that it is just a green light and what will they get out of it? The Relying Party decides to make a test with a user, they learned that with the current informed consent practises, the wallet offers many. The Relying Party wants to provide post-payment. A process that provides better products, parties just asks for whatever they want. They see the wallet as a free market store. However, they want to try something else. The user Paul thinks, well, that is not necessary to have real-time data for you right? it feels a bit like surveillance, Paul starts thinking about who else might have data from him. The Relying Party asks, if you could decide how to do it, what would need to happen? Well, I could send you a check mark every once in a while. Then you do not get real-time access, but the data and I get the post-payment.
The Relying Party tries to understand if that is helpful because what if Paul is not autonomous enough to make that action or forget’s it, so the Relying Party suggests an automatic check every 2 months and when it feels uncomfortable to Paul, it can be deleted with one click, which sends a message to the Relying Party. Paul thinks well that is fair, I can see how it feels and maybe get extra money back. However, it feels a bit like you could see my whole bank account. Like how is that even possible? The Relying Party thinks yes, of course even though we are trying to move towards automated processes, transparency is still the critical value of Users, so they provide Paul with individualized information in different formats, just in case Paul has any disability.
An audio proof and a visual proof with detailed information, why they provide the service and how they want Paul to feel using it. Paul sees that the Relying Party wants the real-time data to also gain a better understanding of users’ behaviour which first feels not that nice, however, the actual story behind it was catchy. The on boarding process of new users that will provide new data is crucial to the Relying Party, they believe making a good value proposition that suits the users individually breaks the privacy paradox. So Paul gave it a go also because the communication about Privacy and needs was so considerate and respectful. There was a chance to understand, reflect on my values and see if it relates.

What is the conclusion: You always have to see the reliability of data needed about the person using your solution about the perceived value the user get’s and communicate it in the best manner.
Tip: Test your value proposition before you launch it to unravel flows from the start

---

Ok wait the story goes on values are dynamic and change over time (5 years later)

Hey, It’s the Relying Party again we just wanted to let everyone know, we tried hard to get the best out of the wallet, but instead of engaging with our morally correct value proposition, they just skipped through it. We decided not to offer post-payment anymore and become activists for privacy. It is still like the cookie law just with actual data. We heard users sell their souls there to get even more extra payment.

What is the conclusion: Don’t get this wrong, it is still good to try to act as morally as possible, if nobody makes a move, the world stays the same, but the actual conclusion is “we are shaping technology and technology shapes us” & It is not about the app it is about the layers behind it the government needs to check who is allowed to ask what and create the schemes to do so.

Episode 2 Reliability (Healthcare) vs. Privacy (User)

2 Healthcare:
Another Day and another story. Reliability vs. Privacy
Relying Party and the Industry of Care. Jenny comes in with the urge to get better. The Relying Party identifies the health data and provides the proper first treatment based on the data provided. It is everyday praxis to share the data with a healthcare practitioner they have a trusted relationship, and hiding anything there does not make any sense. Jenny thinks it is stupid to call that surveillance she went to that doctor 20 years already and now she has to hand the chip over every time. However, her wife is new in town, and she likes that system. She doesn’t know the people there that well yet.

Conclusion: Trusted relationships help to give up privacy and make you fearless. There will always be people that think differently from each other. Moreover, when it is about the value of health, it is easy to understand why data ist needed.

Appendix 5 Method Iteration Reflection Research Phase 2

	Method Goals	Methods used	Reflection
1	A method to find out the values of different stakeholders for the future.	- Creative facilitation (UALo + How&Why) - Storytelling for future mindsets - Future Stakeholder Map - Value Debating Game	All methods helped the participants to think about their values in their roles and reflect on what they would want in the future as all the methods created a reflective process by being asked to do something
2	A method that allows the participants to be the experts of their own experience.	Started with a whole group of people from different context on Figma jam Creative Facilitation methods that created visibility of their own thoughts in the process Value Cards	That did not work as they didn't have the chance to talk about one single boundary object, and there was no in-depth reflection possible Having the participants see there own thoughts cross them out or elaborate on them helped them to find out what they value and get in a future value mindset. Especially UALo and How & Why helped from CF helped here. But also just seeing everything written down and sorted out. (Show pictures of techniques used offline and online) Have something they can play around with and discuss helped to create an interactive approach to debate. Precious discussions got created (show pictures of pointing on cards.)
3	A method that creates reflection. That aims to reflect on values as they get spontaneously expressed and change over time.	CF: UALo + How & Why Used in the first interviews with all three participant groups. It helped to find out what the real value of the wallet should actually be in the future and for relying parties it helped to find out where they fit in the picture of the ecosystem Value Debating Game It was the easy way to let people reflect on how and why as those where mentioned as ground rules for the research process.	In the first experiments with where more creative facilitation techniques got used UALo and How & Why helped the participants to reflect on what is important. In the 'value debate game', the participants prompted themselves by having to rank the cards by importance. .
4	A method that creates a reflection on relevant moral values	First interviews were based on a complete focus of being the expert of your own experience. Based on intuition and reflective questions & integrate the moral values, in the end, The Value Debating Game consists already out of value cards that need to be reflected on	Reflecting on moral values in the end was difficult difficult and it was also tough to find out what their thought and feelings are about privacy or informed consent. Having the values pre-established helped to have every participant group talk about them from their own perspective
5	A method that brings them in a future mindset and allows for future thinking.	Use Storytelling	Adapted the story over time and made it better but after the
6	A method that does not request too much time from the busy participant's max 1 hour / best case scenario 30 - 45min.	From exhaustive user research with the integration of creative facilitations to a value debiting game that helps reflection	Shortest interview was 30min, which included the discussion of the sensitizer plus the sorting of values. The participant was in general, engaged and had fun in the sessions.
7	A method that is easy to be reused from INNOPAY / A method that could be repeated in the future.	From exhaustive user research with the integration of creative facilitations to a value debiting game that helps reflection	Still needs to be testedover time... there was unfortunately not enough time to test the complete approach on value finding.
8	A method that allows to overlay values in and **see where the actual tension between the parties comes from**.	FINAL CONCEPT INTEGRATION AFTER DISTINGUISHING THE PERSPECTIVES AND CRETING A FRAMEWORK IN ORDER TO SEE THE DIFFERENCES WHICH MIGHT HELP TO DISTINGUISH BETWEEN USER VALUES, RP VALUES AND OVERSIGHT VALUES .	The balancing ideas can be used to reflect on the values that need to be established in the system in co-creation However in the analysis process it was hard to completely distinguish what the actual value of one party for the solution is. I should have asked in the end: "If you are now completely egoistic and self-focused and don't balance values, what does the solution need to do for you".

Appendix 6 Value Explanation

Within the research different interpretations of values are discovered. From the start of the research I got the feeling that stakeholder have complete different opinions about values and therefore my goal was to define them and find out how we might communicate the differences. In the process 11 values got discussed the most which, 7 were reflected on in method Iteration 5 the most and three were added for the last iterations based on one interview. Based on the opposing opinions I created an overview on how we can look at the value from the different perspectives and point out the most important parts within the values. The goal was to map out the values and see the tensions of the system based on the different stakeholder perspectives. On this page they are presented without quotes to make it less extensive. The complete analysis of the values is based on different expressions of the participants and literature. However for the purpose of this project the representation is less extensive in order to not loose track of the actual meaning.

ECONOMICAL & REGULATORY

Reliability is the core value of Relying Parties in a practical manner.

Relying Parties need to have reliable poof of the data of a person in relation to their attributes for different reasons. To create personalised services, to know the document is correct, or to know if the wallets used and the processes behind it are trustworthy. Those informations are important for creating business models based on data practises and in case of fraud or system hick ups to know when where and how they could be made liable. Moreover Relying Parties are obligated to check different attributes of a person based on compliance like GDPR, AML or KYC. Therefore it is on one side about checking itself, but also to know how when and where the different needs can be managed.

SOCIAL UNIQUENESS

Inclusiveness / Uniqueness of Users and Relying Parties
Within inclusiveness we look at the uniqueness of people and parties in the system. This means and inclusive approach inhales to create an overview of the uniqueness of Verifying Parties in the system and the uniqueness of users in the system to create awareness for differences. This way we can learn how to include the perspectives in a system creation process

Trust in the interaction, developments and in the system collaboration
“People trust people”(….). Within the emergent ecosystem trust can be seen as the glue to the whole development, in which we want to understand the uniqueness in order to understand where trust is coming from. As people with their mental models are the centre of a complex system. Therefore we look at trust from all perspectives which are connected to trust, which is information as transparency leads to trust and collaboration, in which we define who is acting ethical and knowing who is responsible where and when. and why.

Privacy as user value
Privacy is mainly discovered as a user value, however the value finds is creation process in the system layers and is therefore discussed within expert groups. In the discussion privacy by design is mentioned, but also privacy by technology and privacy by governance.
The experience of privacy in general differs per situation and person. As everyone has different believes in different situation, as seen in ‘uniqueness’. Therefore we build up their own set of values within our own experiences.

Appendix 6
Value Explanation

ACTIONS

Efficiency is a mix of user and Relying Party value.
For Relying Parties we are looking at how efficient the data can be to collect the attributes needed from the person that needs to be verified for example attributes might not be available, in a different data base or not existent. For a user this process means to get it done quickly, as the identity process is a means to a different value or different interaction like getting treated at the healthcare practitioner or entering a shop online or buying alcohol.

Ease, Convenience, Seamlessnes for the User
Ease of use or convenience or seamlessness are mentioned in relation to a user using the service in order to achieve the goal for the moment. However there are different contexts and moments, therefore ease was discussed in terms of different contexts for example getting the core identity in the first place, which might be a process based on much effort. Or easing out the process of check out where a security layer makes the process less seamless, but the question arises, if it is really about ease or actually the efficiency which should be provided or communicated

ACTION UNIQENESS

Autonomy as user value
Autonomy is mainly a user value. However as the EU Commission vision mentions, that the aim is to give users the autonomy back and creating privacy with it. It is questioned, how this actually can happen, because see ‘uniqueness’, we are all different and might not be able to act autonomous on everything we actually want to achieve within the boundaries of a system.

FUNCTIONAL

Accountability is an Oversight value with User + RP's underlying necessity.
Accountability, liability or responsibilities are questions that are asked from the creators of the system. In which we are looking at knowing who might be liable when and therefore know who the system participants can contact, when there is a hick up. Also it is important to know who is responsible in case a verification was fake and something happens. For example "Who is liable, if a Relying Party is approving a fake credential and then an accident happens with the person that has a fake document".

Security as oversight obligation and User + RP underlying necessity
When envisioning a new future for digital identity we can look at it as verification to have entrance to a service. Therefore the 'door' needs to be encrypted for entry and the relationship of security needs to be managed within privacy limitation to create fraud protection to see when , where and how the someone might have committed fraud , which is a necessity that needs to be provided by law from different Relying Parties at the moment with their solution. However looking at wallet that are used by a user the oversight sees a problem of making the connection of fraud protecting, control and privacy barriers in place. For users security is a must and a feeling of it can be created by showcasing and explaining and knowing the limitlessness of the wallet and parties they are interacting with to enter the service or have a long term engagement.

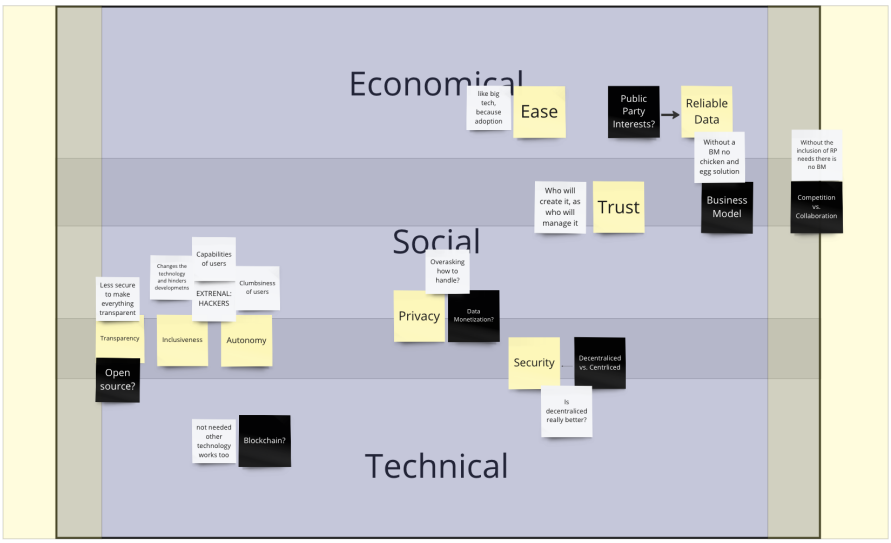
Transparency is an information, collaboration and technology related term.
Transparency can be interpreted in three different versions and is therefore a user value in order to understand, access and act based on a information. In which the user wants to know who is involved, why the data is needed and who will do something with it. Some also want to know how the system is operating and ask for more information based on user uniqueness and the level everyone is able to understand information. On the other hand it is also the value of the oversight in terms of collaboration. As they need to help everyone to understand and get involved as well in order to create a system together in which the values are balanced and fulfil the different values in collaboration. Moreover also Relying Parties need cohesive information for different purposes, for example where is the credential coming from in order to trust the person and the wallet they are using.

Informed Consent is hard to put into a box of who's value is it.
However we could argue that it belongs to the oversight based on the tension with privacy and security. We can look at informed consent from an alignment perspective and the way to interact with each other in a specific context. In that sense it is a collaborative value as it brings together different people on a platform or device.
Therefore it is closely connected to Transparency. As the way we perceive and understand information is based on the way information is given and processed by every individual. Currently users experience difficulties in some consent practises based on the format in which the information is given to them in the moment of use. For example in moments of rush a user does not want to be bothered and even though the collaborative act tries to make them aware and informed it is hard to actually create that process.

COLLABORATION & INFORMATION

Appendix 7 Discovering Social & Economic Tensions

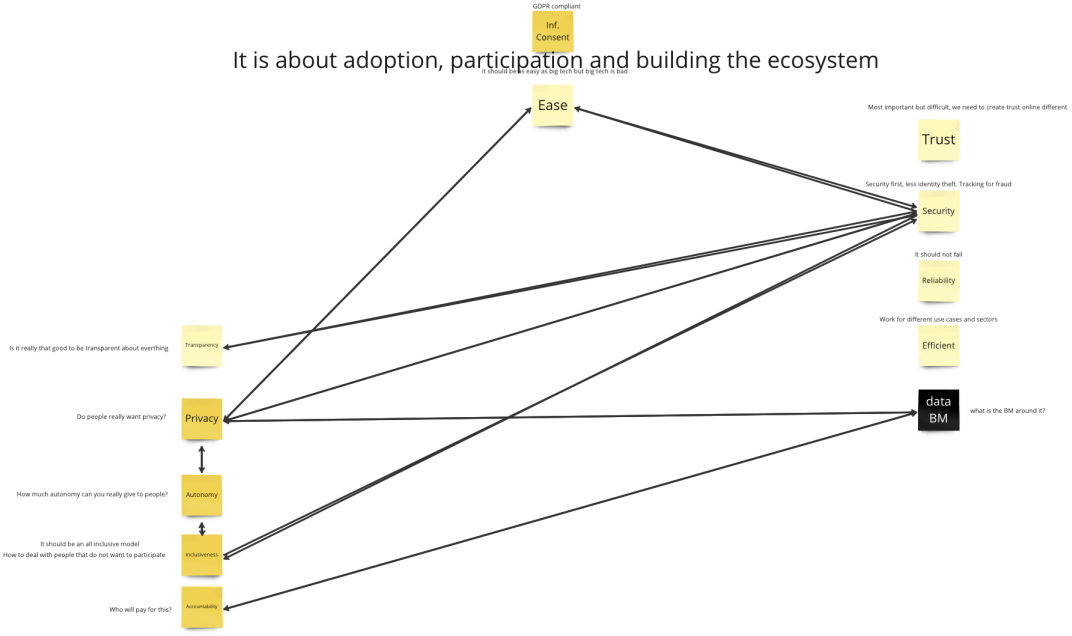
Highly Questioned
if to include → How to design

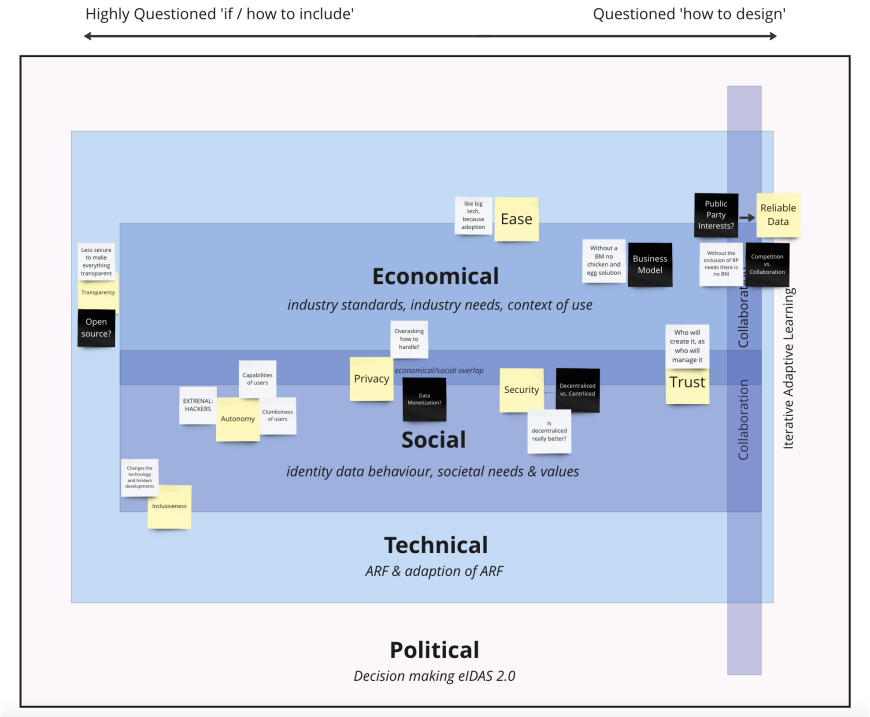


Collaboration POLITICAL Collaboration

Based on Martinsuo (2020) values as believes got mapped into a graph to understand visually were the tension are with moral values are coming from.

Martinsuo (2020) who sees that a goal can only be achieved when investigating values before and during a collaborative process to create common ground. Martinsuo (2020) discusses ‘values as worth’ and ‘values as beliefs. Values at worth define an overall category to include ‘values as beliefs’ embedded into ‘value as worth’. Martinsuo (2020) shows that researchers classify values into the terms economic, environmental, social, technological, political, symbolic, and aesthetic terms (Eskerod & Ang, 2017; Flyvbjerg, 2017; Kivilä et al., 2017; Martinsuo & Killen, 2014) and commercial, intellectual and collaborative terms (Liu et al., 2019).

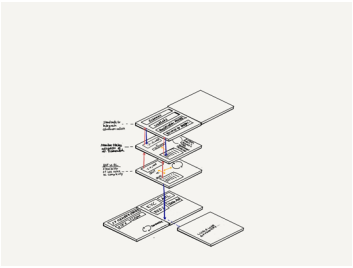


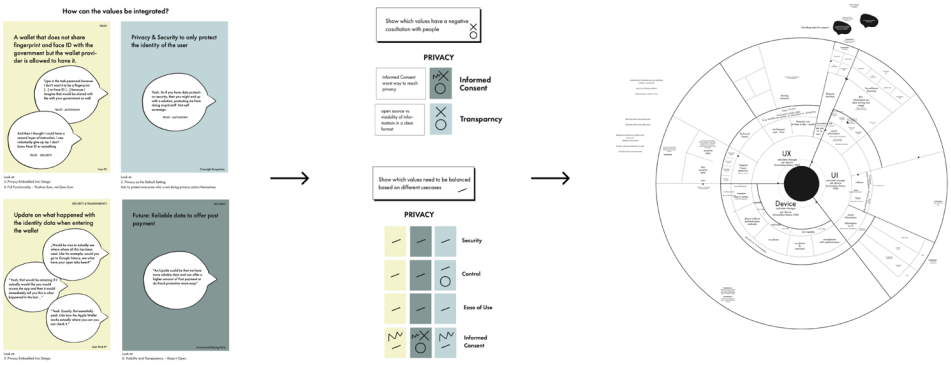

Highly Questioned 'if / how to include'
Questioned 'how to design'
Economical
industry standards, industry needs, context of use
Social
identity data behaviour, societal needs & values
Technical
ARF & adaption of ARF
Political
Decision making eIDAS 2.0
Ease
Public Party Interests?
Reliable Data
Business Model
Trust
Privacy
Security
Open source?
Transparency
Autonomy
Inclusiveness
Collaboration
Collaboration
Iterative Adaptive Learning

Iteration

Appendix 8 Plotting the tensions in the system Layers

I used different approaches to project in the future and try to understand where the tensions are coming from based on the tension table created.





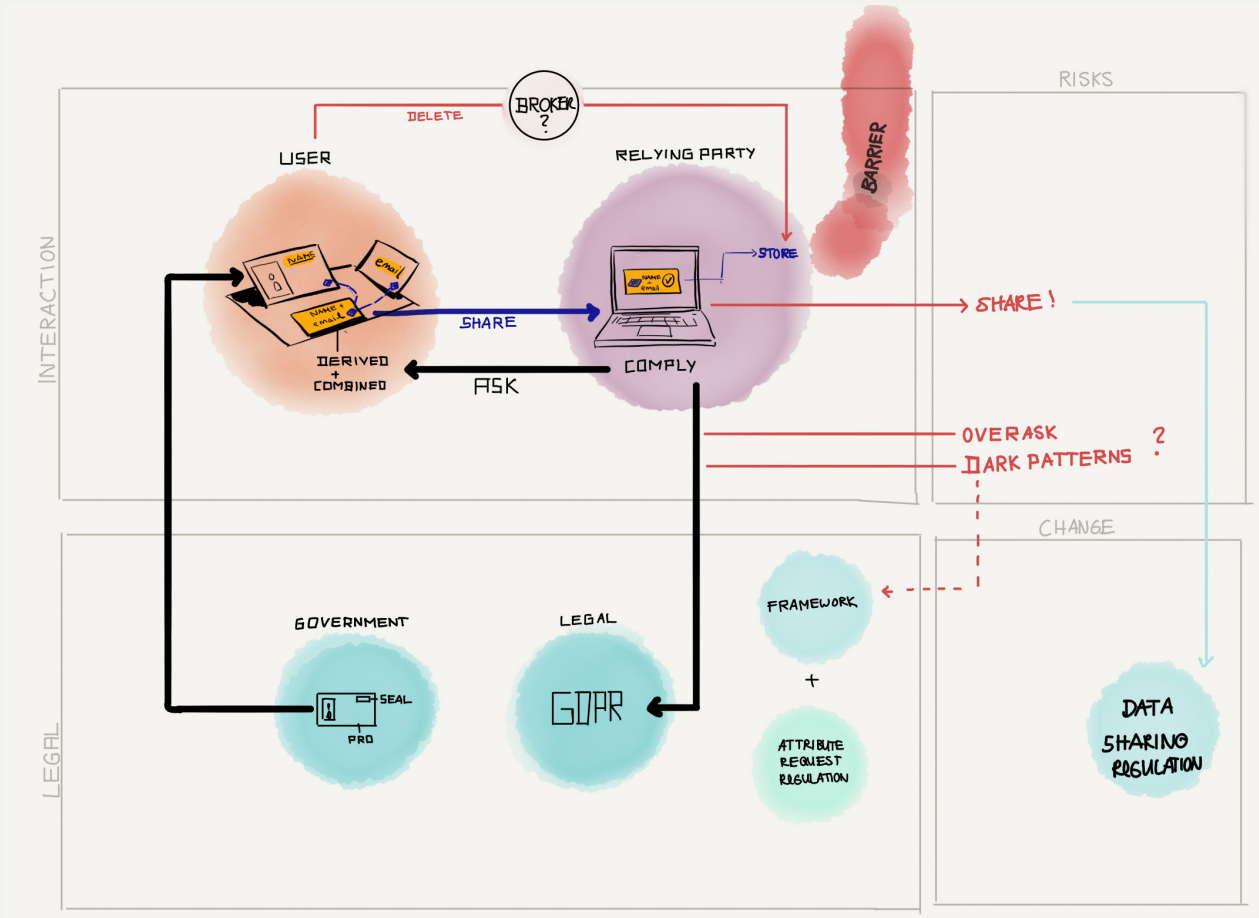
<from single ---------- To system overview

value relationships

	trust	inclusiveness	ease	efficent	reliable	accountable	security	privacy	transpareny	informed consent	autonomy control
trust		15 Also count in the not believers e.g. at the construction industry you might have many people. Was already a big hussle for them in covid times for getting a vaccine (based on conversation with the CEO of a cleaning service in Germany around Christmas 2020)	(some might argue related to trusting it or one means to get there)	(related to ease)	(yes)	(users think if there is soomeone accountable that leads to trust)	(technical version of trust)		(some think they are aligned some not)		
inclusiveness			9 The solution needs to take into account how accessibility could be influenced by the different people from different countries wanting to get a wallet (all nations)	14 Authentication method can be chosen as healthcare workers come in all ages also other professionals and have different knowledge on the technology. Literacy and All Ages	13 The solution also need to be reliable for different situation e.g. in an MRI room a phone can not be used which would be difficult for healthcare workers	17 We need to think about how to help the people with questions about the wallet in the best way. A helpline an iinformation center or how could the pysical place look like for questions on technolog y or attrbutes?	10 equality access to technology based on high and low level of economic wealth	Risk of overasking	17 Dark patterns are not inclusive in regards to colour blindness or others	17 Dark patterns are not inclusive in regards to colour blindness or others	4 Attributes do people have to do that combining themselves and could go somthing wrong there?
ease				12 get a request but need to request to perform the act	(co exist)		3 hundret times a day sign up for healthcare professionals a pain in the ass				
efficent					(efficient related to ease)					2 (comes after 1) Dark patterns in the wallet	
reliable							(...)				
accountable							(who is accountable)				
security								6, 7 not deletable, unlinkability of information	5 How much security is actually good, when are we inviting hackers with too much information on everything?	1 overasking	11 plan in for clumbsiness
privacy										1 overasking	
transpareny										18 How much transparency leads to better consent	
informed consent										(in tension with informed)	

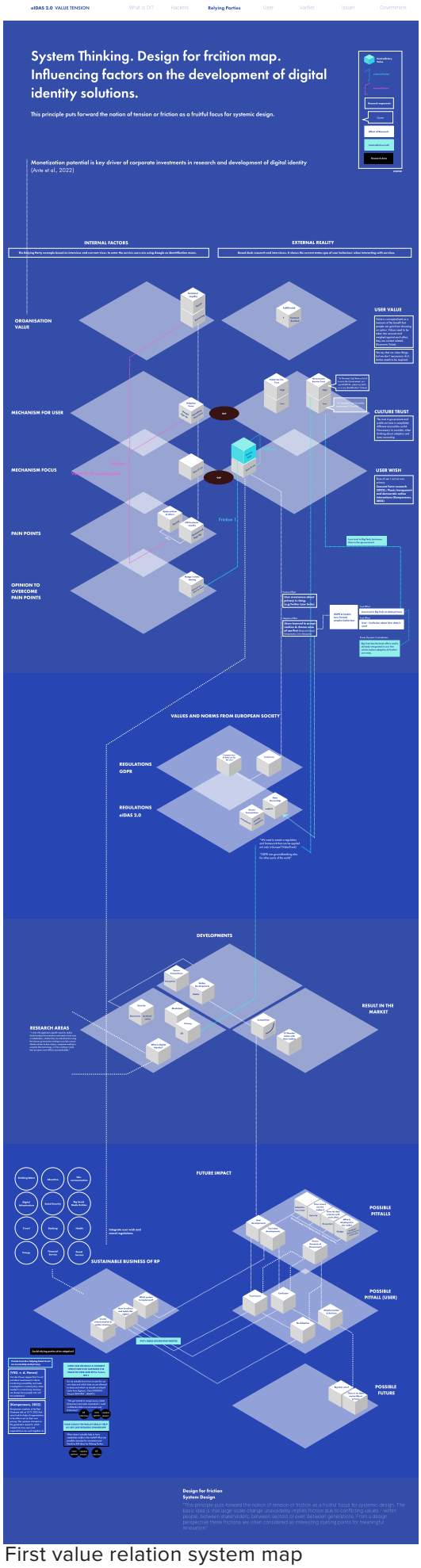
Tension table plotting values against each other to see which tensions should be considered

Tension Overview between parties : Pink User / Purple RP / Yellow Solution, here I realized that the tension might switch between RP and user towards wallet and user, which would change the way we see responsibilities in the future.



Forecasting & Solution finding

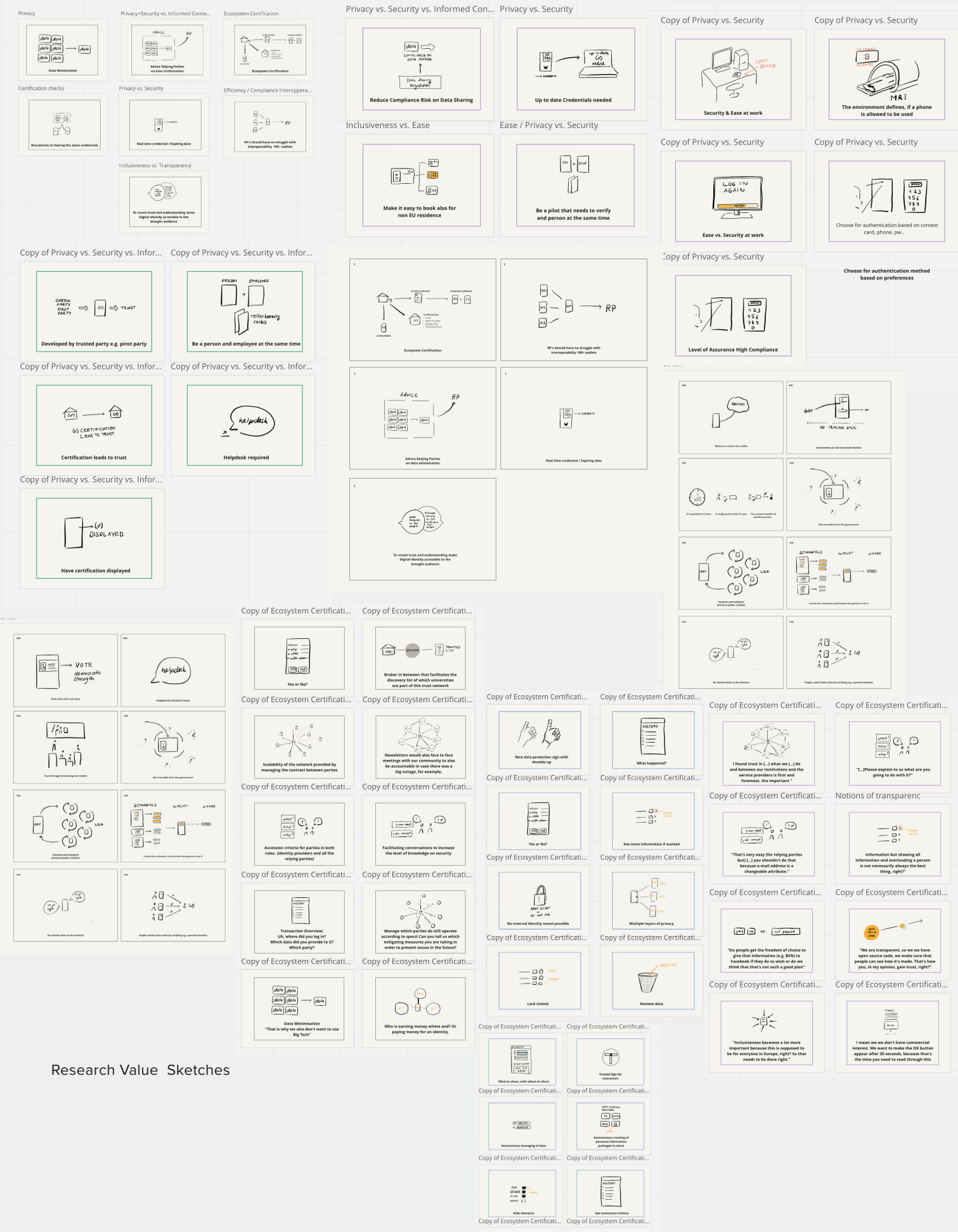
8.1



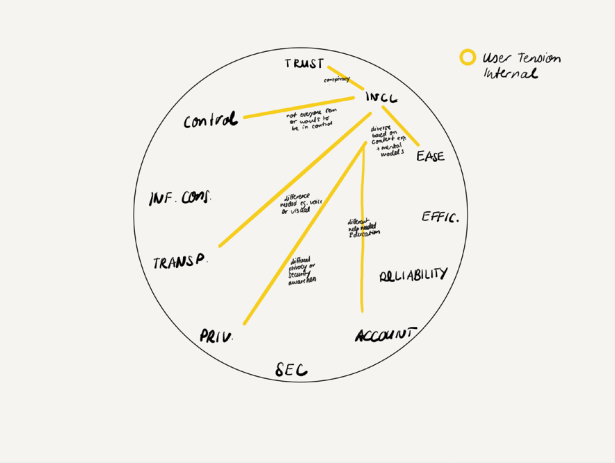
First value relation system map

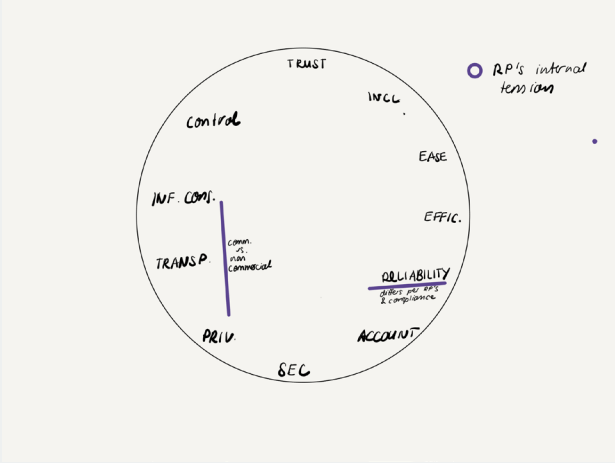
Appendix 9 Value Analysis

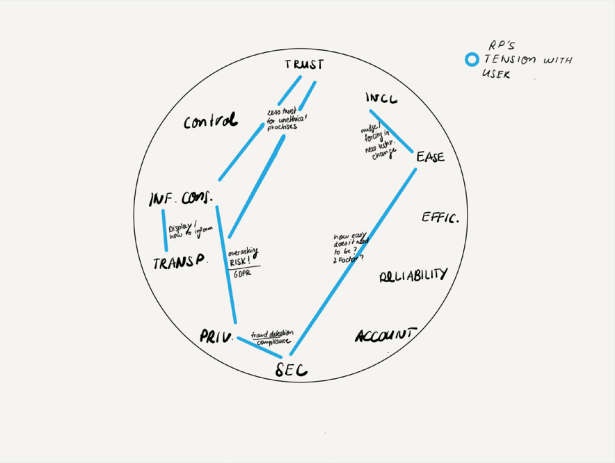
I drew out the most important aspects from each conversation to visualize contexts, which later on created a better understanding when mapping the mental models and create the three contexts.

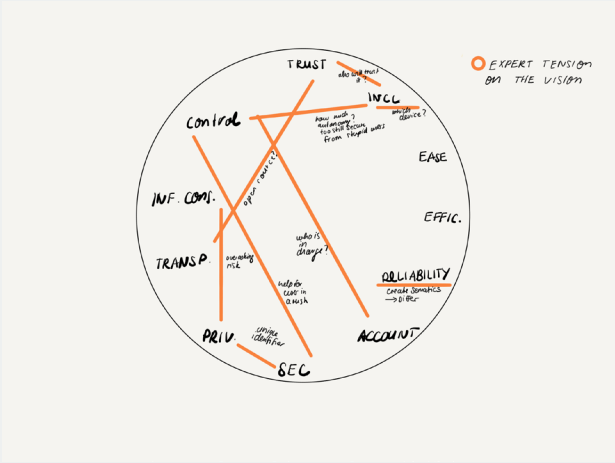


Research Value Sketches

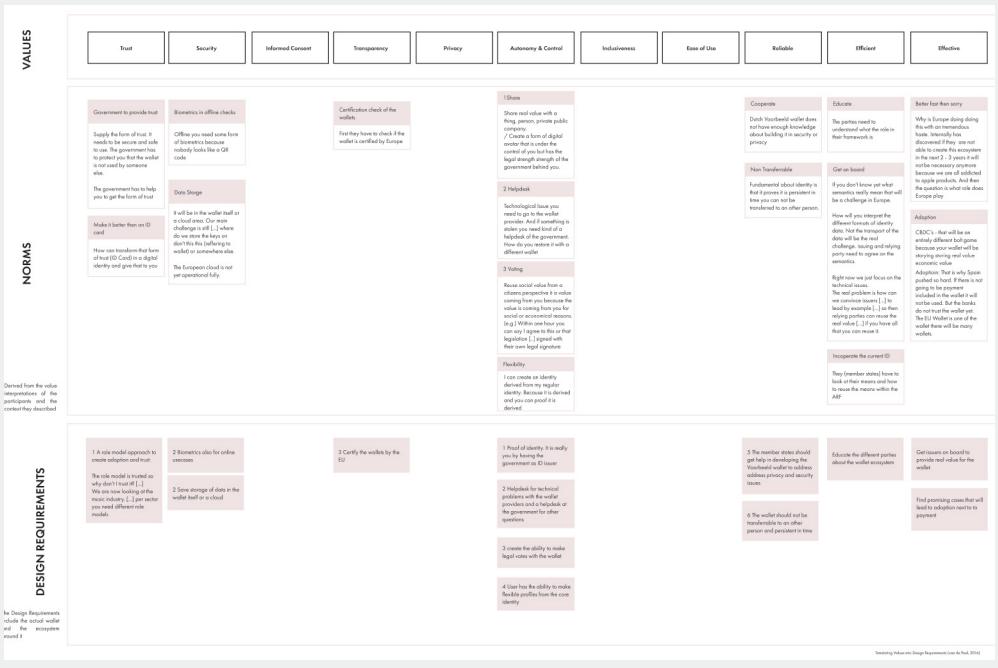








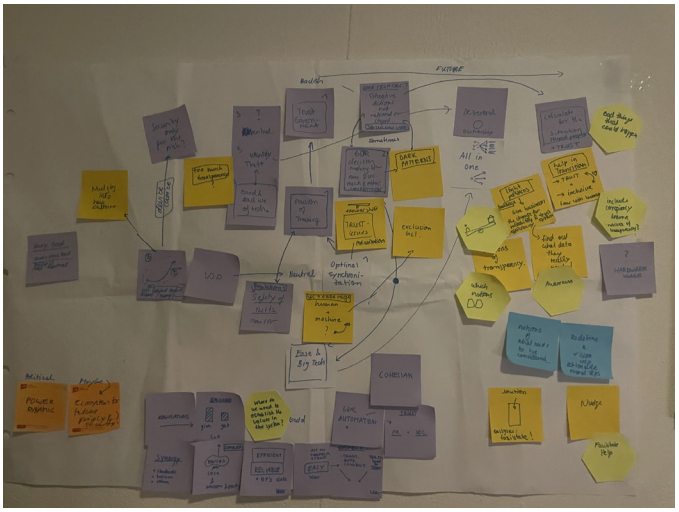
Tension analysis



Value Analysis Process

Appendix 10 Factor Collection Vision in Design Approach

The factor collection was used to create the interaction vision of the future and build my own opinions on what is important and how to structure the report towards that goal. (iterative process with little structure)



Trends

- Growing Identity Theft
- Creation of new tools based on AI tools like Chat GPT 4 open source code to create extreme reality-based visualizations
- Reducing the need for multiple passwords by creating federated or user centric digital identity solutions
- Companies use digital identity for a good conversion rate and marketing
- Integrating self-sovereignty for digital identity to generate ownership for users on their identity and aim for privacy
-Websites and Video on privacy hacks
- Automation of processes to meet the need seamless interactions
- Boost in digital service interactions in public and private services due to COVID-19
- Biometric al data in the black market
- Data minimization for security (SSI)
- Open source codes are used to have everyone participate and create better solutions as collaborative element
- Open source is used to create greater adoption for environmental and social trends

Developments

- Verifiable Credentials are used to say something about you & they can be linked to each other (iDIN)
- Schemes develop from a company perspective to fulfil a market need like instant payment iDEAL ; which creates a business model for the future
- EU digital identity wallet ARF
- Digitizing the European Euro
- Wallets for different purposes and sectors for service interactions
- Decentralization
- Block-chain
- Digitizing personal Documents
- Artificial Intelligence
- Machine Learning
- Human Machine Interactions
- Are you really a human test
- Misinformation rises due to internet silos
- Biometrics for authentication
- Authentication via online movements and physical movements
- Verification through DNA or blood type in combination with other factors
- SSI Solutions
- Plug Ins to limit phone usage
- Digital Twins
- Deep Fake Analysis Tools and Start Ups

Harmonise

- Not every member state has the same digital identity solution
- Not every member state has the same legal standards
- Member states have different attributes on their ID cards
- Companies help people to act online
- Companies built up digital identity solutions to meet customer and business needs e.g. eduID Education

Fundamental Needs^

- People give up their privacy for a community feeling
- People look for comfort and belonging
- People don't want to be excluded for the believes
- People seek for making an impact in the world to their own terms

Reliability

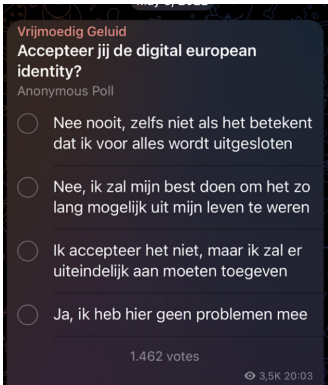
- Companies are in a triangle between customers' needs, compliance and company flourishing
- The reliability of data is key for business actions
e.g. send a package, get the payment
- Companies need their identity solution work in different circumstances e.g. MRI -> offline
- Companies' awareness of privacy and reliability differs
- Reliable proof of a person in combination with their profession from a different country
- Reliable proof of a person in combination with their Business
Reliable proof of a person in combination with their actual attributes (In Time)
Using the solution to have Peer to peer verification for business purposes
Reliable for different environments for example MRI

Security

- Hackers get smarter
- Hacking got a Business Model
- The Oversight sees security as trust element that needs to balance between different factors like device used and people using it
- Users fear security limited through making every document transparent and open on the web
- Users believe that secure solutions need to be established through confirmation that could take longer
- Users are annoyed and happy at the same time about 2 factor authentication
- Businesses balance security and ease in their practises
- Businesses want to see security established by the solution, as the government is involved it should be taken care of

Ease of Use

Need vs. Security / Privacy
U
- People adopt solutions and are happy with them when they function well
- People got used to easy products and services
- People see governmental solutions as being less intuitive
- People tend to get annoyed about consent forms and just press ok
- If there is something major urgent that needs to be fixed and the values of doing it is seen as greater then the rest, the user will do it
O
Seen as important must have adoption criteria
RP
- Seen as important must have adoption criteria
vs.
- Parties without conversion needs can put other values like privacy before



Header

Efficient
U
- People just want to have a solution that fulfills their needs and time sufficient accomplishment with little hurdles
RP
- Efficient gathering of data

Privacy:
- Designers and Artist try to create awareness for data use and distribution
- People find themselves with different importances of which attribute should be shared with whom and why
e.g. name with a hospital
- People need different levels of privacy e.g. health tracking vs. online tracking based on the value the service provided to them
- Users give out false names, if they don't think their attribute is needed by the service
- Users only understand when privacy is important to them, when they can match it with their situation:
e.g. hide loan, injuries or remove sexual preference
- Privacy risks feel intangible to users
- People like personalisation & 'hack' googles by typing in their wishes to get advertisements
– The context of interaction matters, if we pay attention to our own need "The healthcare workers care about the ease at work and not their own privacy at that time"
- Experts ask themselves if users even want privacy
- RP start thinking about privacy of the user when they get asked
- Should be established by privacy by design

Autonomy
- People have different technology literacy
- People have different physical restrictions
- Users have different needs for their own autonomy based on age or action
- Companies either want to establish autonomy and freedom of choice or do not see a reason when and why people should be autonomous as it is just about an agreement
- The oversight sees autonomy as restricting aspect to security, as not everyone is capable to act perfect in every situation and might be clumsy or tricked into sharing something they do not want to normally

Informed Consent
- People are annoyed about bad consent practises
- Companies see informed consent either as the solution for collaboratively making an agreement (yes,no) compliance
vs.
the worst thing ever, as it often does not display what is really happening due to a lack of transparency
- Oversight does not see it as extreme important
- Experts argue that informed consent is a fake layer of privacy

Trust:
- People act based on their believes / Mental Models which are based on experience
- Users do not trust Big Tech Parties in the same way e.g. Apple is more trusted then Google
- Users do not trust the government in the same ways with different things like biometrics
- Companies establish trust with users throughout the years in which their identification method is seen as a core element to have a stable relationship and changes would need to have a good value proposition
- The oversight creates trust by establishing standards and rules between the actors in the system to find shared values and a common goal, through communication and other rules.

Transparency

U
- Transparency is the key element for users to generate trust about how secure the solution is and how privacy friendly
- Transparency gives the ability to be informed enough to make a decision and have understanding
- Companies see transparency as trust element for users
- Companies need to know about the IT or code to present the information to the user to generate trust
- The oversight believes that too much transparency displays too much about how things work e.g. open source codes can reveal security gaps

Inclusiveness

- People get nudged into using new solutions, as they otherwise get excluded from society
- Older people take technology classes to be able to do e.g. their taxes still alone
- Users only see a need for inclusiveness themselves, when they have a reason to e.g. help someone who is older
- Companies want their users to be able to use the solution in the best manner based on what they are used to, their backgrounds and capabilities
- Inclusiveness is seen as restrictive element by the oversight to create quick adoption and need to be taken care of later on (security vs. solution used)
- Experts see inclusiveness as the ability to have certain attributes like sexuality not displayed

Accountability

- Responsibilities are important to create a networked service
- People want to know where they can find help
- Companies want to know about responsibilities for different circumstances to plan for risk
- The oversight sees accountability at risk, if there are no clear responsibilities and roles defined

States
eIDAS
AML (Anti-Money Launering/ Banks)
KYC (Know Your Customer)
PSD2
Companies need to comply with regulations based on their service

Projected Extreme Risks
Extreme Overasking / RP, Oversight & User separation

- Data availability
- No central control to change it
Further Polarization of society / Mistrust due to Governmental Miscommunication

- Government mistrust
- ID CARD DECISION
- Bias
- Further Synchronization due to technology
Member states are not aligned in beliefs
Unlink-ability and Attribute Decisions
-> people get excluded from clubs etc.

Decisions on attributes around data allowed to be included in the wallet

e.g. sexual identity and gender

Appendix 11 Privacy By Design Literature

Privacy is a basic human right (Movius and Krup 2009). In the 1990s Ann Cavoukian (2006) published a document about the 7 Foundational Principles of Privacy by Design (PbD).

1. Proactive, not Reactive; Preventative, not Remedia

ASSESSMENT

Aim to understand the privacy risks before they could happen

2. Privacy as the Default Setting

Aim to protect everyone who is not doing privacy action themselves. That includes for the developers to pay attention to the following FIPs

- Purpose Specification: Why is the information collected from the party, where is it used, how is it retained and make that information available to the user

SHOWCASE

- Collection Limitation: Minimizing the collection of data and following the law and limiting to the necessity of the purpose

- Data Minimization: Strict minimum of data collection. Have non-identifiable interactions and transactions, as the default wherever possible, Identifiability, Observability, and Linkability of personal information should be minimized.

- Use, Retention, and Disclosure Limitation – Knowledge about the usage, length of time that data is stored, disclosure of personal information is limited to consent, and securely destroying of information is possible.

Stakeholder engagement

3. Privacy Embedded into Design

A holistic approach to consider the stakeholders involved, standards and frameworks needed, risk assessments in the process, the collection of personal information must be fair, lawful and limited to that which is necessary for the specified purposes.

4. Full Functionality – Positive-Sum, not Zero-Sum

Privacy vs Security

Deciding for the trade-offs of value relationships, for example, security vs. privacy, with the aim to have both and not reduce one factor. Zero - Sum means to keep the design objectives and don't loose privacy along the way because of technical capabilities. The articulation of features and the outcome is needed to be clearly articulated.

5. End-to-End Security – Full Life cycle Protection

Without security, there is no life cycle for privacy possible in which the data can be retained and destroyed. The entire life cycle needs to appreciate the level of sensitive data used and comply with the standards that are developed for the technology. That means acting on confidentiality, integrity and availability of personal data. Using the appropriate encryption per the sensitiveness of data, strong access control and methods to log in.

6. Visibility and Transparency – Keep it Open

Visibility and Transparency are mentioned to ensure Accountability and Trust.

Responsibility

Accountability Make sure who is responsible and document the responsibilities per scenario

Openness Being open and transparent is needed for accountability. Individuals need to get access to policies and practices that hint to the management of accountability.

Compliance

Compliance The compliance information need to be available for stakeholders in the system so they can apply them and communicate them further to their users.
This integrates monitoring and verifying compliance.

7. Respect for User Privacy – Keep it User-Centric

"The best Privacy by Design results are usually those that are consciously designed around the interests and needs of individual users, who have the greatest vested interest in the management of their data". Also, interfaces need to be human-centred, user-centric and user-friendly to have the option to make reliable choices. Mentioned are four FIP's Fair information practices.

Consent & Transparency

Consent – quality "The greater the sensitivity of the data, the clearer and more specific the of the consent required"

Accuracy — Have accurate, complete, and up-to-date information available

Access – Have access to information, see which information is seen by others, challenge correctness + completeness and approve the information

Compliance – The availability of making complaints about the mechanisms used by organisations

Highlights

Appendix 12 Future Analysis - Combining the value driven research with Vision in Design and the futures cone

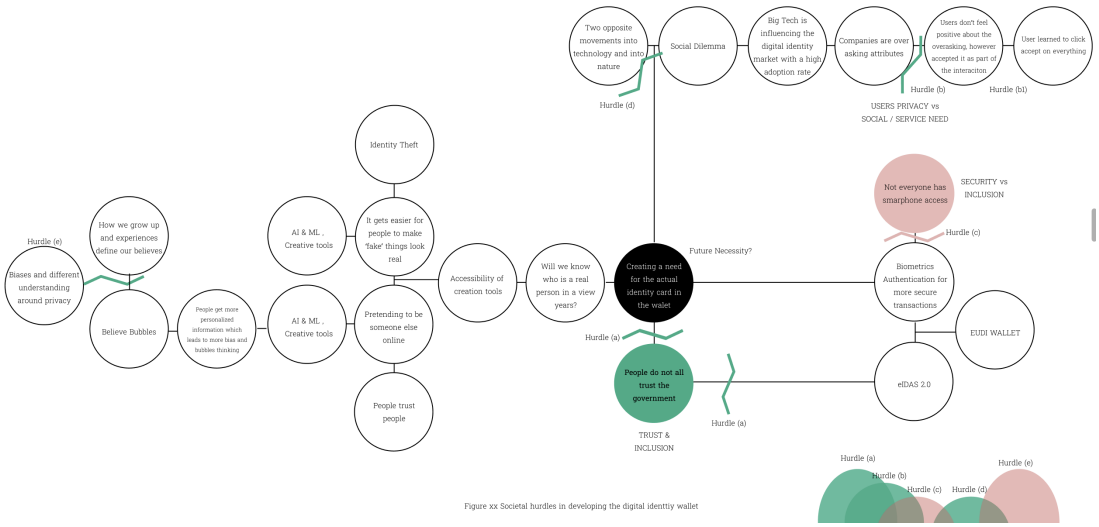
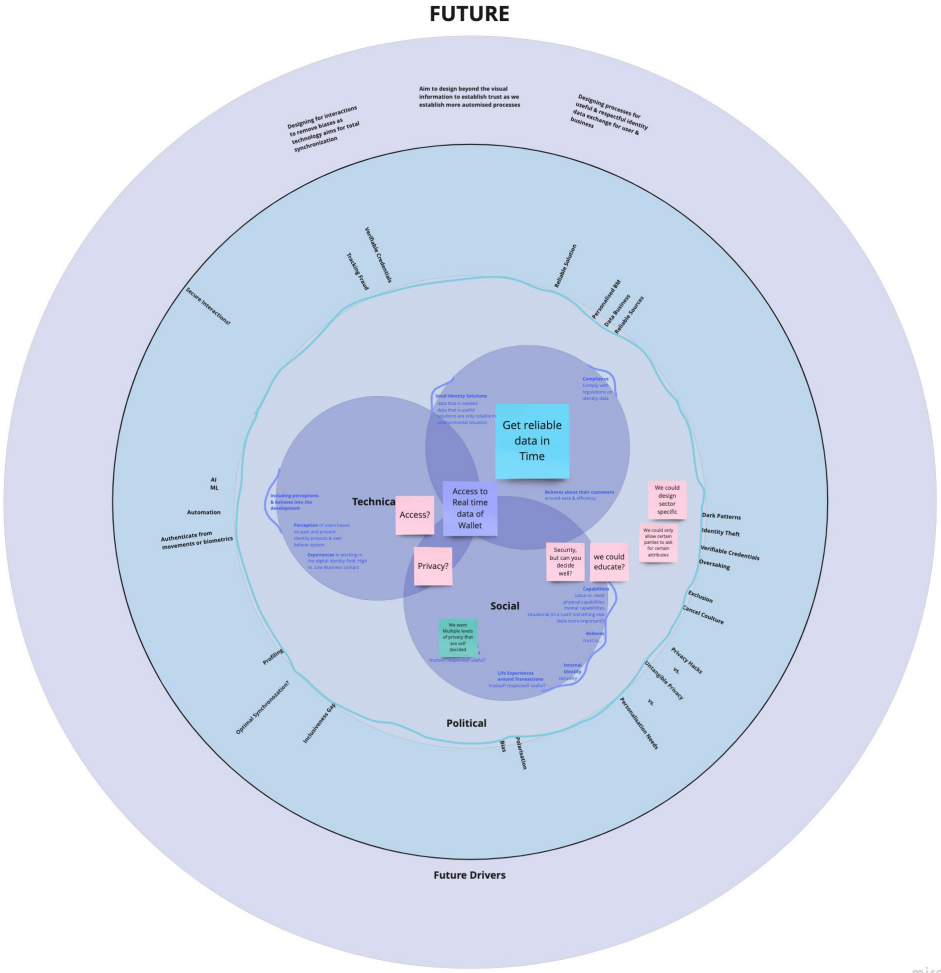
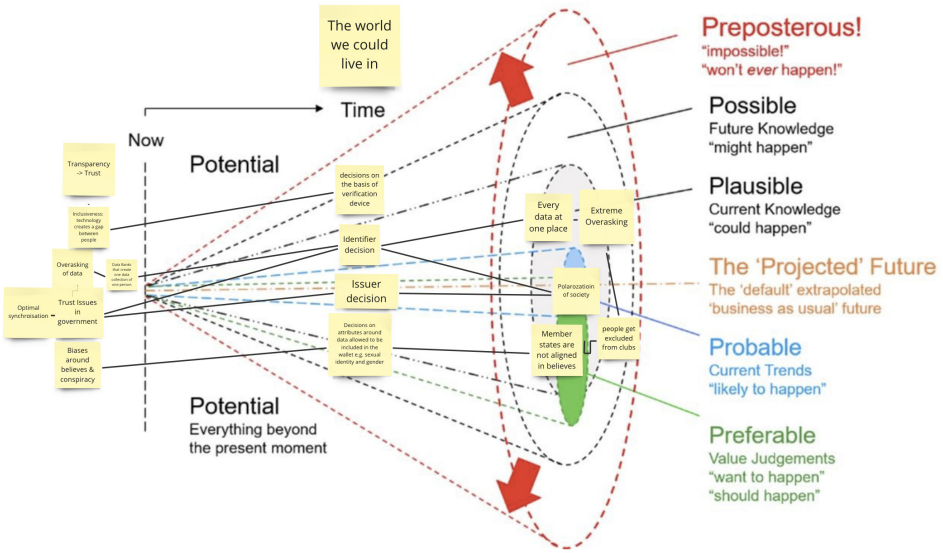


Figure xx Societal hurdles in developing the digital identtiy wallet

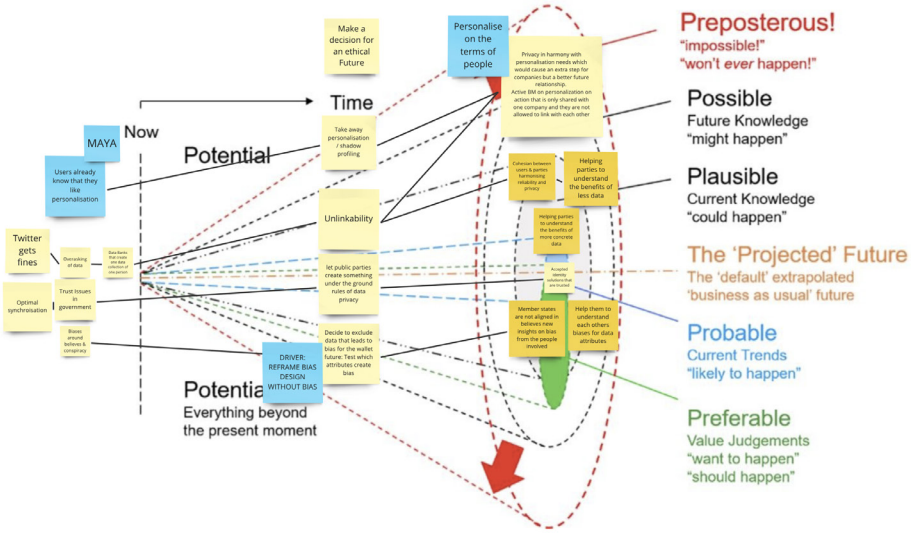
Combining ViP with interview insgihts, define hurdles



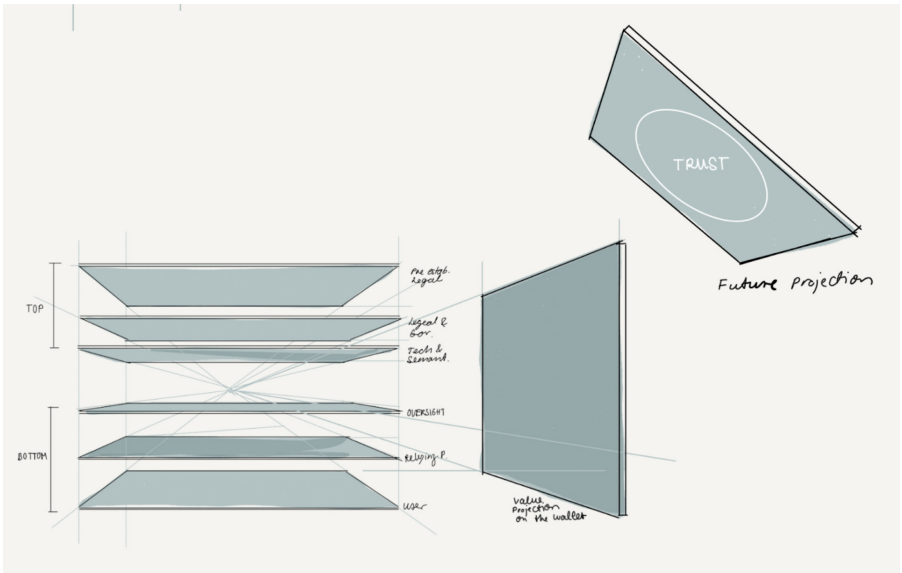
Combining Values as Worth by Martinsuo (2020) with ViP^



Projecting a negative future



Projecting a positive future and add the most important drivers to see where the design can tap into



Metaphor fot the projection on the future based on the different layers in the system + Future Projection

Appendix 13 Analysis Forecasting: Scenario Creation

Expert Tensions

SSI (Self-Sovereign) vs Federated Identities

Open Source vs not open source

Dezentralised vs Centralized

Social Values vs Economic Values

Communication Tension

Qualitative Values vs Quantitative Values

High Social Media Communication vs Low Communication

Ecosystem Tensions

No Digital Borders vs Physical Borders

Big Tech Collaboration vs Competition

Member States Uniqueness (Legal, Solution, Adoption, LoA, Decentral/

High vs low technical advanced in sectors

Sector Uniqueness (LoA, Business Models, User groups, Solutions in place)

100+ wallets vs valid after LoAhigh

Development Tensions

Open System vs Closed System

Fast Innovation vs Slow Innovation

Inclusion vs Exclusion

User Convenience vs Future Security

Efficiency Question

Projection into
a negative future

SOCIAL

Internal User Tension
User Privacy
vs
User Autonomy

Overasking Risk

Share personal internal identity data or attributes by accident

Citizens get excluded from platform or clubs due to bias in the future

Unique Identifier Decisions

Risk to loose trust in the EUDI Wallet

Citizens go and protest

Make xxx wallets valid?

Efficiency Decline & Usability

Decline in usability and happiness

ECONOMIC

Regulations Differ
Member State Uniqueness

No Level Playing Field

Users adopt Big Tech or solutions from other countries

Sector Uniqueness

Values are not included

Loose future customers

Users Trust Uniqueness towards the Government

Users turn their back to sectors

Privacy Understanding Differs
Member State Uniqueness

No Alignment Risk

Get excluded from platform or clubs due to bias in the future

Overall Future Questions

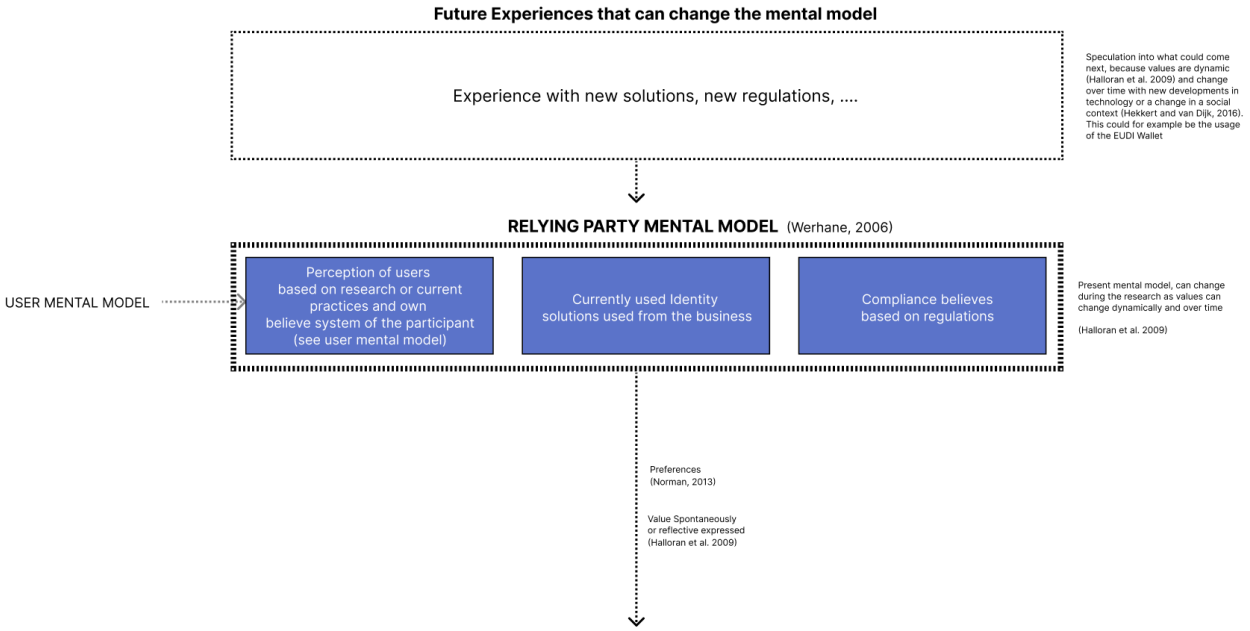
How will trust be created in the future

Who will be responsible in which situation

How will banks be able to detect for fraud?

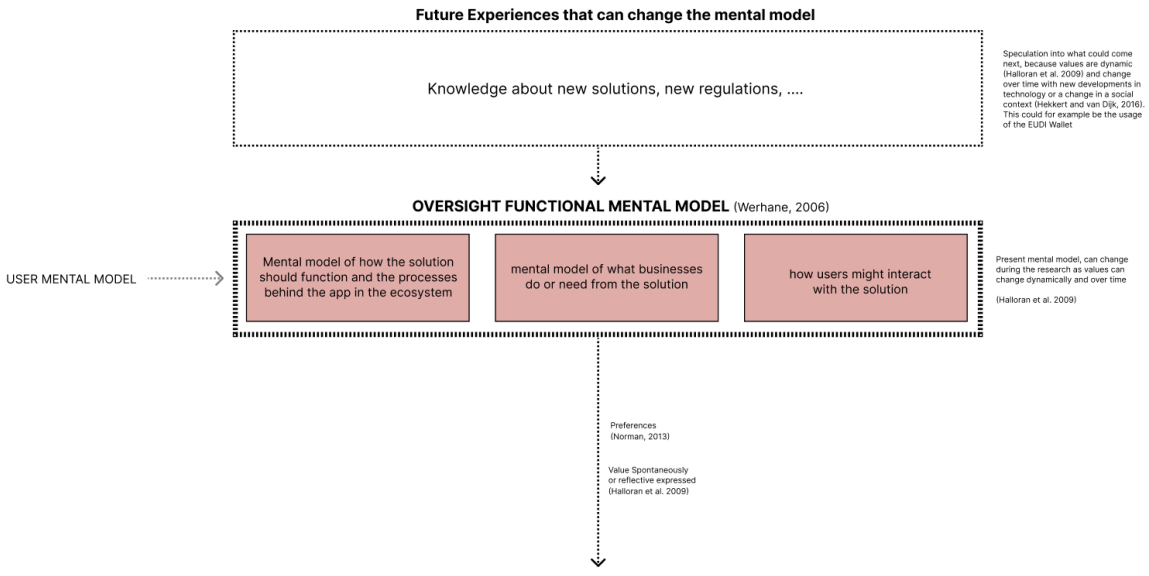
Appendix 14 - Mental Model Overviews

Appendix 14 Mental Model Analysis Relying Party Version 1



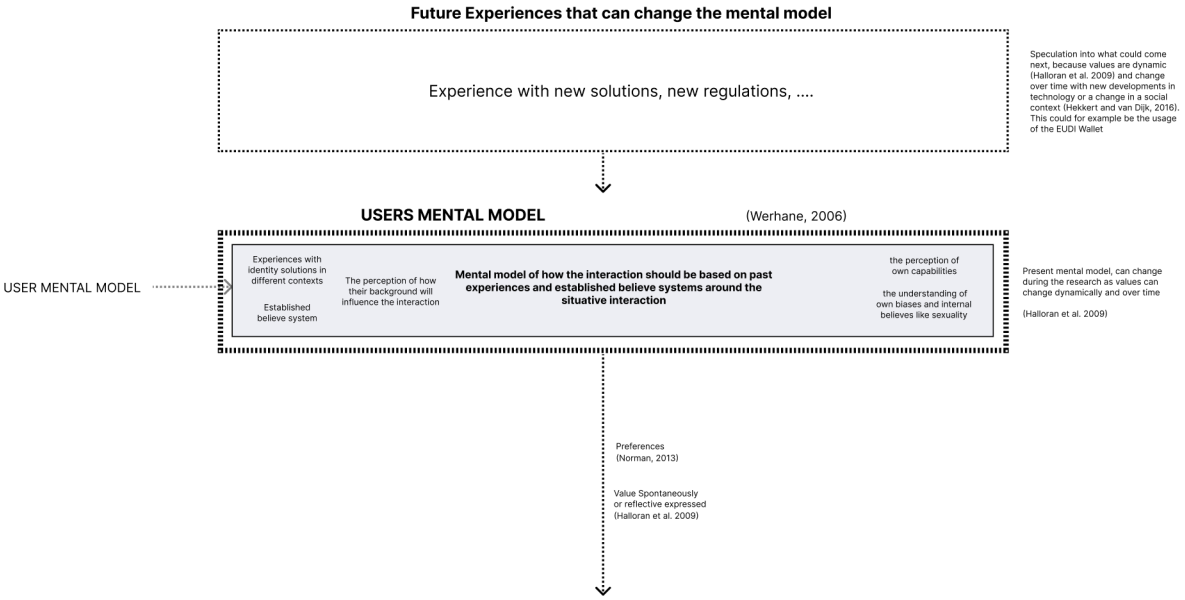
Value Projection on the Future Solution

A 14.2 Mental Model Oversight



Value Projection on the Future Solution

A 14.1 Mental Model Relying Party Version 1



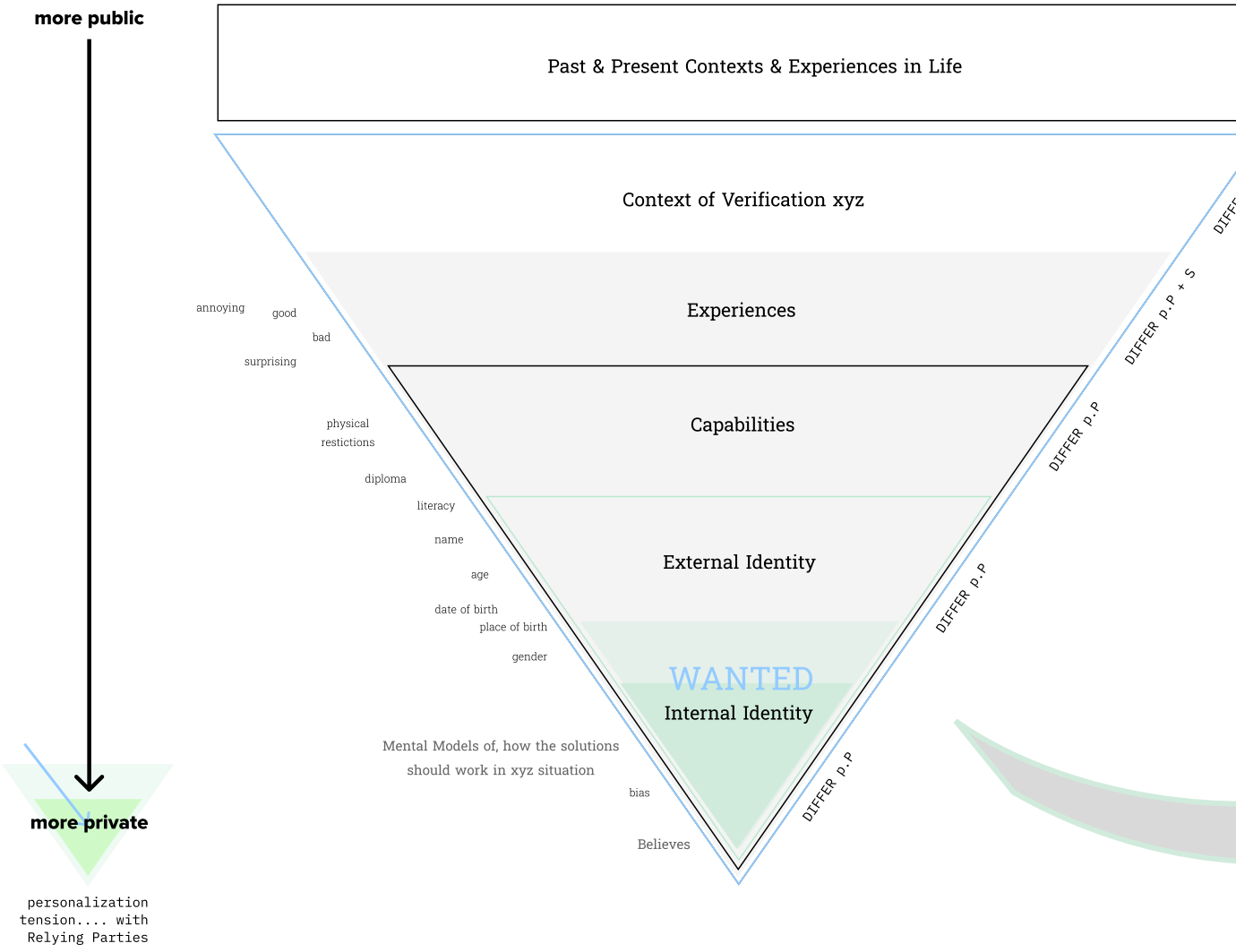
Value Projection on the Future Solution

What and Why:

The mental models are created based on the most frequent experienced notions of the stakeholders in which I tried to understand what the underlying is behind what is really said Structuring them helped me to create a better understanding where the different stakeholders are coming from based on their experience.

Appendix 14.3 User Mental Model

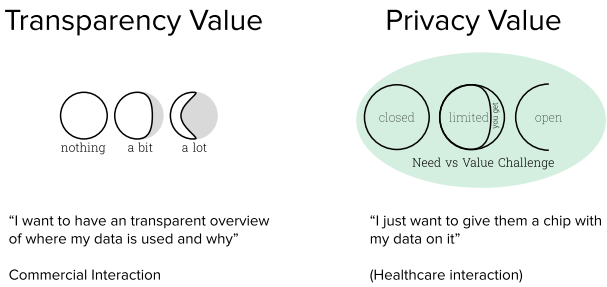
We are projecting different Mental Models of differe
into a future solution. Our privacy need changes per
personal experiences (e.g. “they should know my na

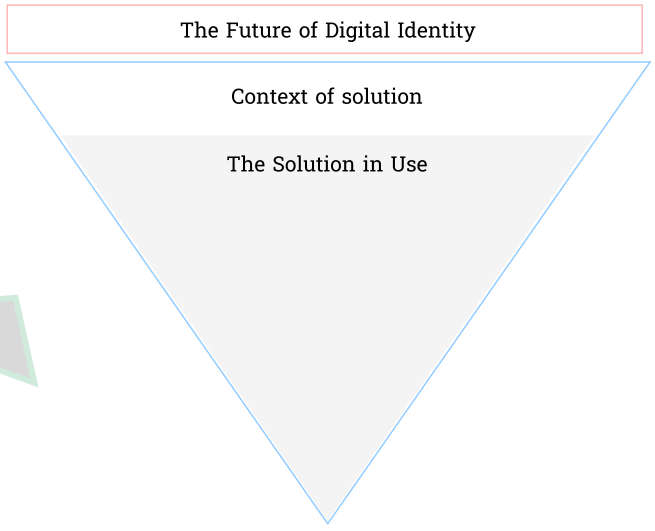


ent verification interactions
r situation based on it’s context and
ame vs why should they know my name”)

DIFFER p.P + S

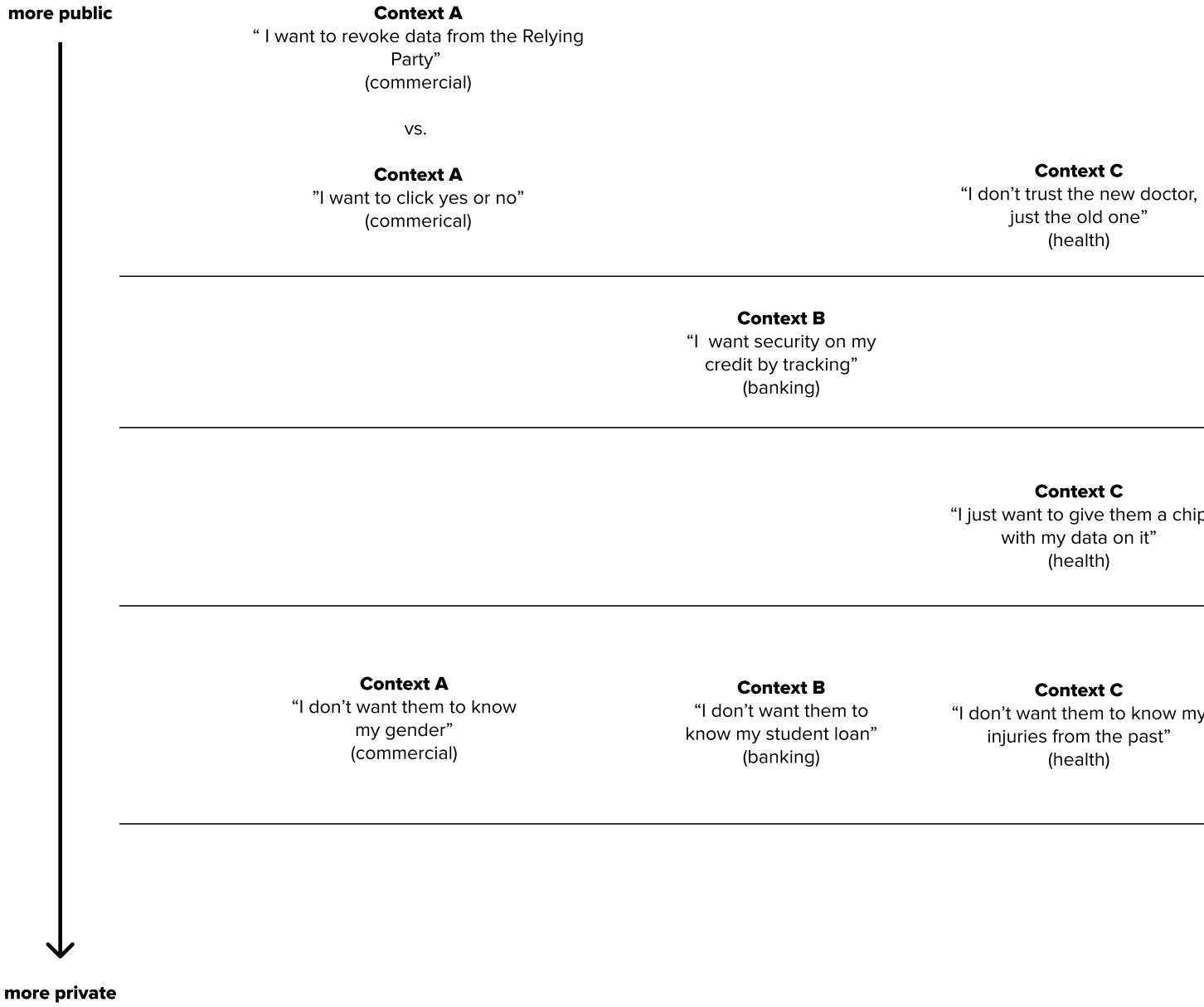
ER p.S





Appendix 14.4 User Mental Model Quotes

User Values have to be seen in relation to the perso and context the digital identity solution is operating i



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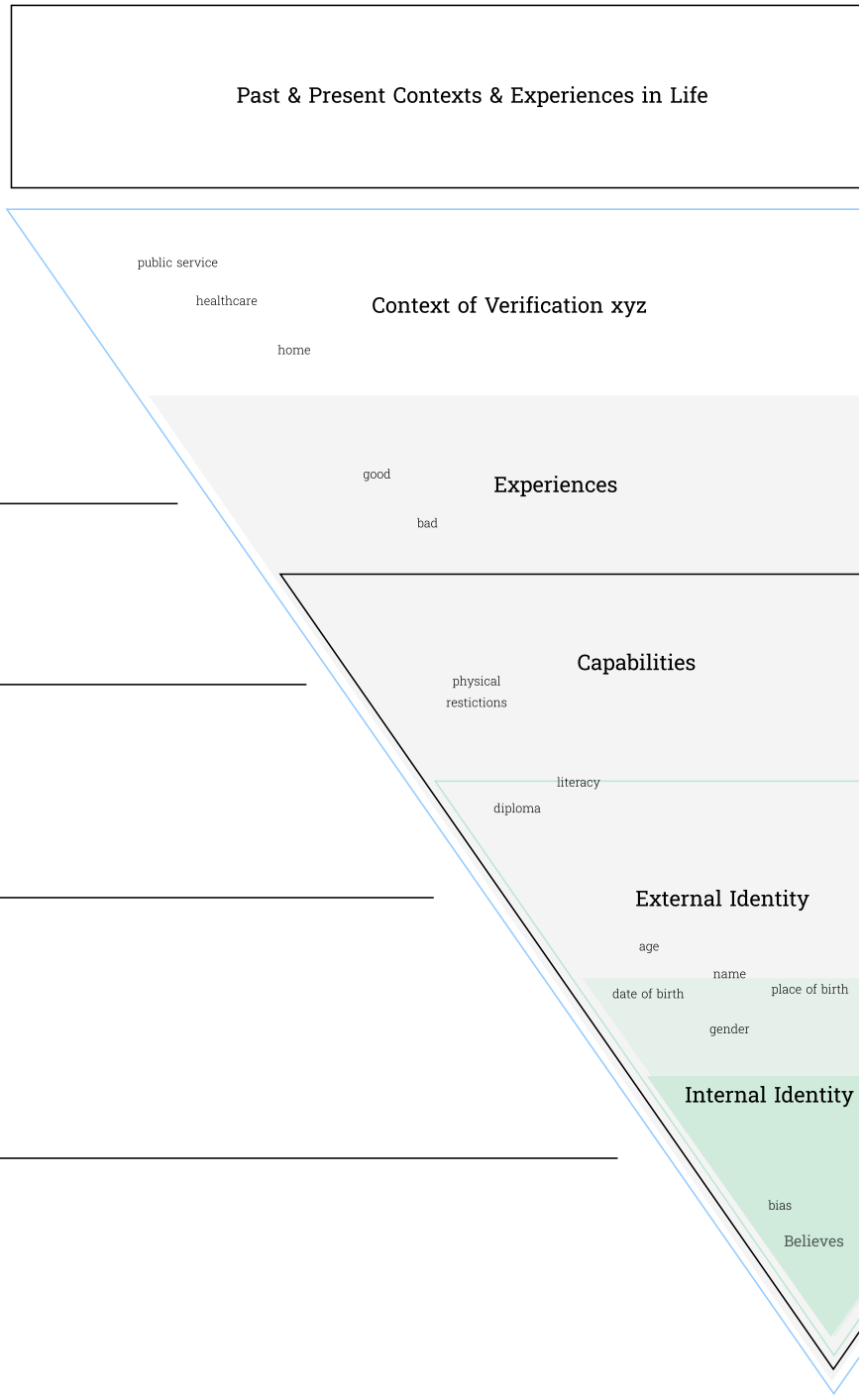
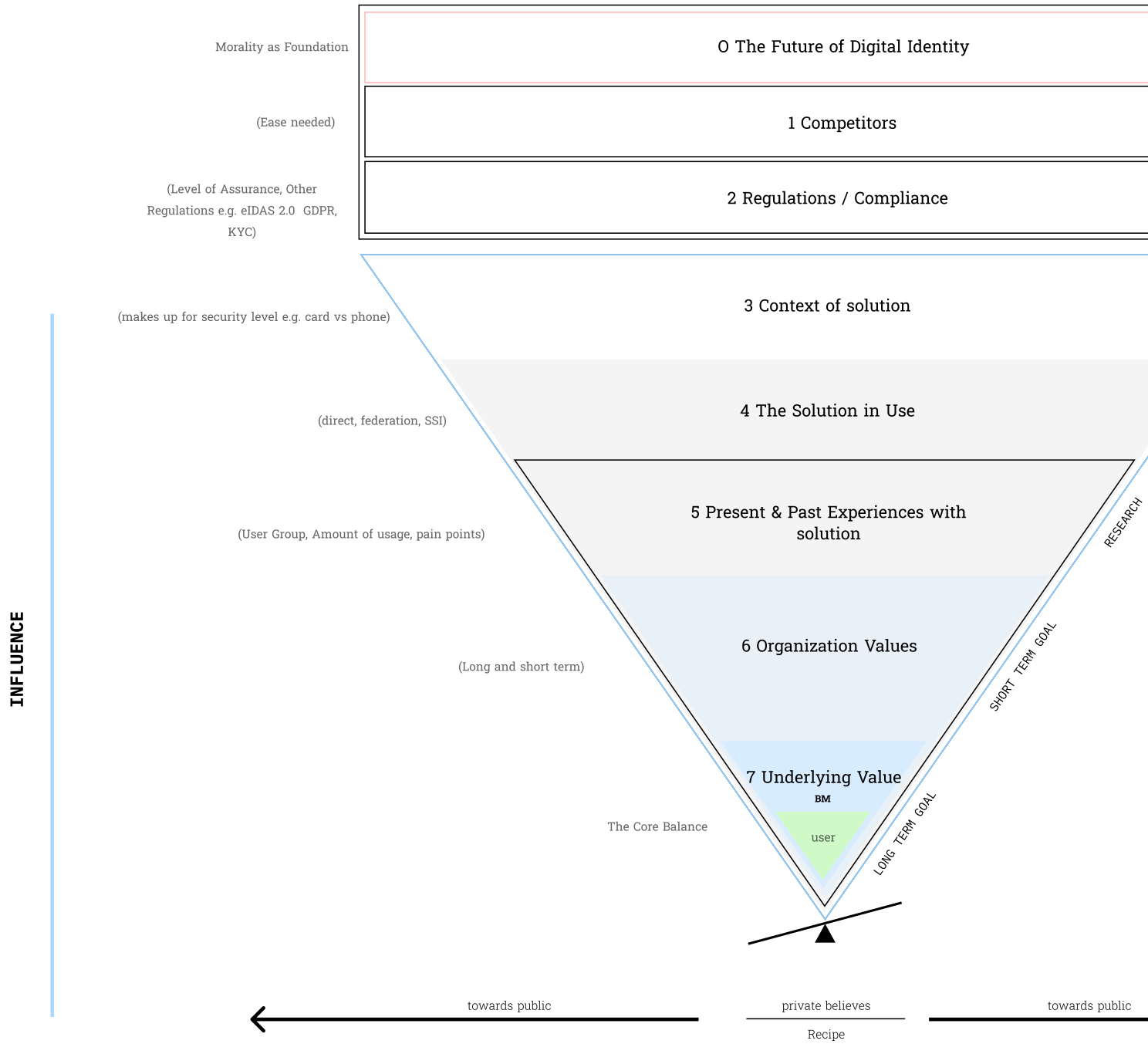
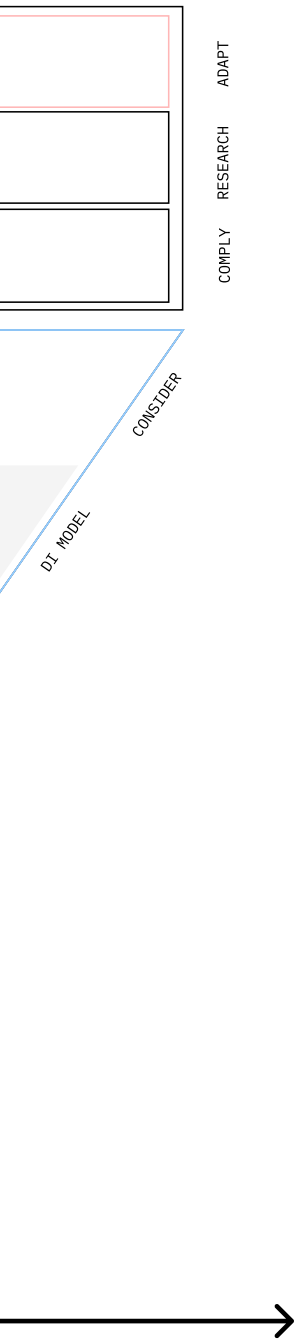

Past & Present Contexts & Experiences in Life
public service
healthcare
home
Context of Verification xyz
good
bad
Experiences
Capabilities
physical
restictions
literacy
diploma
External Identity
age
name
date of birth
place of birth
gender
Internal Identity
bias
Believes

Appendix 14.5 Relying Party Mental Model

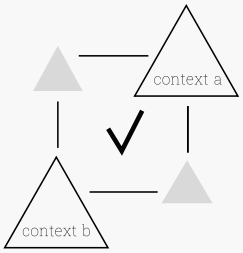
Relying Parties are balancing regulatory requirement
verification processes, digital identity solution, user v



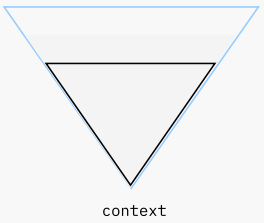
s, the context of
values and BM's

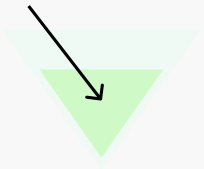


RELIABLE



EFFICIENT

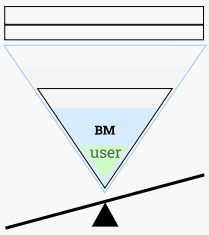




UNDERLYING VALUE

Adjust for multiple possible use cases
Get more customers
Keep them as customers
hyper personalisation
Have them feel at home
Privacy Enhancing
Care
Build trusted Relationship

FUTURE



The core recipe for good digital identity verification processes

Appendix 15 _ Consent vs Privacy Test

Kitchen Experiment under the question what needs to happen to reall be informed

and is that even possible?

Answer “The colour even bias me”

INTERVIEW CONSENT FORM

TIME FRAME 30-40min — Give consent here:

INTERVIEW EXPLANATION

The research project is conducted by **Melissa Kramer** from the **Technical University of Delft** that operates as a graduation Intern **at Innopay**. The interview is designed to gather information about creating a value-landscape of different parties working in the field of Digital Identity and the insights will be used to formulate drivers to see where the signals are that will lead to the future vision of Digital Identity Solutions.

Give consent here:

CONSENT about being respected

Examples: I want to ... I am able to share ... I understand that ... I have been given ...
Fill in what is important to you regarding respect **during** the interview

Give consent here:

CONSENT about usage of information gathered

Examples: Taking part in the study will ... I provide .... I give permission to .... In the future the insights will be ...
Fill in what is important to you regarding **information use and gathering**

Give consent here:

CONSENT for sharing identity during the interview

Examples: I allow the researcher to record... My face will be ... My voice will be .... My questics will be.....
Fill in what is important to you regarding **the visibility of your identity during the interview**

Give consent:

CONSENT for sharing identity after the interview

Examples: I agree that the record. will be... I understand that ....I really want that ...
Fill in what is important to you regarding **the visibility of your identity after the interview**

Give consent:

Feedback

I don't know where to sign, so difficult to know what to give consent to, maybe just boxes to click on. Whay do I give consent all the time even though I wrtie it myself enyways.

Assumption

Tap into the field of data needed and wanted. Pretending I am a service provider even though I just want something from the participants. I am using this consent form to start about a conversation on data needed and wanted and being transparent about that. Maybe it is a way to tap into the field of making people aware of their own data testing the privacy gap and also explaining what businesses really do with the data. As I got from the interview with Leon that we are actually just giving away our own data because otherwise we don't get what we want so there is a power dynamic going on wer big businesses actually owning us in a way.

Metaphor of we being owned? THE GORILLA

INTERVIEW CONSENT FORM

LEGEND
- needed
- wished for

TIME FRAME
30-40min

INTERVIEW EXPLANATION

The research project is conducted by **Melissa Kramer** from the **Technical University of Delft** that operates as a graduation Intern **at Innopay**. The interview is designed to gather information about creating a value-landscape of different parties working in the field of Digital Identity and the insights will be used to formulate drivers to see where the signals are that will lead to the future vision of Digital Identity Solutions.

Ensure this for your own security

- I assure that I understood the study information that has been given to me
- I'm volunteering to be a participant in this study and understand that I can refuse to answer questions
- I have been given a digital copy of this consent form.

For the researcher to be able to analyse the data gathered the following consent is needed

- I understand that taking part in the study involves notes that will capture my answers.
- I understand that the information I provide will be used for future purposes of the Master's graduation Research as input to drive the big picture of values that need to be included to Design for Digital Identity Solutions from a future perspective.
- I give permission for my personal experiences, opinions and thoughts on the field of Digital Identity that I provide so it can be used for future research and learning.
- The researcher is allowed to keep the data as long as the Master thesis is ongoing which will be max. one year after the interview
  - I allow the researcher to capture me via:
    - Audio
    - Audio + Visual

For the researcher to be able to create a better differentiation in the ressource group a detailed information of you is wished for

- Age: _____
- Gender Identity: _____

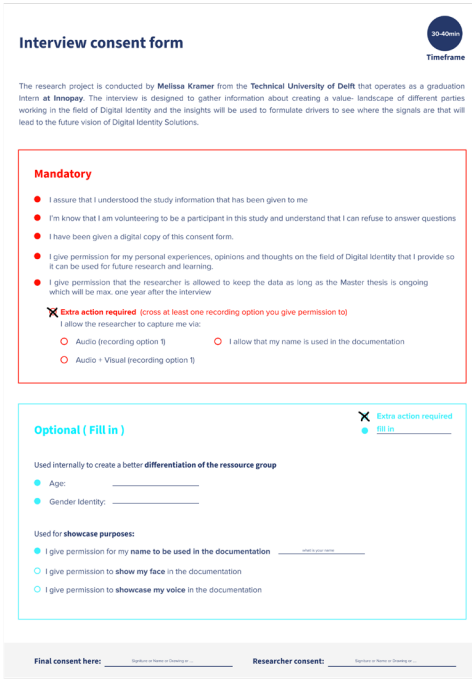
For the researcher to be able to showcase the outcome more detailed the following is wished for

- Allow for including face in the documentation
- Allow for including voice in the documentation
- Name to use in quotes: _____

Give consent here: _____ **Researcher consent:** _____

Assumption

- Too extensive
- Make it even easier to understand the mendatory and optional part
- People do not really want to be bothered "I don't want to be bothered" (T)
- People do not care when they have your name they also get other information "If my name is used I don't care if they also get my gender identity or age" (C)
-



Interview consent form

30-40min
Timeframe

The research project is conducted by **Melissa Kramer** from the **Technical University of Delft** that operates as a graduation Intern **at Innopay**. The interview is designed to gather information about creating a value- landscape of different parties working in the field of Digital Identity and the insights will be used to formulate drivers to see where the signals are that will lead to the future vision of Digital Identity Solutions.

Mandatory

- I assure that I understood the study information that has been given to me
- I'm know that I am volunteering to be a participant in this study and understand that I can refuse to answer questions
- I have been given a digital copy of this consent form.
- I give permission for my personal experiences, opinions and thoughts on the field of Digital Identity that I provide so it can be used for future research and learning.
- I give permission that the researcher is allowed to keep the data as long as the Master thesis is ongoing which will be max. one year after the interview

Extra action required (cross at least one recording option you give permission to)
I allow the researcher to capture me via:
- Audio (recording option 1)
- I allow that my name is used in the documentation
- Audio + Visual (recording option 1)

Optional (Fill in)

Extra action required
fill in _____

Used internally to create a better **differentiation of the ressource group**
- Age: _____
- Gender Identity: _____

Used for **showcase purposes:**
- I give permission for my **name to be used in the documentation** _____ what is your name
- I give permission to **show my face** in the documentation
- I give permission to **showcase my voice** in the documentation

Final consent here: _____ **Researcher consent:** _____

Make better

- Main action point needs to be in the beginning ..
- What parts do need to be completed before the Interview

- Sign?

- Mendatory what , what are the conditions? cookies? what is minimal required

- can people now see and act on their own boundaries in an easy way?

30 - 40 min

Interview consent form

Before we can get started please fill in the consent form to have a common agreement on data sharing.
Read carefully and sign in the bottom.

1 Mandatory to consent the research standards

By signing the consent form **you confirm all mendatory aspects** as displayed in blue. Please pick your recording option.

- I give permission that the researcher is allowed to keep the data as long as the Master thesis is ongoing which will be max. one year after the interview.

Action required
I allow the researcher to capture me via:
- ○ Audio (recording option 1)
- ○ Audio + Visual (recording option 2)

- I give permission that the researcher is using the information to drive future research. The information will be displayed in quotes and keeps the interviewee confidential.
- I know that I am volunteering to be a participant in this study and understand that I can refuse to answer questions
- I have been given a digital copy of this consent form.

2 Optional to allow the researcher to get more insights

You also have the chance to **allow the researcher to get more insights** as displayed in orange. You have the choice to allow for it by filling in your information or leave it out. It is completely optional.

Used internally to create a better differentiation of the ressource group
- Age: ____age____
- Gender Identity: ____gender____

Used for **showcase purposes:**
- I give permission for my **name** to be used in the documentation ____name____

Action required
I allow the researcher to capture me via .... for documentation purpose
- ○ I give permission to show my **face** in the documentation
- ○ I give permission to showcase my **voice** in the documentation

Your Signature ____ Researcher Signature ____

RESEARCH DESCRIPTION: The research project is conducted by **Melissa Kramer** from the **Technical University of Delft** that operates as a graduation Intern **at INNOPAY.** The interview is designed to gather information about creating a value- landscape of different parties working in the field of Digital Identity and the insights will be used to formulate drivers to see where the signals are that will lead to the future vision of Digital Identity Solutions.

Fill in and sign the interview consent form to create a common agreement on data sharing

By signing the document you consent the essential part in blue.
By signing the document you only consent the optional part in orange if you filled it in.

1 Essential to consent to the research standards

By signing the consent form you confirm all essential aspects as displayed in blue. Please pick your recording option.

- I give permission that the researcher is allowed to keep the data as long as the Master thesis is ongoing which will be max. one year after the interview.

Action required
I allow the researcher to capture me via:
- ○ Audio (recording option 1)
- ○ Audio + Visual (recording option 2)

- I give permission that the researcher is using the information to drive future research. Quotes of the expert interview will be displayed anonymous.
- I know that I am volunteering to be a participant in this study and understand that I can refuse to answer questions
- I have been given a digital copy of this consent form.

2 Optional to allow the researcher to get more insights

This section is completely optional. By filling in the form, you agree, **Only consented by signing, if you fill in details**

Used internally to create a better differentiation of the resource group
- Age: ____age____
- Gender Identity: ____gender____

Used for **showcase purposes:**
- I give permission that my **name** ____name____ can be used in the documentation

Action required
I allow the researcher to capture me via .... for documentation purpose
- ○ I give permission to show my **face** in the documentation
- ○ I give permission to showcase my **voice** in the documentation

Your Signature ____ Researcher Signature ____

RESEARCH DESCRIPTION: The research project is conducted by **Melissa Kramer** from the **Technical University of Delft** that operates as a graduation Intern **at INNOPAY.** The interview is designed to gather information to create a value- landscape of different parties working in the field of Digital Identity. The insights will be used to formulate drivers and give direction to see the holistic future vision on Digital Identity Solutions.