

AGENDA

Thursday, July 18th

1. Introduction
2. VIRT-EU's goals
3. Simulation
4. PESIA framework
5. Simulation continues
6. Discussion

Introduction:
Ethics in VIRTEU

PART ONE:
TALKING TOGETHER ABOUT ETHICS

Ethics in Practice

PART ONE:
TALKING TOGETHER ABOUT ETHICS

News › World › Americas

Amazon Echo could become key witness in murder investigation after data turned over to police

Man on trial for murder has agreed to turn over voice data from his smart home device

Mythili Sampathkumar New York | @MythiliSk | Thursday 9 March 2017 17:48 GMT | 0 comments

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PART ONE:
TALKING TOGETHER ABOUT ETHICS

Who is responsible for ensuring
connected devices we allow into
our lives behave ethically?



Conceptual Framings

1. Definitions of ethics - from philosophical literature in virtue ethics tradition
2. Problems and limitations of virtue ethics (individual focus, incapacity to determine where 'good' comes from)
3. Expansion in relation to concepts of capability (Sen) and care (Puig de la Bellacasa)

Beyond Virtue

Individual's
attempt to live
a "good life"

The ability to act,
given the structural
opportunities and
constraint

Shifting
responsibilities
and obligations in
a web of relations

Do-ers, Postponers, and the convenient ethics researchers

Ethics is understood differently by those interested in building ethical companies from the outset, and those that see ethics as compliance with a regulatory framework.

When making a seemingly technical decision as whether to add a camera and a microphone to a device which might not necessarily need it, they consider not only their own subjective positions, but they also extend a matter of care to the networks they are part of, their potential users as well as the future generations that might be affected by them.

“Unfortunately, ethics never makes it into my ever-growing to-do list. Maybe one day, I will have time for it. But not at the moment, not when I am just starting my company”

“After all” he said, “Google has all the resources, time and money to make sure everything is in order. I neither have the time, nor the money.”

Testing Ethical concepts

How are ideas about ‘goodness’ or ‘good practice communicated?

Which ideas hold tensions?

What are the challenges of putting ethical ideas into practice?

What are gaps between positions expressed by developers and those of other stakeholders?

PART TWO:
VIRTEU : TOWARDS TOOLS

VIRTEU

->tools

“ethics starts where the law ends”

“you can’t just go to ethics camp”

AMS Stakeholder Workshop

Tools ☆

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*From the Ethical Tools Report

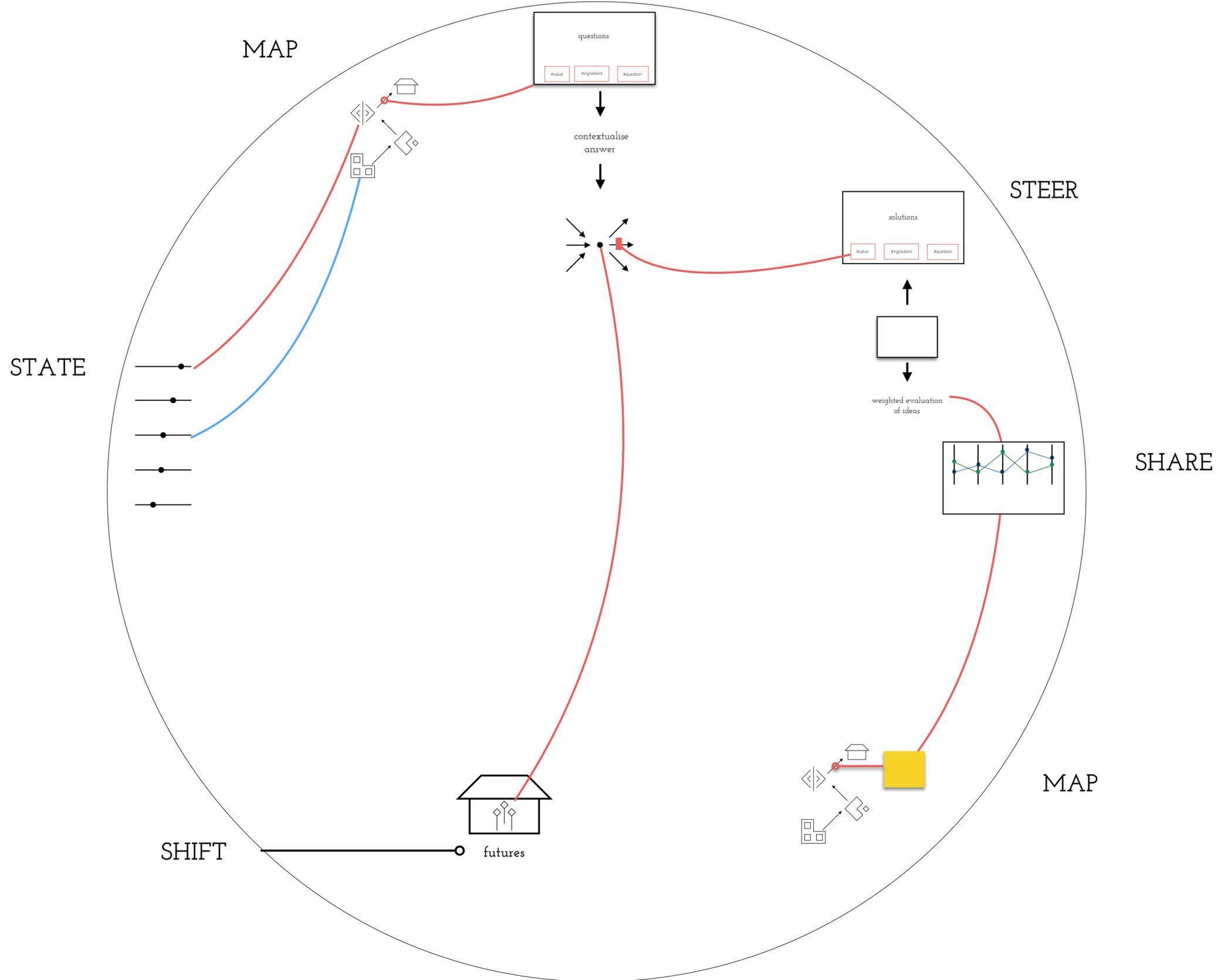
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2		AB	FUS	StudioDott collab w	IOT Ideation Car	2016	\$149	Toolkit / Cards	http://studiodott.t	The cards are designed with compl	These cards are crea
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7		AB	FUS	Simply Secure	Trustworthy IOT	2016	free	Worksheets	https://github.com	I found this tool really individualistic	Work with a list of wo
8		AB	FUS	Mixed Reality Labo Horizon Digital Eco The University of N Microsoft Research	Privacy Ideation	2016	n/a	Cards	https://www.notti	Not clear how the cards can be obt	Learn how to apply p
9		AB/IS	JR	Maheen Sohail	Practice Ethical I	2017	free	Framework	https://medium.muz.li/how-to-practice-ethical-design		Value alignment incor
10		AB/IS	IS	Dorian Peters & Ra	Tools for Positive	2014-2017????	free	Reference sheet, worksh	http://www.positiv	It is not clear when these were des	Cards are used for br
11		AB	IS	Cloud Security Allie	Futureproofing th	2016	free	Steps	https://download	A 76-page door stopper over here i	Includes step-by-step
12	*	AB	IS	Markkula Center fo	Making a Difficll	2015	free	Web app/Mobile app	https://www.scu.edu/ethics-app/		Bring a decision you
13	*	AB		Trend Micro	Data Center Attack			Web - video - CYOA	http://datacenterattacks.trendmicro.com/		
14		AB		Data Privacy Project	Mapping Data Flows			mapping and discussion p	https://dataprivacyproject.org/		
15		AB	FUS	Artefact Group	Tarot Cards of Tech			cards	http://tarotcardso	Really nice self-reflection cards for	Gaze into the future c
16		AB		Andrew Lovett-Bar	Decay of Digital Things			Online cards	http://cards.deca	help brainstorm scenarios / projects	http://andrewlb.com/2016/03/e-180-the-decay-of-digital-th
17		AB		Humane By Design	Principles			Posters	https://humaneby	Tangentially relevant	
18		AB		List of tools	List of tools			List of tools	https://ethical.net	Not many here for now	
19		AB		Amber Case	Calm Scorecard			Q+A	https://medium.c	Tangentially relevant	
20		AB		Projects Buif	New Digital Rights			Digital meakups	https://saudigital	Tangentially relevant	

-> tools



Tools as a System

GAPS



Part Two:
Hands On

PART TWO:
TOOLS

Activity!

PART TWO:
TOOLS

We are working on a product at
our start-up.

PART TWO:
TOOLS



OldLifeWell

OldLifeWell has developed a smart bracelet that helps people with dementia (or other kinds of memory loss problems) to keep track of their daily routine tasks.

OldLifeWell's product was used to gain information from individuals with dementia on their wealth, and where and how they keep it. With the tracking capabilities of OldLifeWell's product, a number of individuals with dementia have been kidnapped and such information has been taken from them. But since they do not have memories of it, their families become aware only when the money has left their bank accounts.

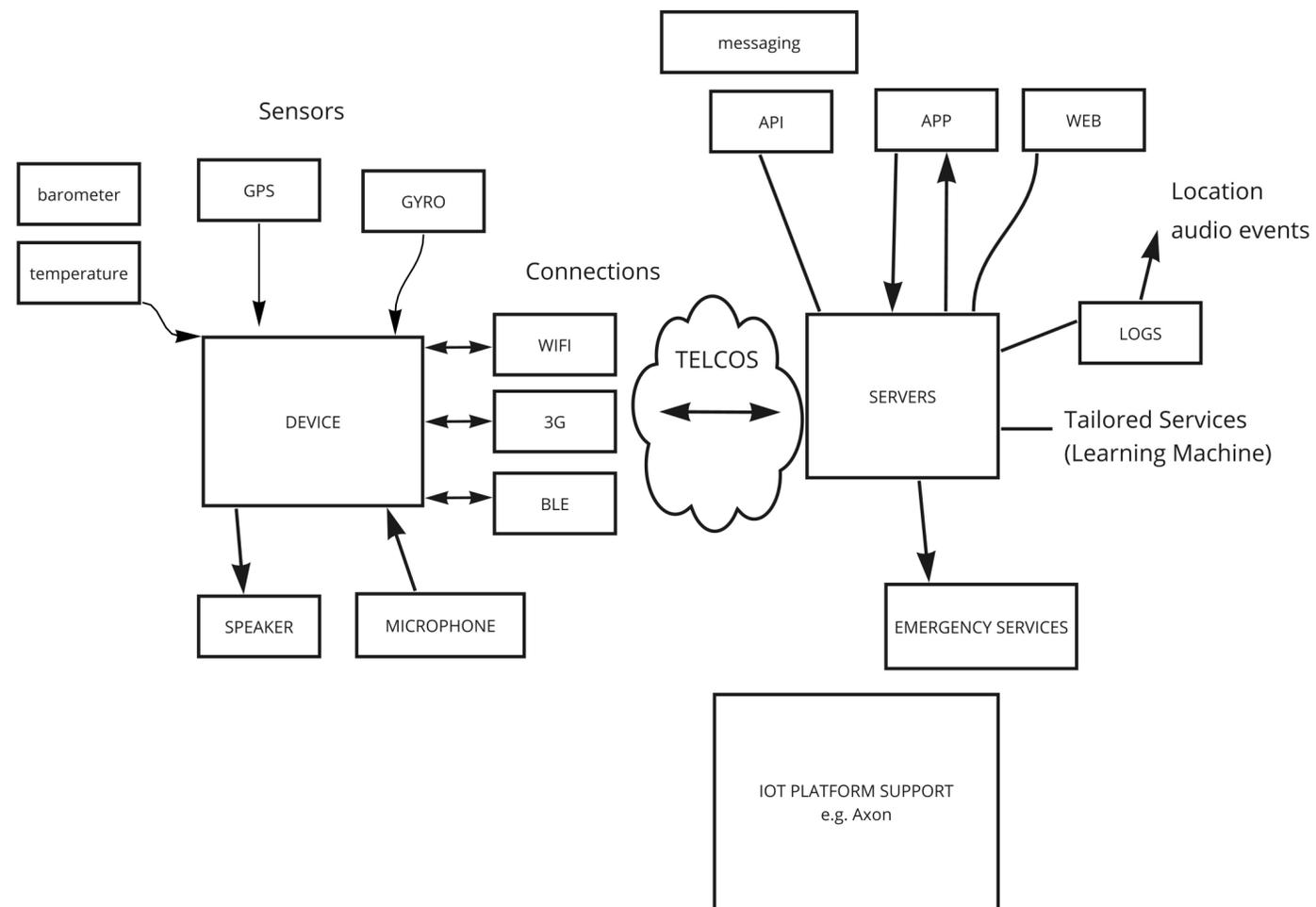
OldLifeWell's product is being promoted by political parties because it will enable people with dementia and other types of memory loss to be able to vote in the general elections. They have even come up with push notifications specific for the product that reiterates their campaign title and the name of their political party. Since the push notifications work around the daily routines of people with dementia, their uptake is high, and the users become familiar with the campaign and political parties.

PART TWO:
TOOLS

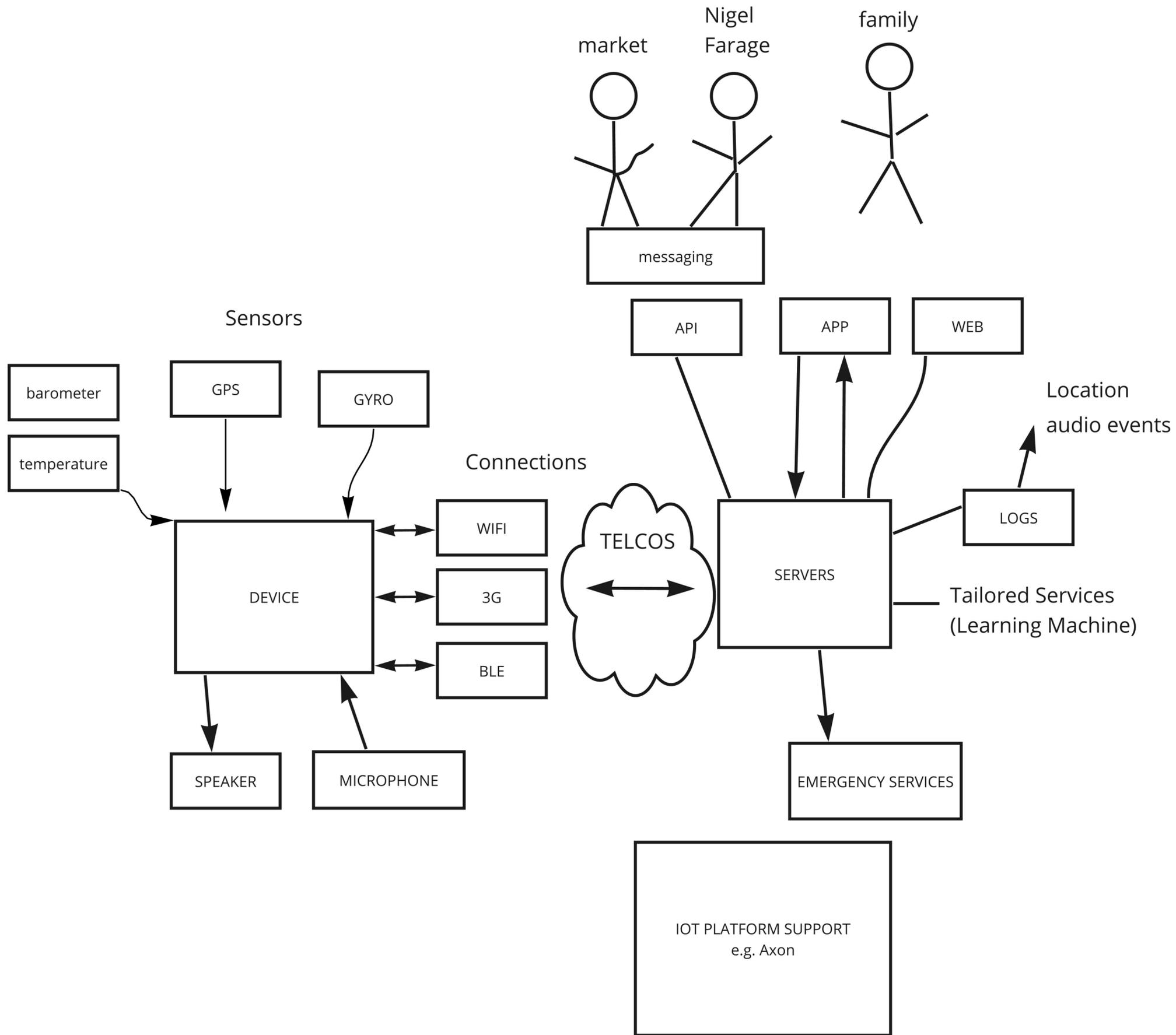
We are working on a product at our start-up.

1. Get to know the diagram of the elements of your respective products.
2. Now add any relations (users + makers). Who is related (using, impacted, connected to) to each element in your product?

PART TWO:
TOOLS



- Reminders, routine, medicine, etc.
- Direct voice
- Automatic alarm if outside zone (geo-fencing)
- Real-time tracking app
- Heart rate
- Sudden movement (falls)
- Activity (possible death)
- Subscription for extra services
- Audio record loud noise



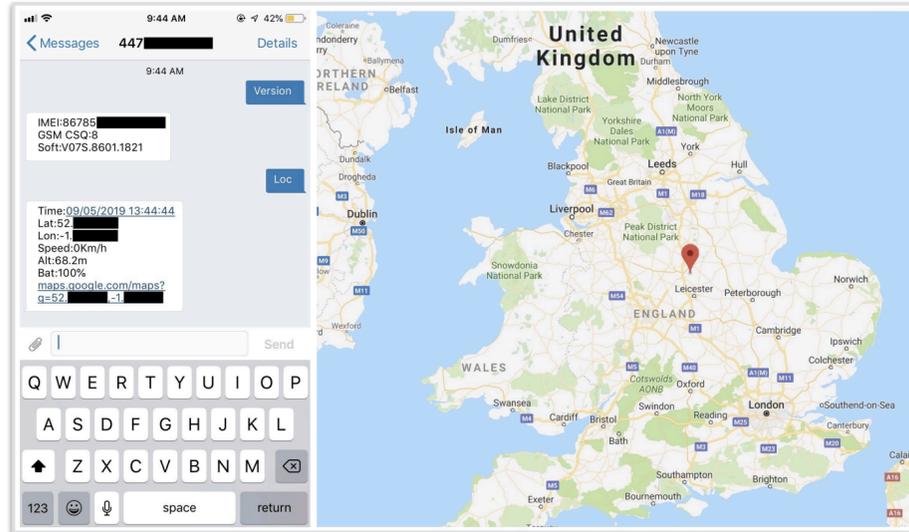
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PART TWO:
TOOLS



Flaws in a popular GPS tracker leak real-time locations and can remotely activate its microphone

Zack Whittaker @zackwhittaker / 2 weeks ago

Comment



i need money to pay rent

Bad Credit Loans
www.speedloanusa.com/
Bad Credit OK
\$100 to \$2500. Faster Approval

2-Minute Payday Loans - \$100-\$1000
Approved in 2 Minutes
Ad - QuickerCash.com
\$100-\$1000 Approved in 2 Minutes.
Deposited Directly in Your Bank!

need loan fast

Fast Cash \$500-\$5,000
OneClickLoan.com
Ad www.oneclickloan.com/
Instant Approval. Bad Credit OK.
Get Cash In A Click Up To \$5,000.

Fast 2-Min Payday Loans - Payday Loans Approved Instantly!
Ad - www.FlashPayday.com
Payday Loans Approved Instantly!
Deposited Straight in Your Bank.

Philadelphia, PA

Payday load ads. Upturn, CC BY

But targeted advertising based on our smartphone data can have real impacts on livelihoods and well-being, beyond influencing purchasing habits. For example, people in financial difficulty might be targeted for ads for payday loans. They might use these loans to pay for unexpected expenses, such as medical bills, car maintenance or court fees, but could also rely on them for recurring living costs such as rent and utility bills. People in financially vulnerable situations can then become trapped in spiralling debt as they struggle to repay loans due to the high cost of credit.

TECH
Growth business: GPS tracking... the elderly
PUBLISHED WED, MAR 12 2014 - 6:20 AM EDT | UPDATED WED, MAR 12 2014 - 6:28 AM EDT

Katrina Bishop
@KATRINABISHOP

SHARE f t in e ...

When Marc Regimbal lost his three-year-old child for 20 minutes - in what he called the "hairiest experience" of his life - he was determined to make sure it would never happen again.

He spent the next four years combining global positioning system (GPS) and cell-phone technologies to make a tracker - called Childtrac - that could be easily attached to a child's clothing or backpack. Parents can set virtual boundaries and locate their children on their smartphones.

Just one year on from the launch of the product, however, and Regimbal said he is seeing growing demand from an unexpected demographic.



PART TWO:
TOOLS

We are working on a product at our start-up.

1. Get to know the diagram of the elements of your respective products.
2. Now add any relations (users + makers). Who is related (using, impacted, connected to) to each element in your product?
3. But before we continue: let's have a check-in: what do we want to make sure OldLifeWell stands for? We're just about to hire a new person and we want to make sure she knows what our moral principles are here

*Let's start with the best of intentions. What
is your North Star for your product?
What are the underlying values you will
hold on to, no matter what?*

News › World › Americas

Amazon Echo could become key witness in murder investigation after data turned over to police

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Mythili Sampathkumar New York | @MythiliSk | Thursday 9 March 2017 17:48 GMT | 0 comments

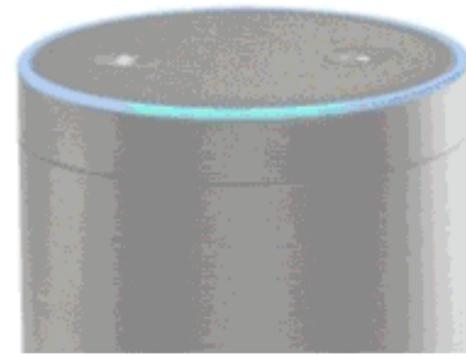


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ethics comes up when things go down



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INDIVIDUALLY

1. Write values from this list
2. Then prioritise them

*Ethics is defined not only by individuals
but also as part of a wider group.*

*These ethical values have been identified
as the outstanding ideas of ethics in the
community of IOT creators.*

sustainability

transparency

data protection

interoperability

non-discrimination

security

responsibility

autonomy

well-being

privacy

inclusion

dignity

openness

~~INDIVIDUALLY~~

- ~~1. Write values from this list~~
- ~~2. Then prioritise them~~

AS A GROUP

3. share and compare
4. discuss definitions + priorities
5. find agreement on priorities
6. give each value a weight to show priorities
7. write communal definitions

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- ~~6. give each value a weight to show priorities~~
- ~~7. write communal definitions~~

COMMIT

-processing-

PART TWO:
ENGAGING WITH PESIA

-> questions from PESIA

Will the bracelet reduce individuals ability to make their own decisions about the best route or pace?

Will the tool include some form of remote control?

If any limitations to user control exist, do they happen in contexts characterised by power asymmetries (e.g. workplace)?

PART THREE:
UNDERSTANDING PESIA

PESIA: An overview

PART THREE:
UNDERSTANDING PESIA

- **Project outputs:**
- *a toolkit to describe systems, elicit values, analyse and find problems, solve them if possible*
- **PESIA**
*Impact assessment tool in **questionnaire** form*
 1. *Identify risks*
 2. *Implement mitigation*

PART THREE:
UNDERSTANDING PESIA

- **Where does PESIA come from?**
 - Strong legal research Politecnico di Torino and ethnography from LSE
 - Value analysis in jurisprudence and opinions from privacy regulators
 - Follow best practice PIA and DPIA models but add social and ethics

PART THREE:
UNDERSTANDING PESIA

Understanding your system and establishing compliance

Data mapping and basic legal compliance

(Start with mapping hardware, software and wider system)

- **What information is collected?**
- **Special data**
- **What do you do want to achieve with the information?**
- **Where does the information come from?**
- **What authorisation or rationale do you have to use that information?**
- **What information do you provide?**
- **How do you handle consent?**
- **Where does the data go?**
- **If the hardware is finished and going to market, do we comply with RED and other relevant regulation?**

Identifying issues and risks

Technology, Activities and High Risk

- **Technology**

Are new technologies used which might be perceived as being privacy intrusive (e.g. facial recognition, use of biometrics)?

- **Automation & Profiling**

Does the technology allow (full or partial) automated-decisions to be taken with regard to the data subjects?

Does the technology allow for human intervention in the decision process?

- **Scale & Breadth**

Does the technology allow the collected data to be easily matched or combined with other data sets?

Does the technology allow to observe, monitor or control data subjects in a systematic way?

- **Context & Space**

Does the technology allow the collection of personal data in contexts that are private?

- **Other risks**

PART THREE:
UNDERSTANDING PESIA

Wider impacts in society

Responsibility

- Will there be a way to challenge any decisions made by the system?
- Will there be clear lines of responsibility for any outcomes, particularly between the developers of the tools and the operators to ensure that any issues are always dealt with?

Sustainability

- Are the devices reusable? How will they be disposed of otherwise?
- Will the servers providing remote functionalities keep functioning for the lifetime of the product?

Openness

- Will the device allow for third party add-ons or user re-programming?

Employment

How do you treat users and people whose data you use (Care ethics)

- **Participation and transparency**
 - *How do you consult with users and others?*
- **How well do you support user rights**
 - *Are there adequate measures or procedures which ensure the reply to every request of data subjects?*
- **Data Portability**
- **Dignity**
 - *Does the IoT device need to be implanted into the user's body?*
- **Non-discrimination**
 - *Will the system take into account any particular characteristics of the users when making any determination, such as **age, gender or disability**?*
- **Autonomy**
 - *Will the device reduce individuals ability to make their own decisions?*

PART THREE:
UNDERSTANDING PESIA

Challenges:

- Identifying risks and issues in the technology is OK: expand analysis from individuals to the wider community and society harder
- Consultation, participation and external input (integrate in external design and product design methodologies)
- The “treating people” section, where individual data protection rights overlap with ethical values of participation, dignity, autonomy, etc.
- Incorporating other tools: STRIDE, UK Code of IoT Security, etc..
- Pushing people to speculate beyond their comfort zone.

PART THREE:
UNDERSTANDING PESIA

The ethics puzzle

SOCIAL AND ETHICAL VALUES

Non-
discrimination
Equality

Participation

Enabling people to effect
real change

well-being

Increase individuals' well-
being and fostering "IoT for
good".

dignity

Avoiding any forms of surveillance or
invasive control over individuals
using IoT devices. IoT devices shall
not be used to collect unauthorised
private information or to publicly
disclose private facts.

inclusion

Considering diversity and inclusion
both in IoT development and with
regard to users' experience.

autonomy

Safeguarding individual self-
determination and freedom of
expression.

safety

Protecting users against any
harm due to IoT devices
(hardware and software
security).
Updatibility of devices for
security.

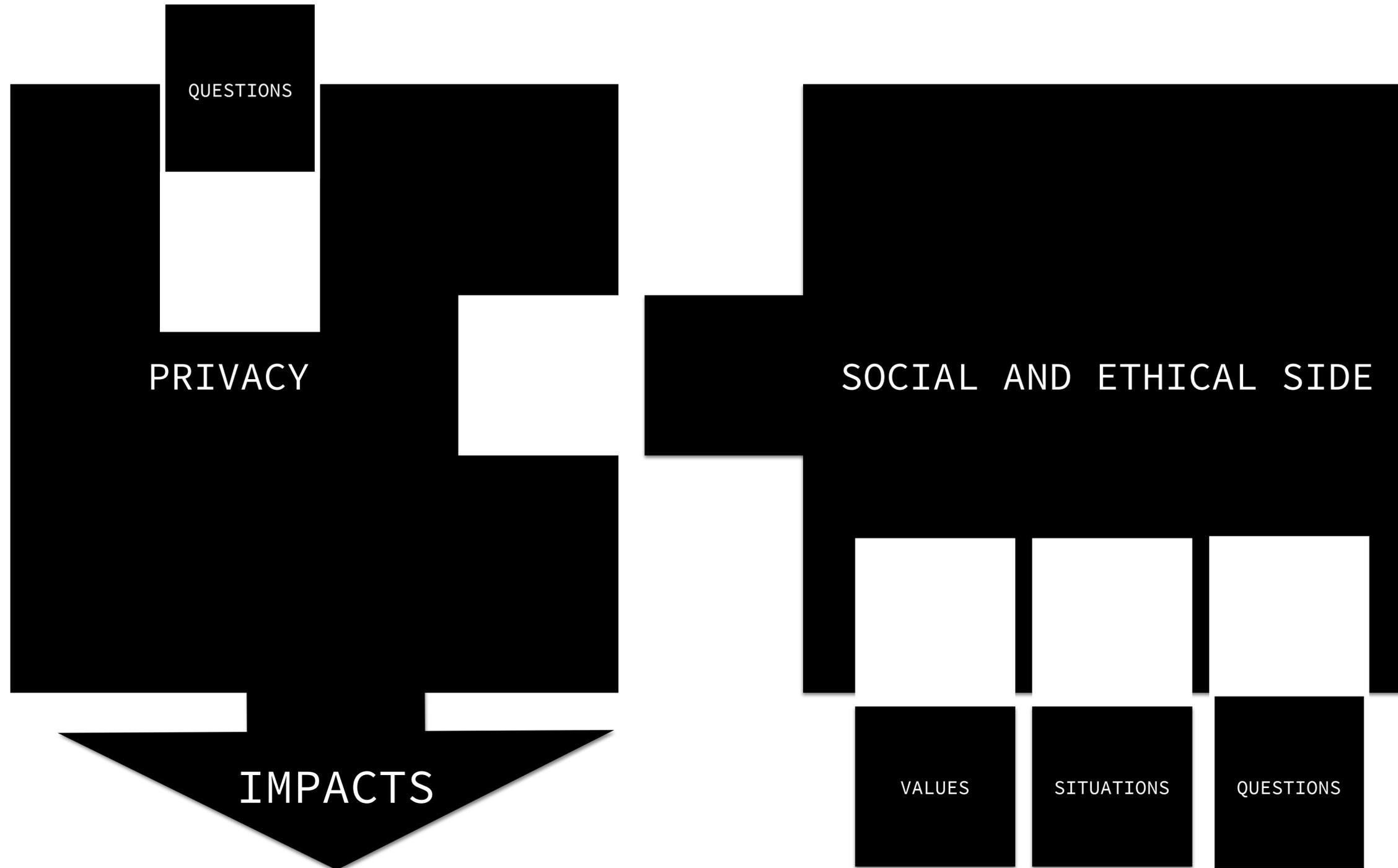
openness

Promoting open hardware and
software with open source
code.

Sustainability

Social and environmental
justice

THE PUZZLE



PART THREE:
UNDERSTANDING PESIA

Managing risks

PART THREE:
UNDERSTANDING PESIA

<u>Consequence</u> → <u>Likelihood</u> ↓	Insignificant	Minor	Moderate	Major	Critical
Almost certain	Medium	Medium	High	Extreme	Extreme
Likely	Low	Medium	High	High	Extreme
Possible	Low	Medium	High	High	Extreme
Unlikely	Low	Low	Medium	Medium	High
Rare	Low	Low	Low	Low	Medium

PART THREE:
UNDERSTANDING PESIA

How do you handle data accurately and securely

- **Technical measures**

Are there procedures or mechanisms to create backups?

If information is converted in anonymous information, are there procedures which ensure the irreversibility of the process and the impossibility to re-identify data subjects?

- **Policies**

Is there a data breach management action plan in place?

Is there a records management policy in place which includes a retention and destruction schedule?

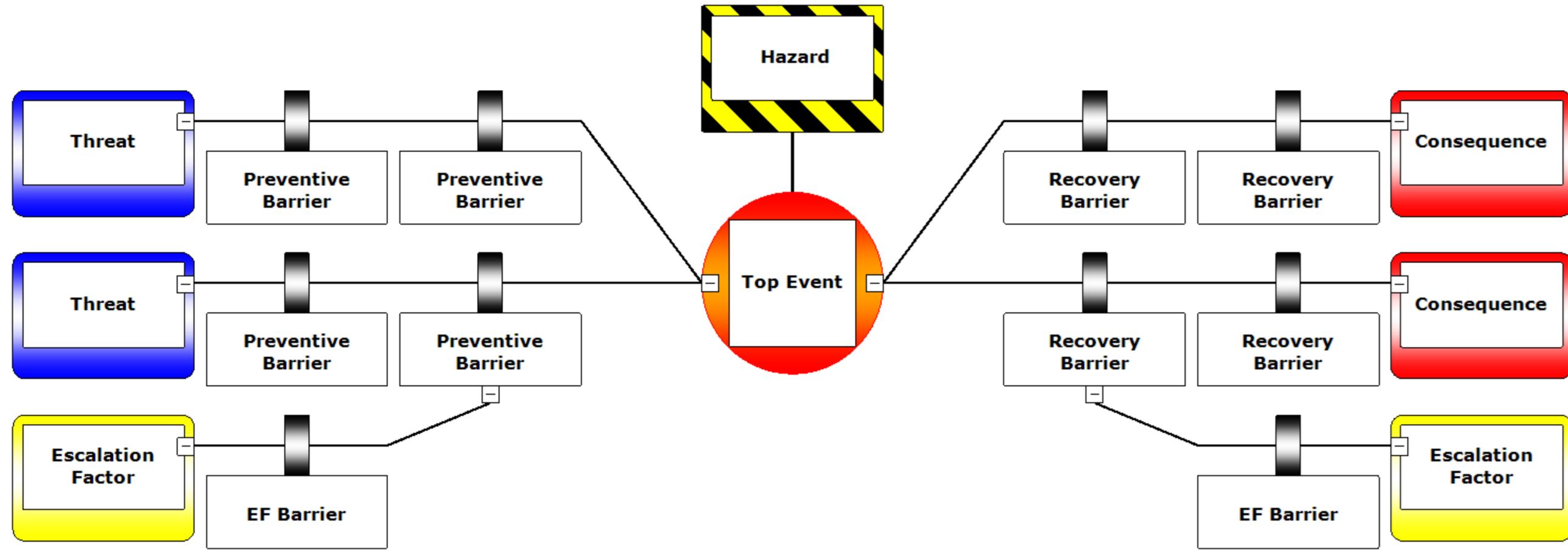
- **Organisational measures**

Is there an access register to the IT systems containing personal data?

- **Data processors**

- **Staff**

PART THREE:
UNDERSTANDING PESIA



PART FOUR:
TOOLS AGAIN

[MORE TOOLS]

“ancillary” tools to support ethical
reflection and self-assessment

Tools

STATE

MAP

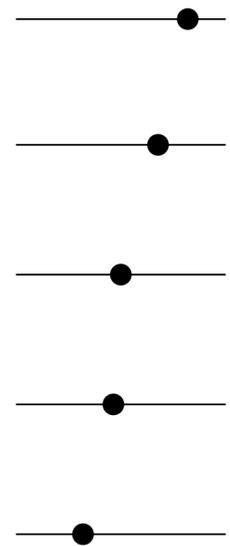
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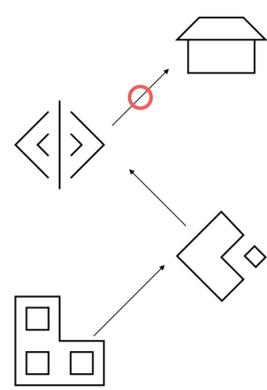
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Tools

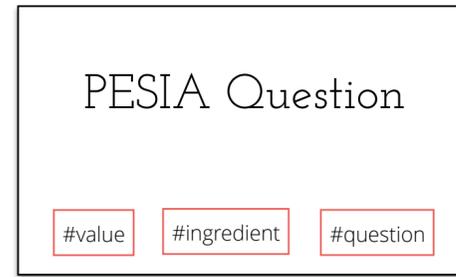
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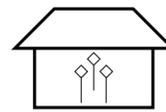
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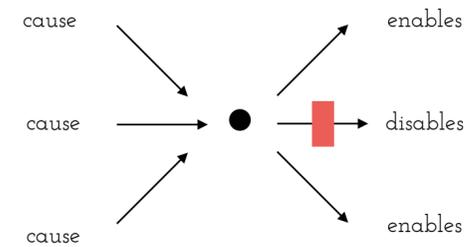
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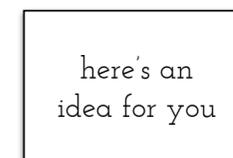
contextualise answer through scenario



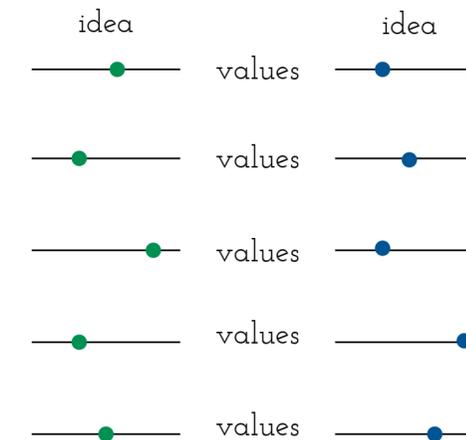
understand impacts



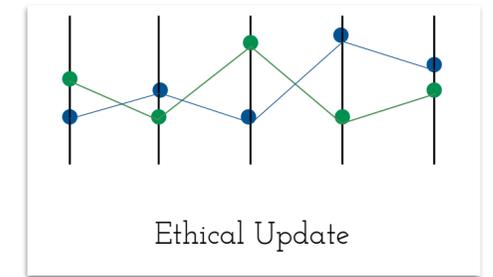
STEER



weighted evaluation of ideas

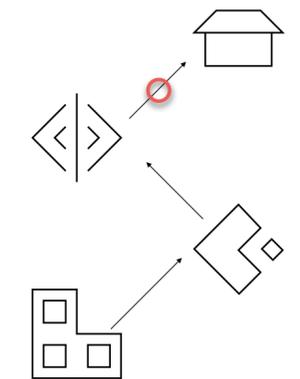


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Ethical Update

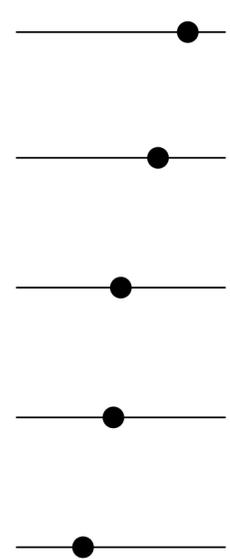
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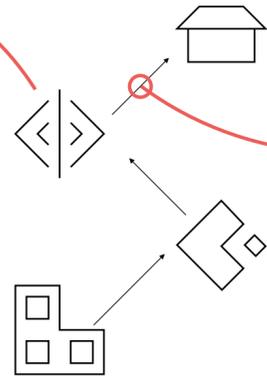
commit the update

Tools

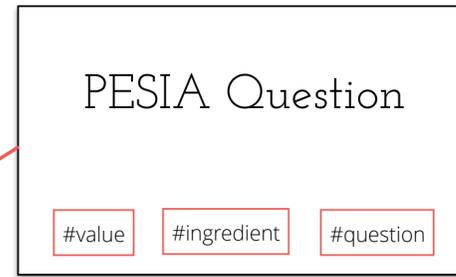
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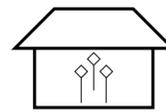
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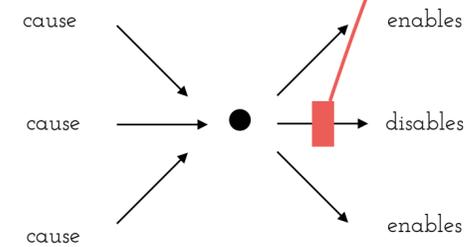
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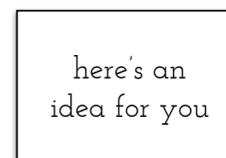
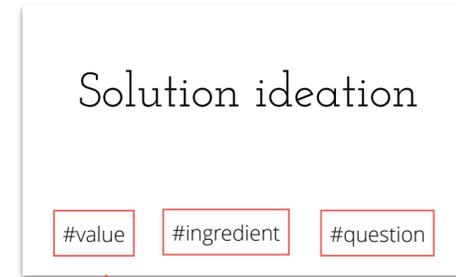
contextualise answer through scenario



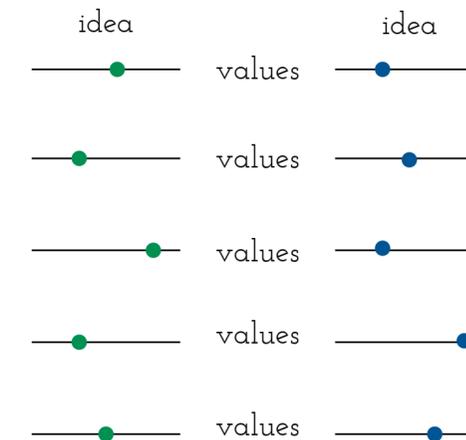
understand impacts



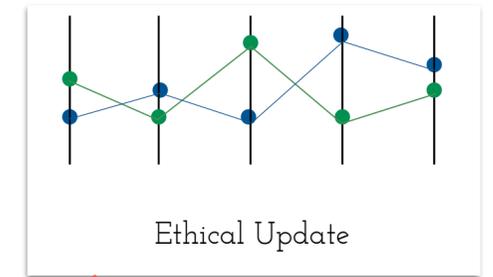
STEER



weighted evaluation of ideas

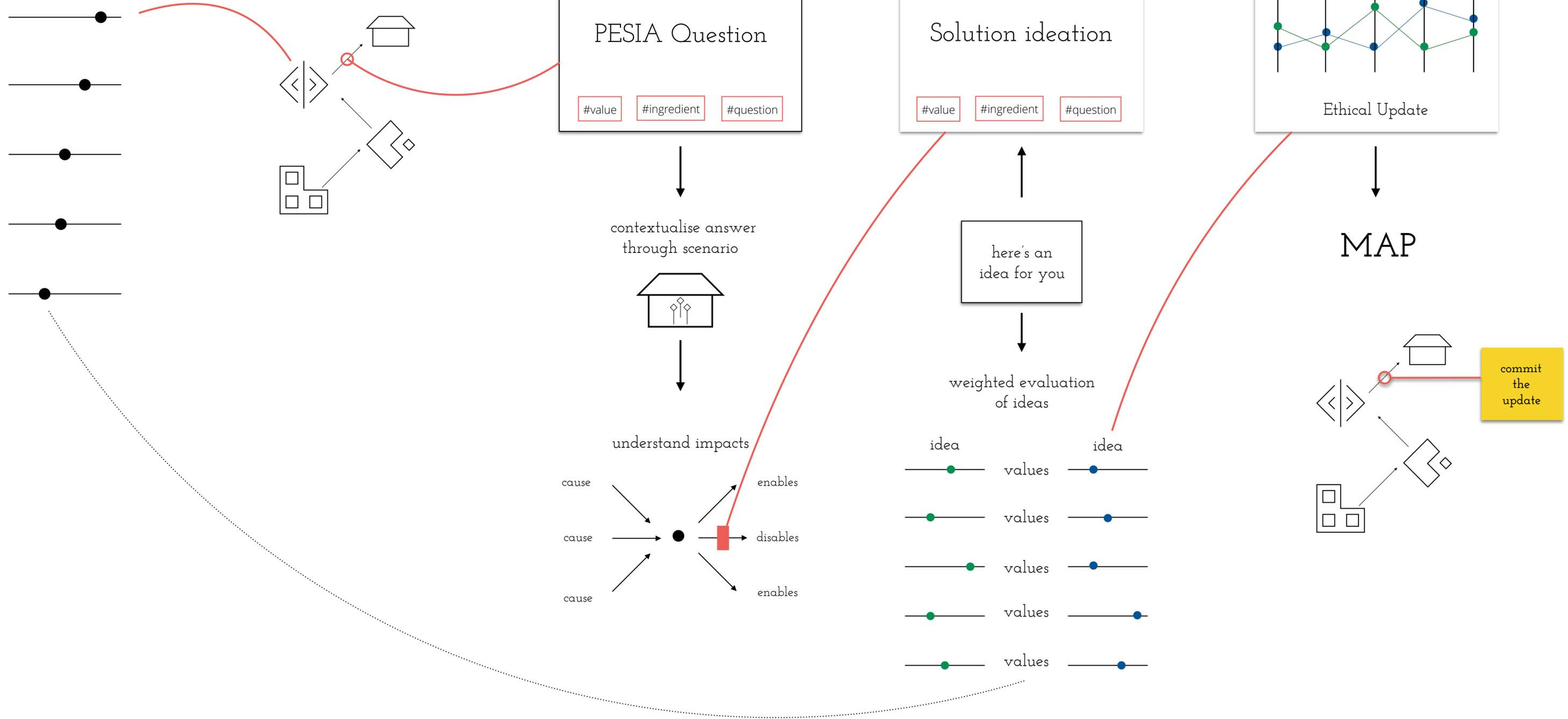
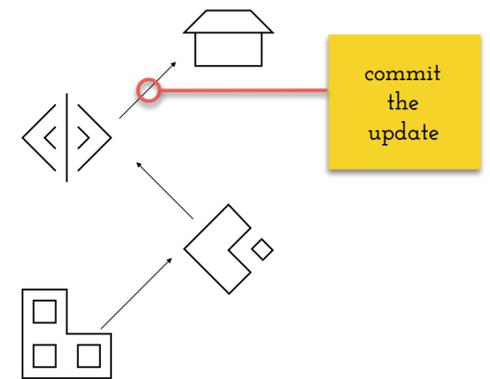


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Ethical Update

MAP



Data

Moving Manifesto

Technical diagram - Blueprint

PESIA database

Solutions library

Ethics Log

Values
Numerically weighted

Technical ingredients
Users
Context
Employees

Values, questions
Materials, values, questions

Solutions from VIRTEU group and
community tagged with PESIA question /
ingredient from map / value

Updates you have made to your
company and / or product because of
the realisations

Tools

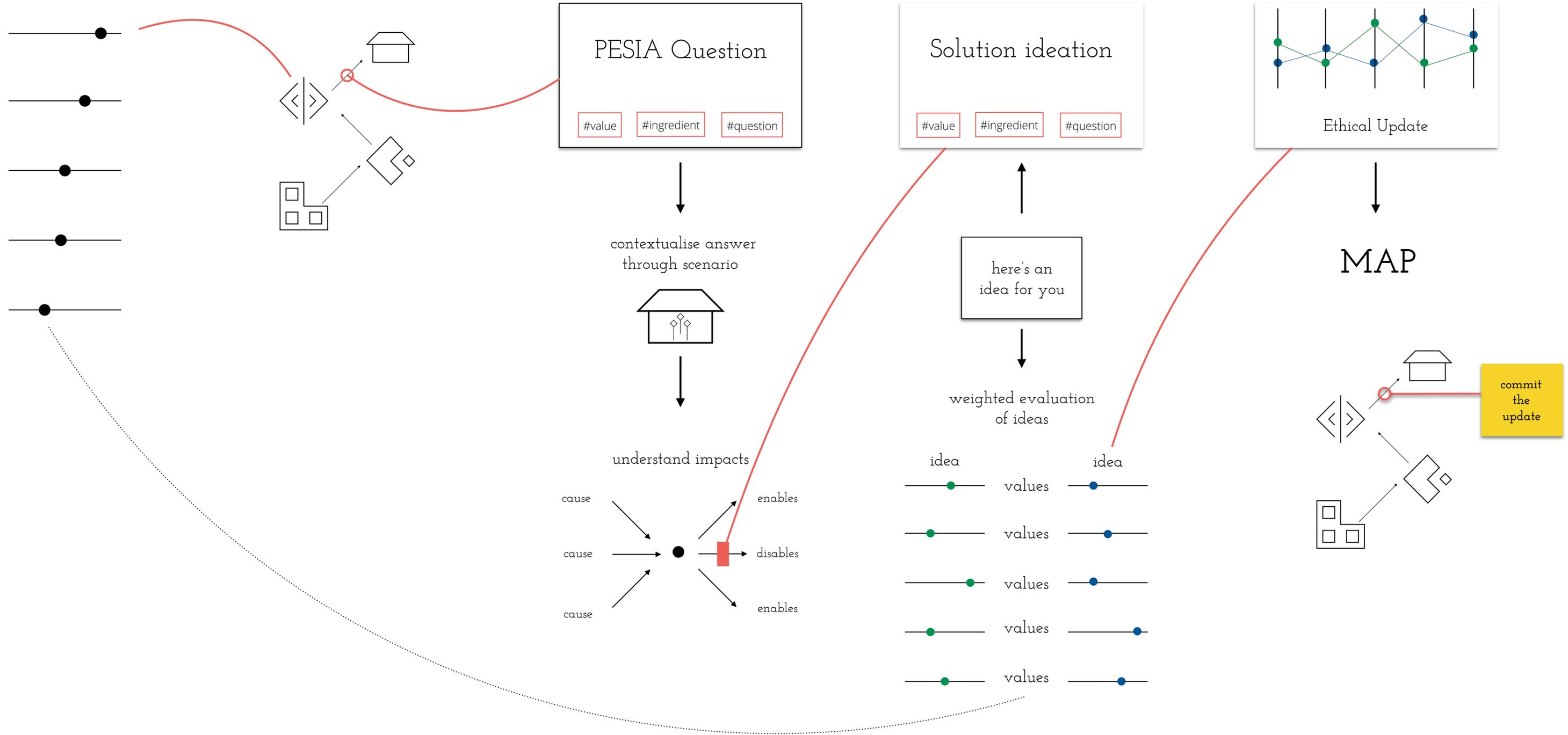
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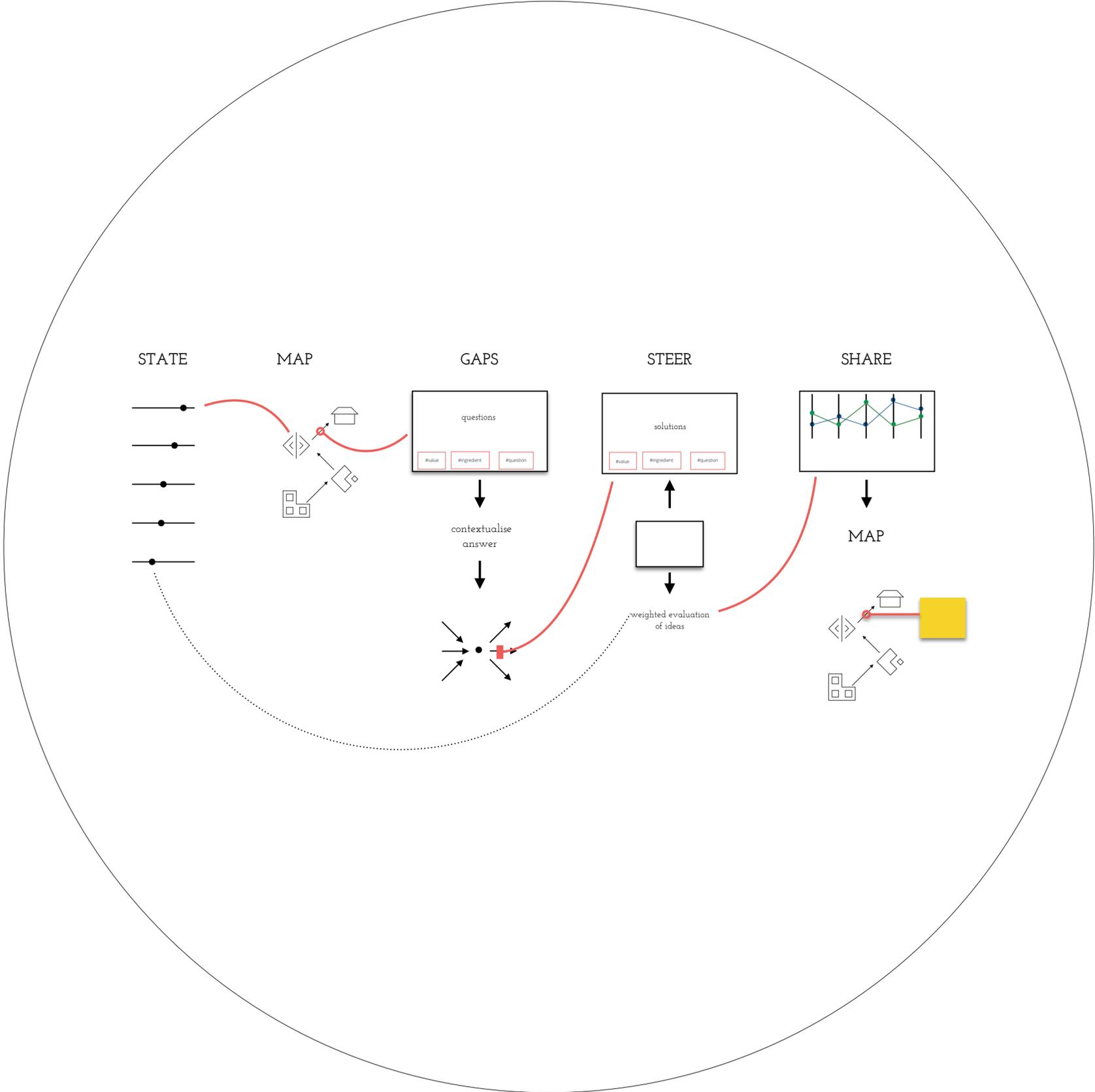
MAP

GAPS

STEER

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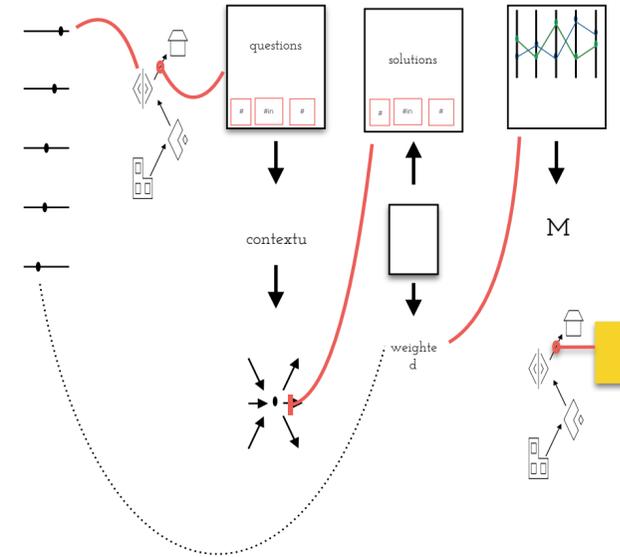
Data

Users identified
Context
Relevant speculations database
IOT trends
IOT Type trends

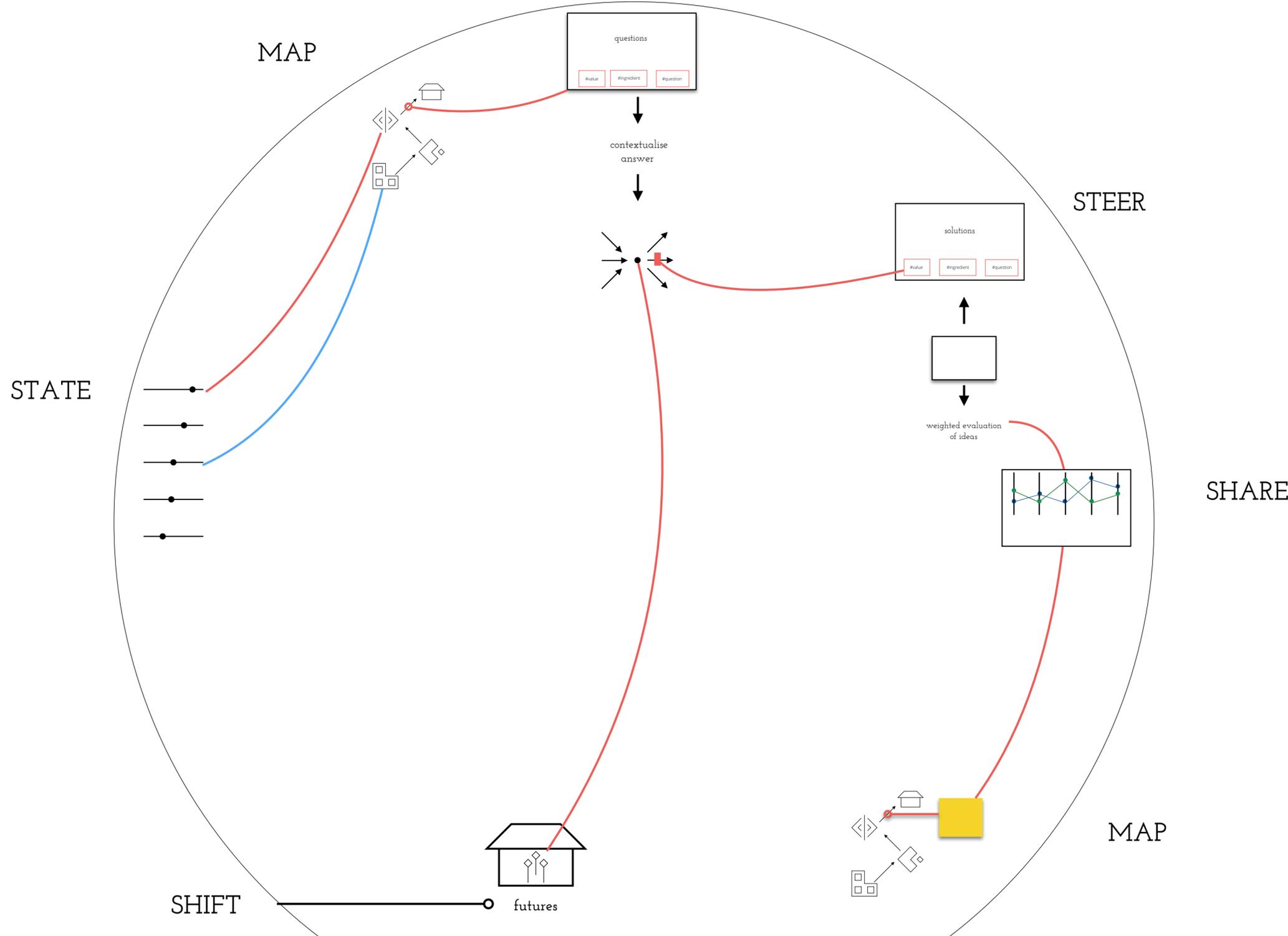
Tools

SHIFT

speculate beyond the visible issues

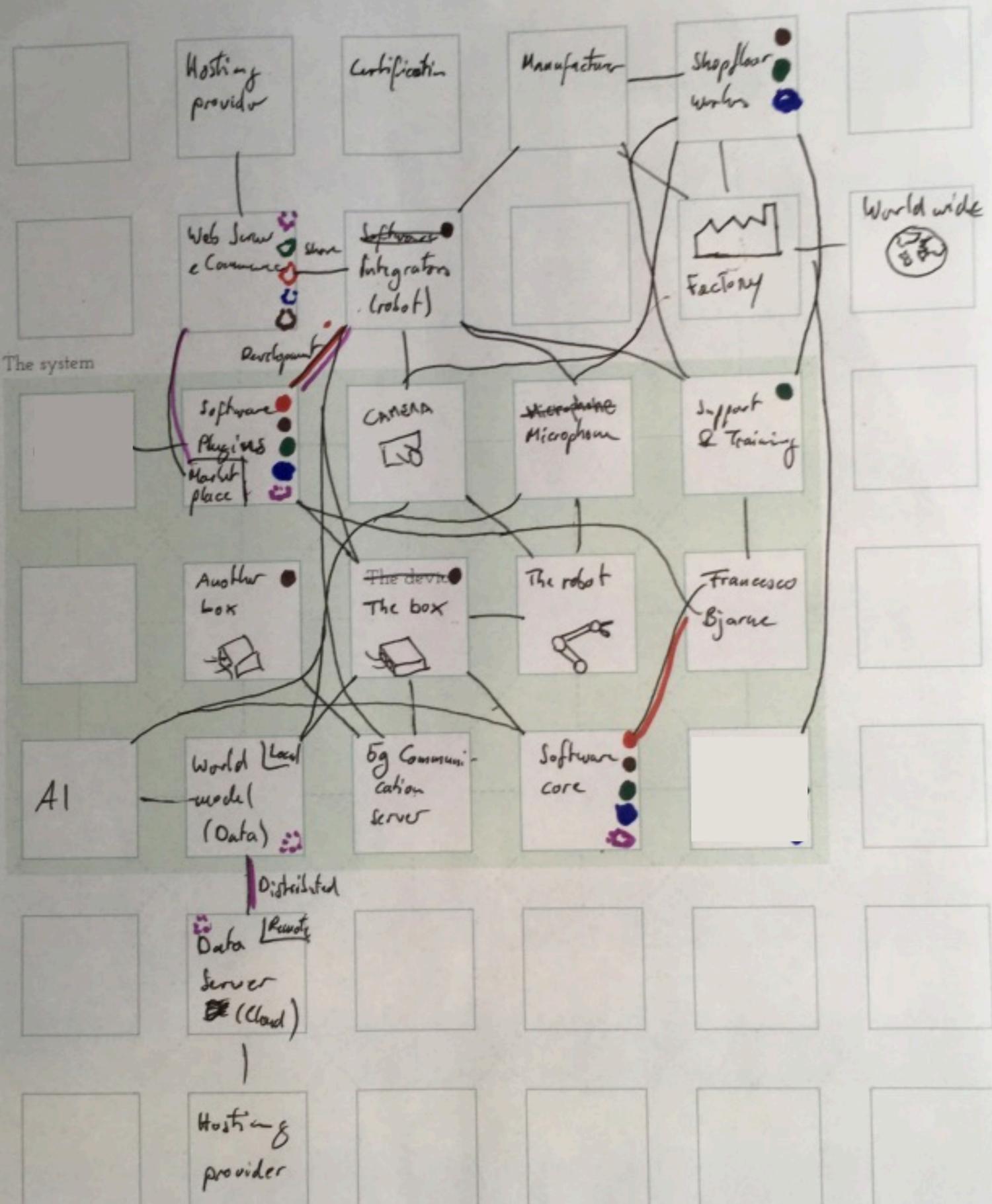


GAPS



-TESTING-

The system



My values

- 2. Interoperability
- 1. Ease of use / Empowerment
- 3. Safety and Security
- 4. Data protection
- 5. Accountability

Shortlist

From the list of values please pick up to five to create your own list

My values

- 1. Responsibility
- 2. Interoperability
- 3. Data Protection & Privacy
- 5. Transparency
- 4. Safety & Security

Final list

now that you've consider each other's priorities, shift the values to show your final list. When done, commit to it. You'll be revisiting this a lot throughout your work.

Our prioritised values

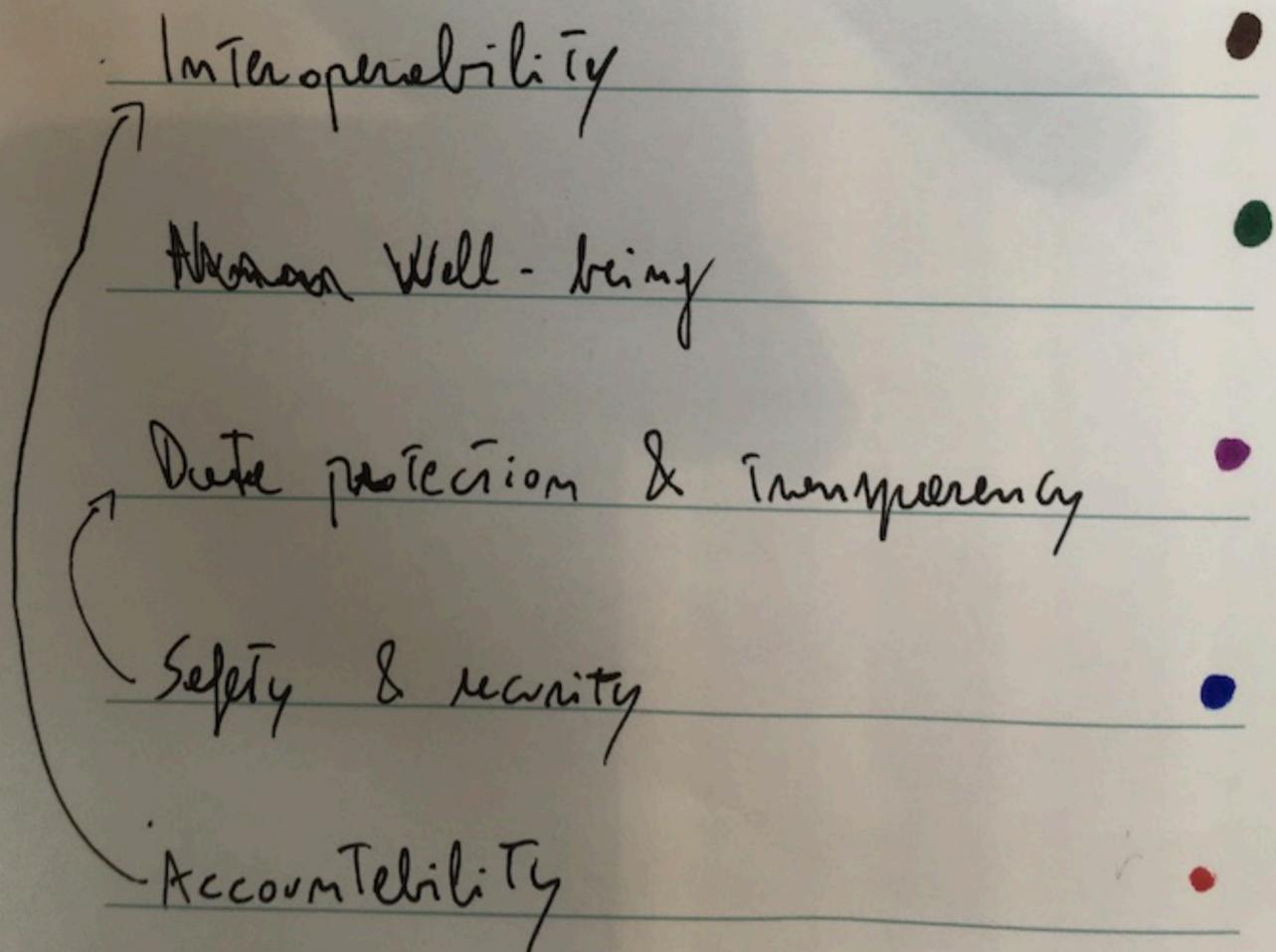
Interoperability

Human Well-being

Data protection & transparency

Safety & security

Accountability



Do you allow for right to access, erasure of data? **Yes**

Will the system take into account particular characteristics of user when making decisions (gender, age, disability)? **No**

Will you be sharing data with 3rd parties or partners? **No**

Are there clear limits on what partners do with that information?

Will there be a way to challenge any decisions made by the system? **There should be**

Do you allow for comparisons among users? **No**
If so, how will you deal with risks to self-esteem?

Does the device need to be implanted on user's body? **No**

Will you provide information to the operators about the data processing? **Yes**

(you are collecting data) about them/their environment

1. Sketch person or a group, in the context of where your product should be used

The shopfloor worker at a production line in a car manufacturing company collaborating with an autonomous robot controlled by our product. He uses a tablet to reconfigure the robot for a new task by changing parameters of the system.

2. Who is this person? Write a little bit of detail about their life.

Bob is a shopfloor worker who has been working for his company for 32 years already. Back in his starting days he had to do the job manually. Now, he just got a crash course in how to operate the system. He is worried that he cannot remember all his training...

3. How will their daily life be routed / changed / shaped / restricted by your answer

Bob screws up and makes the robot useless. He then wishes production line stops since the system cannot recover itself. He might get fired for his incompetency and never get a job again.

1. Sketch person or a group, in the context of where your product should be used

3. How will their daily life be routed / changed / shaped / restricted by your answer

John needs to be able to target the right responsible if outcomes are out of expectations. If this can't be done ^{early} they will lose a lot of time/money looking for responsible. For (i) repair the sys. and (ii) change a fee.

2. Who is this person? Write a little bit of detail about their life.

John is a robot integrator. He usually have always built systems using simple, but reliable, software. He would like to increase the speed pace at which he is deploying systems, but without impacts on safety.

Things to consider

Who is it for

Where is it used

Hardware

Internal people

3rd parties

Sensors

Power

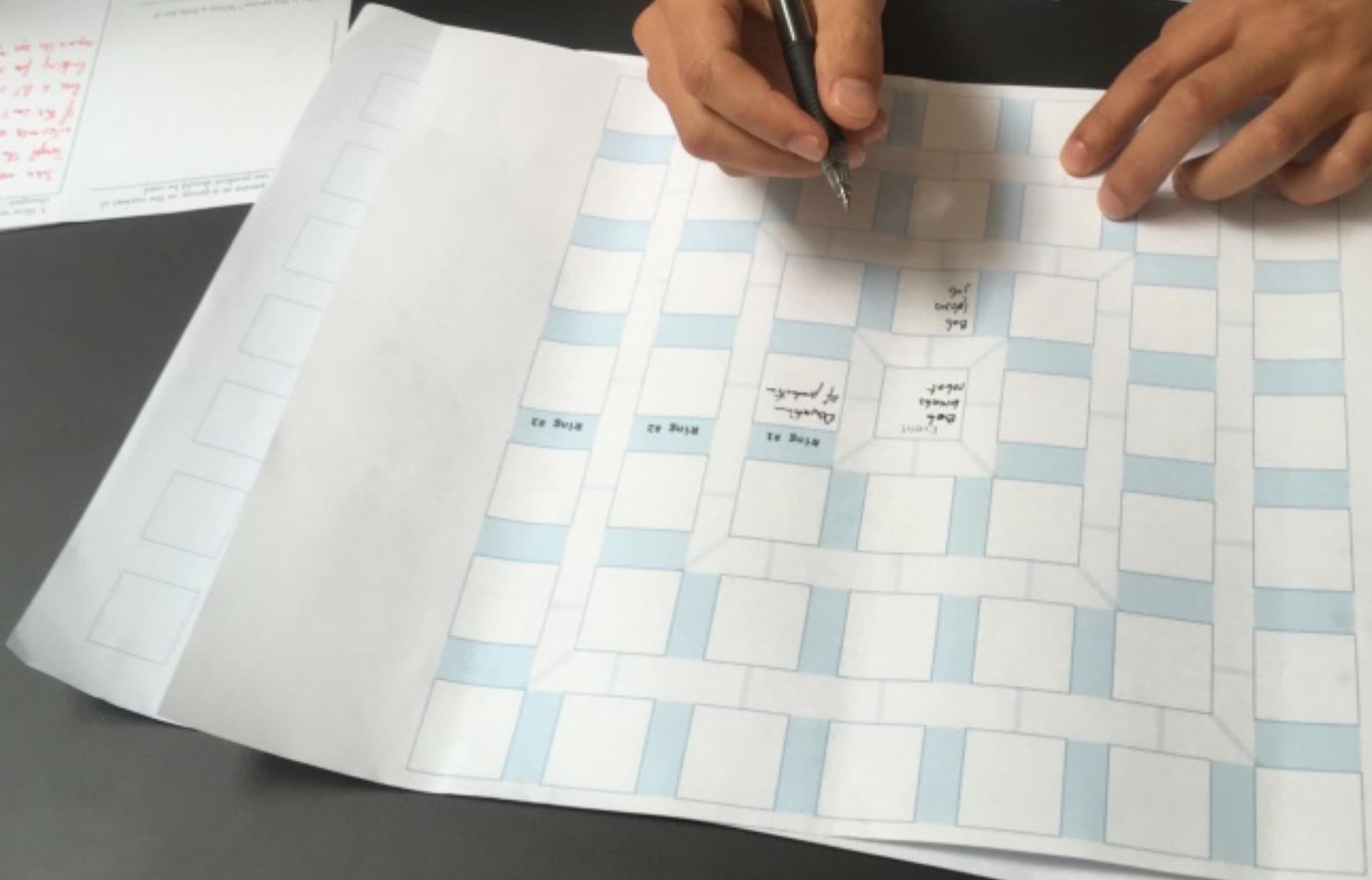
Wireless

See note to be able to
write the right response /
reference on all of questions
(It's not to see right and
has a list of questions
looking for answers for it)
open to see the right and left

See a note regarding
the study that always first gives
very simple to write, explain
the words that to answer the
question and what to be applying

Will there be...
of responsibility
any actions, parties
between developers or the
and operators for instance

the whole problem - can
be seen as a...
steps since the system needs
to solve the problem
to solve the problem
to solve the problem
to solve the problem

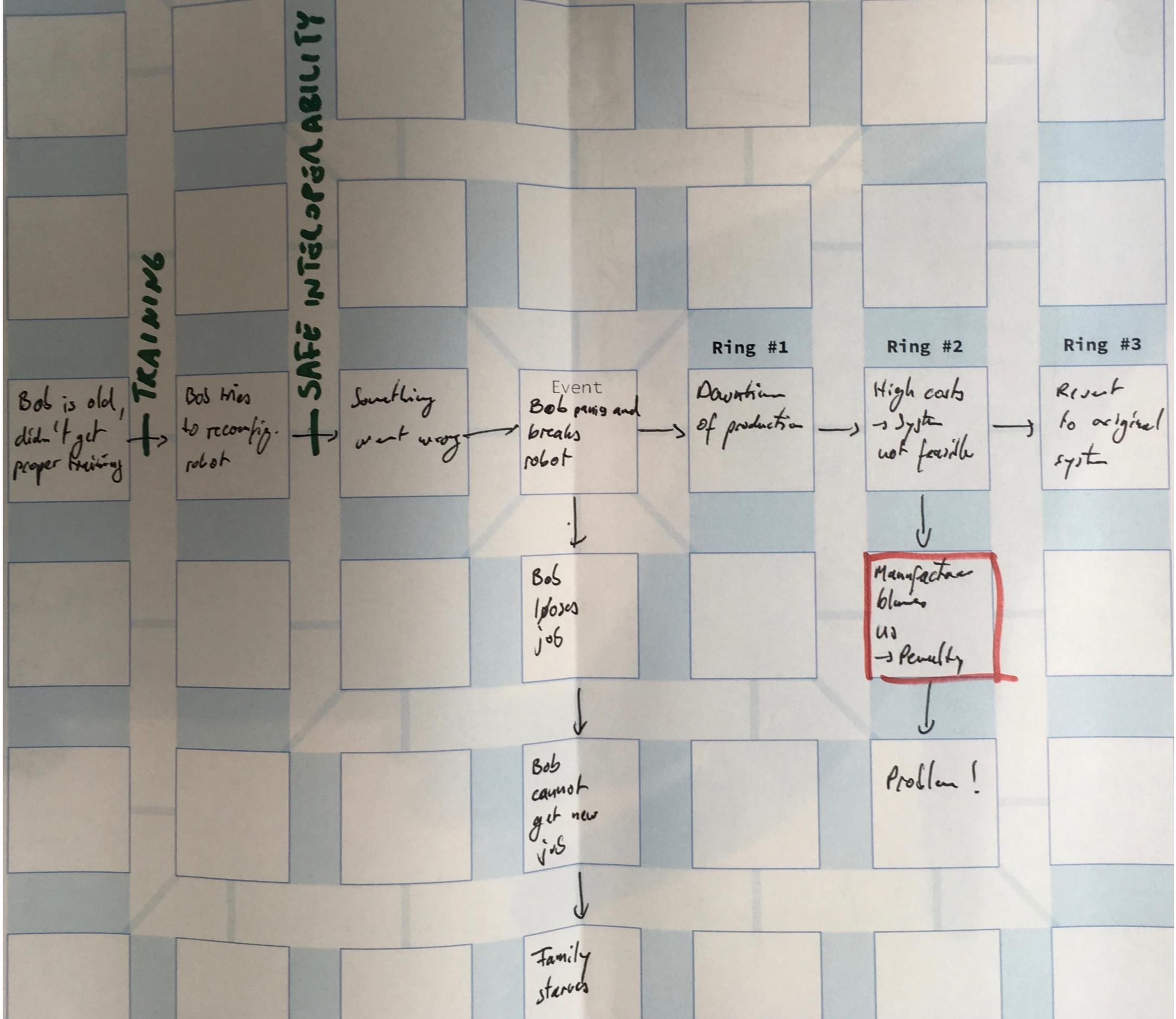


Put your event or issue
in the center of the
diagram and for each
ring explore one level
deeper of that
particular part of the
event or issue.

0-8
1 -> IX -> IV -> IZ

Intelligence
Human Work
Data Practice
Supply &
ReconTel

Your work
You'll be re
final list
priorities
now that you've considered



25



Commitment The user to that wrong choice can't be made.

Safety check on the config.

Here's an idea

25



technical safety net and preventive in design phase (testing)

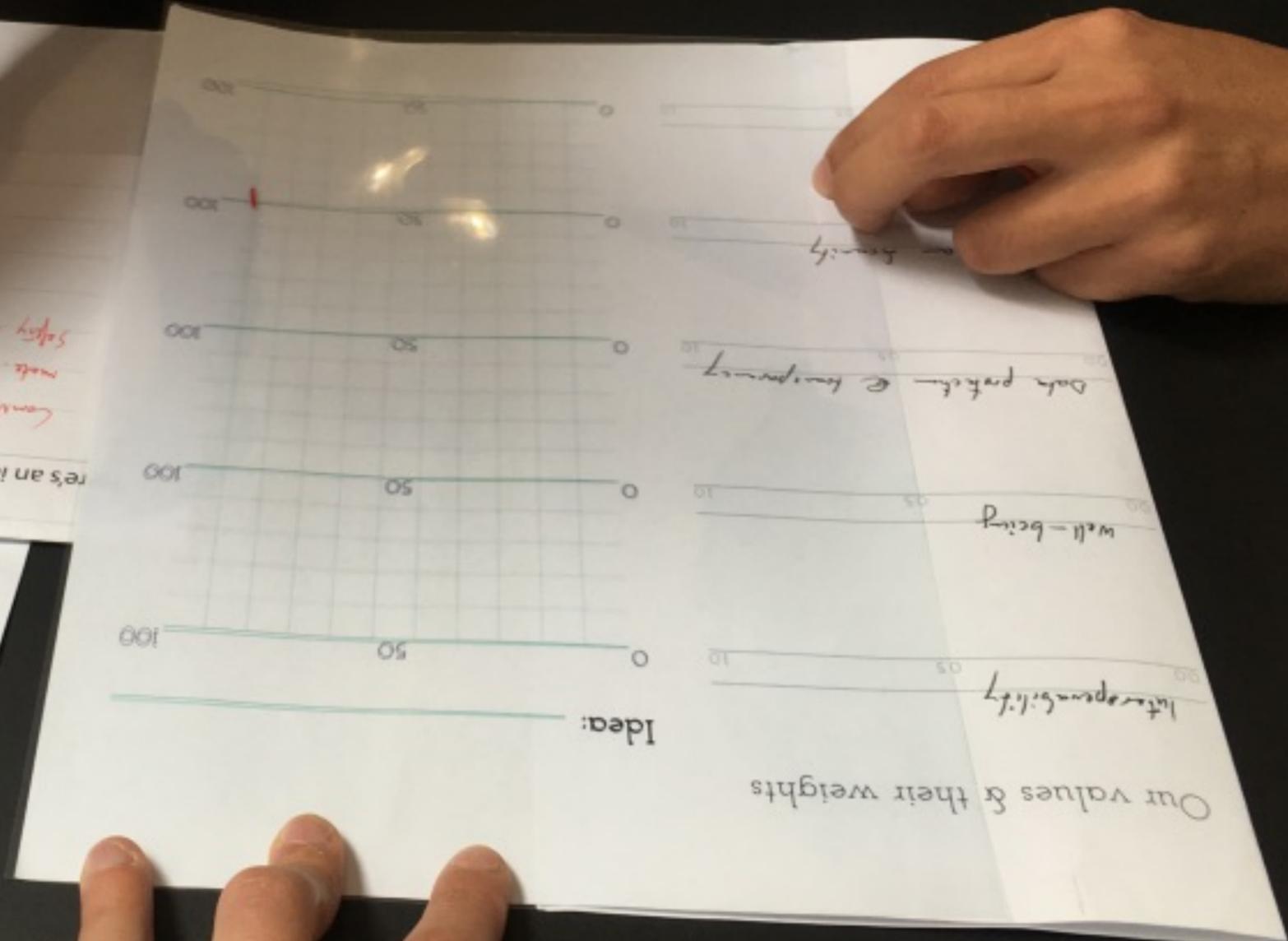
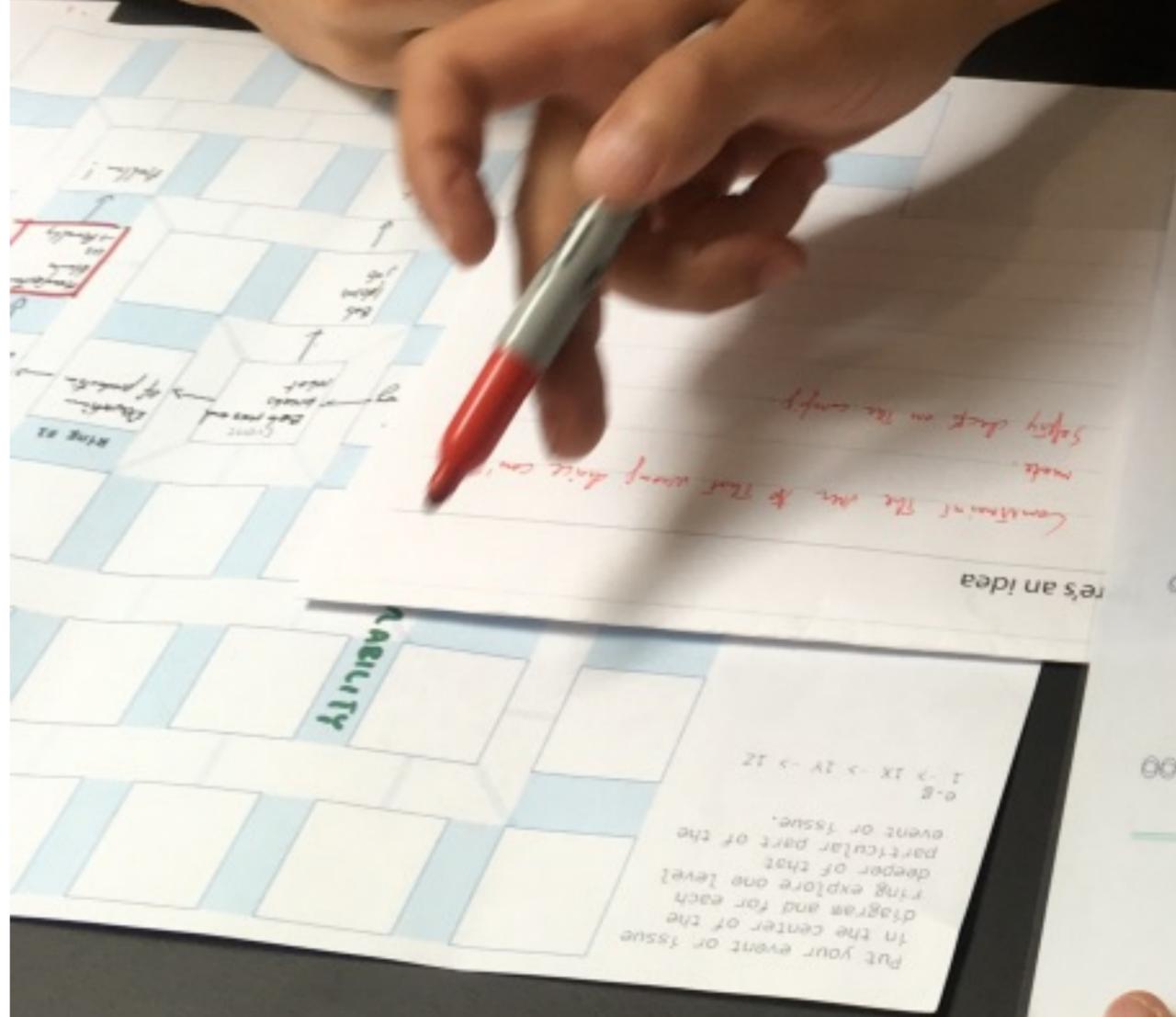
Here's an idea

25

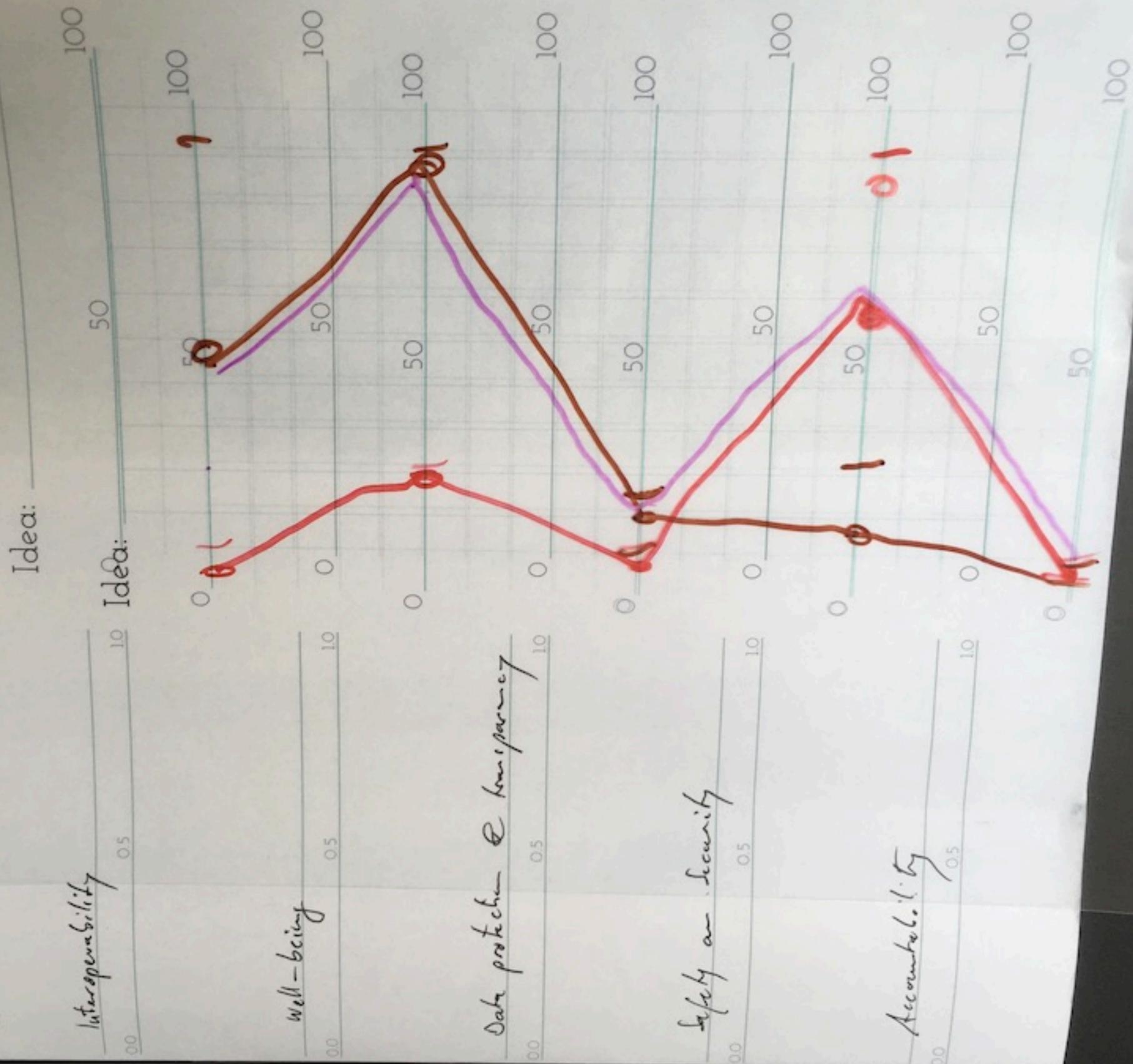


Feedback from shopfloor worker during design phase: Human-centric design

Will there be ^{There should be} clear lines of responsibility for any outcomes, particularly between developers of tools and users to ensure safety?



Our values & their weights



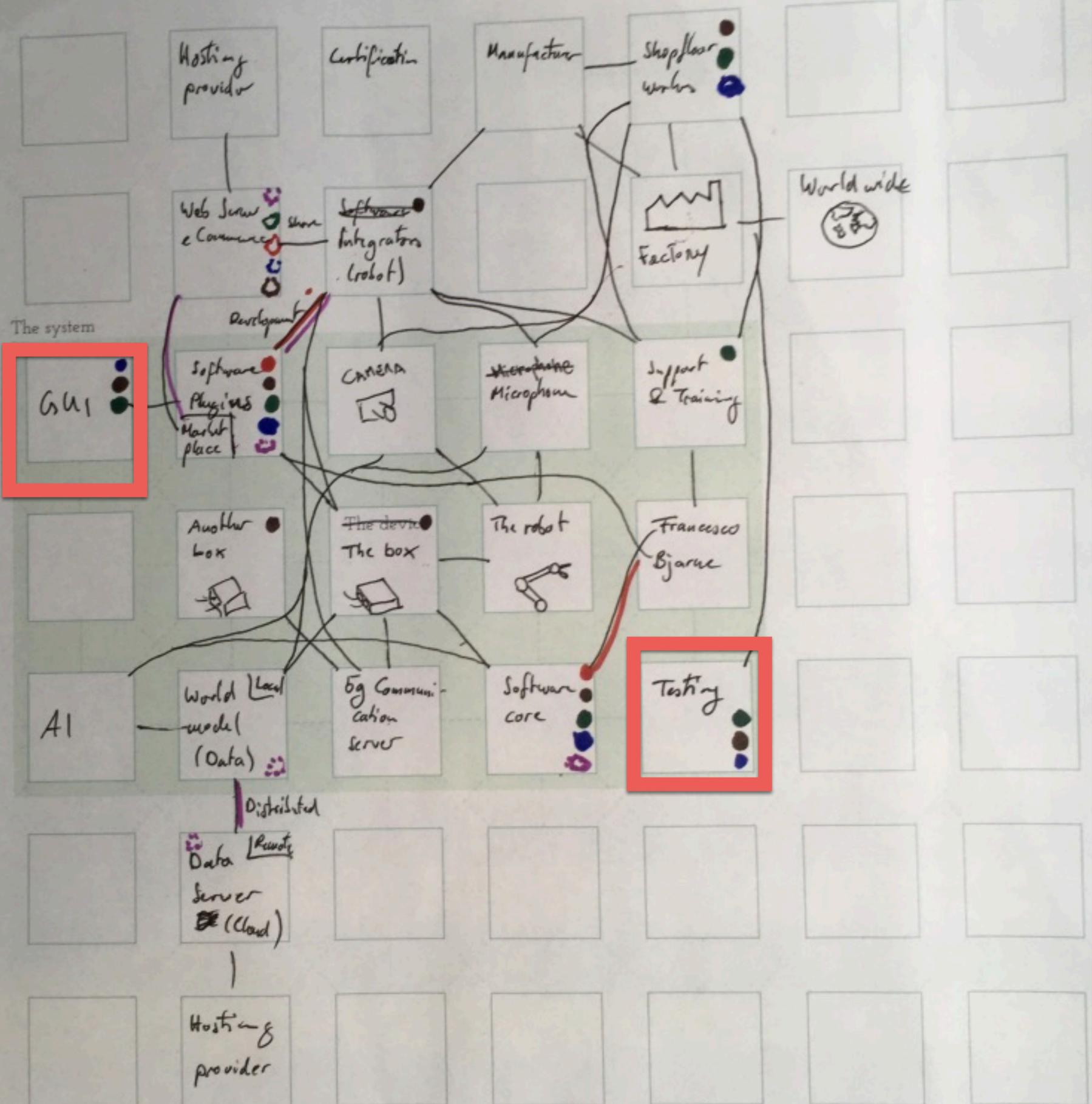
Interoperability

Well-being

Data protection & transparency

Safety and security

Accountability



Final list

now that you've consider each other's priorities, shift the values to show your final list. When done, commit to it. You'll be revisiting this a lot throughout your work.

Our prioritised values

- Interoperability
- Human Well-being
- Data protection & transparency
- Safety & security
- Accountability

Final list
now that you've consider each other's priorities, shift the values to show your final list. When done, commit to it. You'll be revisiting this a lot throughout your work.

Our prioritised values

Privacy
Data protection
Transparency
Well Being
Interoperability

Data Collecting

measure Sensor (health)
Processor
Speaker
Touch Sensor
voice recorder
UX
Industrial designer

Things to consider

Who is it for? Where is it used? Hardware Internal people 3rd parties Sensors Power Wireless

DATA PROTECTION
Do you distinguish between anonymous and personal data?

TRANSPARENCY
Has any information been provided about the project?

WELLBEING
If you allow for comparisons among users, how will you deal with the risks to self-esteem.

Integrating PESIA





PART FIVE:
REFLECTIONS

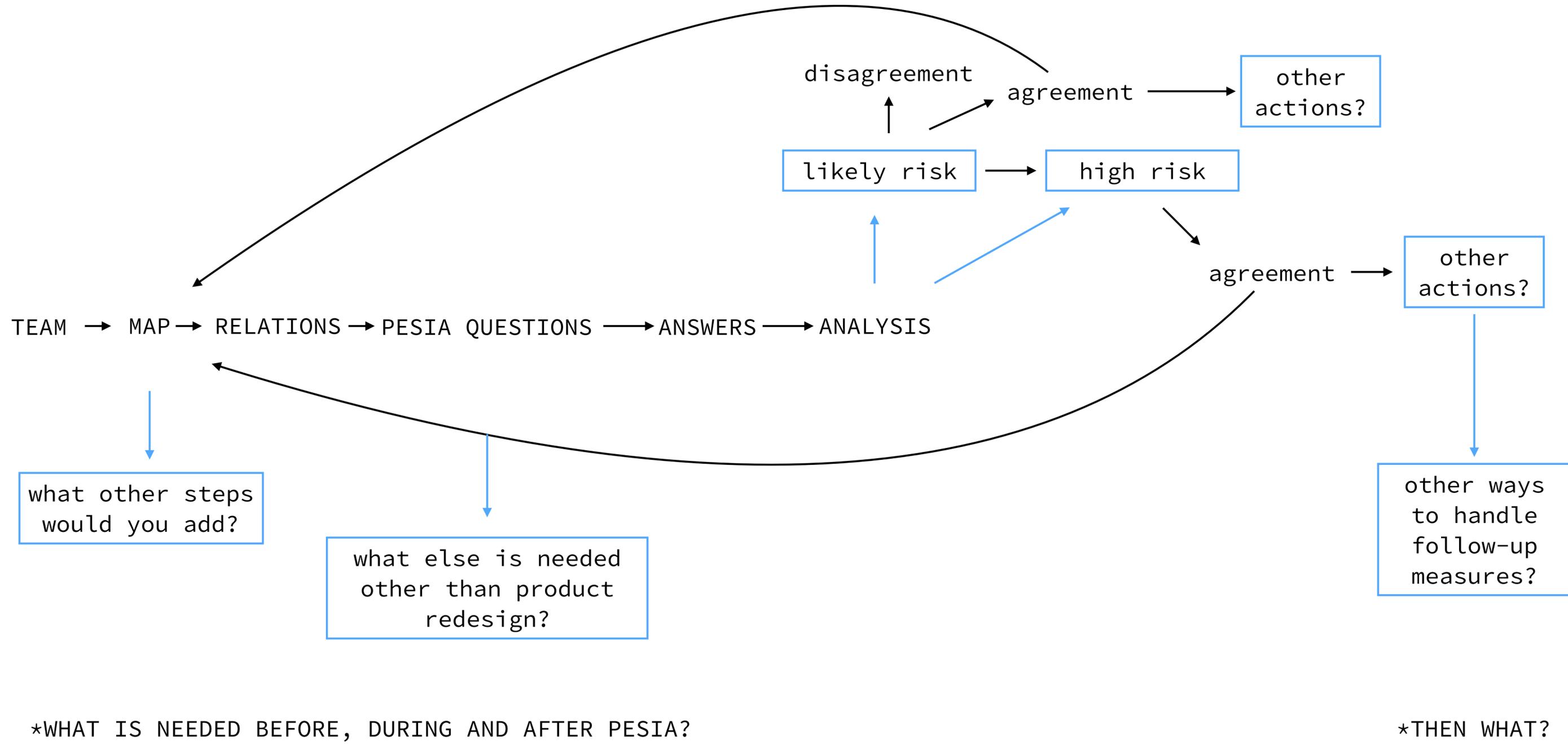
Challenges

PART FIVE:
REFLECTIONS

Challenges:

- What else is needed before, during, after an assessment?
- Impact of hardware design and component decisions
- How do you make sure there are outcomes and not just a nice diagram and ethics washing?

PART FIVE:
REFLECTIONS



PART FIVE:
REFLECTIONS

What we did:

PART TWO:
ENGAGING WITH PESIA

We are working on a product at our start-up.

1. Get to know the diagram of the elements of your respective products.
2. Now add any relations (users + makers + stakeholders). Who is related (using, impacted, connected to) to each element in your product?
3. What are your ethics, and specifically, your values while working at OldLifeWell?
 - a. Individually, take ethical concepts you would like to have at OldLifeWell and bring them back to your table
 - b. In your table group, discuss each ethical concept. If there are any with divergent definitions, or words that one group member is “not ok with”, discuss with the knowledge that you need to work together on this product for the next 100 years.
4. Consider **PESIA questions**
5. Is there a problem?
 - a. Play a role / devil’s advocate / push each other

PART TWO:
ENGAGING WITH PESIA

5. Is there a problem?
 - a. Play a role / devil's advocate
 - b. If yes + you **agree** there is a problem:
 - Revisit your product map
 - Mark-up with ± 3 ways to address problem
 - Decide which one you will take
 - Commit the change on your product map
 - c. If yes but **inconclusive** (1 yes, 1 no):
 - 1st try: create a scenario of why you should care about this PESIA answer: a user story, an imagined possible future outcome that could come from your PESIA answer?
 - Then go back to 4.
 - 2nd try: create a positive / negative news splash from your PESIA answers. What's the headline?
 - Then go back to 4.
 - 3rd try: brainstorm your own.
 - d. If no:
 - How would you communicate this good news?
 - To whom, through what medium?

PART TWO:
ENGAGING WITH PESIA

Reflect + Re-make

PART TWO:
ENGAGING WITH PESIA

what else is needed to grasp answer's implications?

5. Is there a problem?

- a. Play a role / devil's advocate
- b. If yes + you **agree** there is a problem:
 - Revisit your product map
 - Mark-up with ±3 ways to address problem
 - Decide which one you will take
 - Commit the change on your product map

did different ideas of "ethics" come out when talking here?

what kind of scenarios were more persuasive?

c. If yes but **inconclusive** (1 yes, 1 no):

- 1st try: create a scenario of why you should care about this PESIA answer: a user story, an imagined possible future outcome that could come from your PESIA answer?
- Then go back to 4.
- 2nd try: create a positive / negative news splash from your PESIA answers. What's the headline?
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- 3rd try: brainstorm your own.

any other actions you would take?

how else can we get our PESIA respondents to care?

any other important activities or actions here?

d. If no:

- How would you communicate this good news?
- To whom, through what medium?

other ideas of "trump" cards?

PART TWO:
ENGAGING WITH PESIA

if there were misunderstandings, what would have helped here?

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was your map at all prioritised, or weighted?

if there were misunderstandings, what would have helped here?

PART FIVE:
REFLECTIONS

PLANS

What happens next in the project
and how can you continue to be
involved if interested?



PART FIVE:
REFLECTIONS

THANK YOU!