industrial design portfolio 2020

cansu
bezmez

projects

ethically positioned speculative design: **an artificial being: piona**
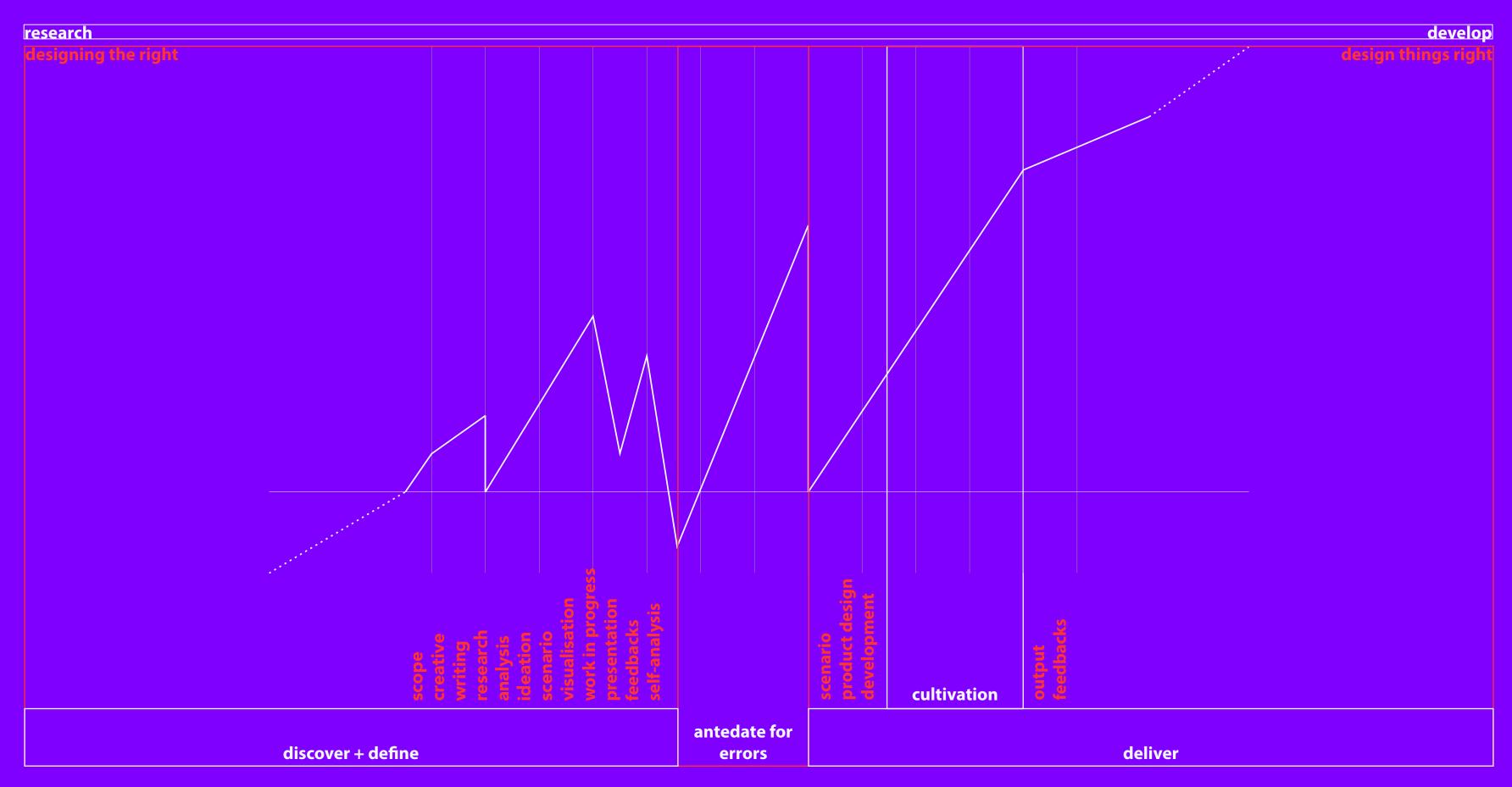publics: **kentish town city farm**

an artificial being:
piona

As a project 'An Artificial Being: Piona' imagines speculative futures which synchronise nature with the ongoing development in socio-technical and environmental developments in order to reduce the human-based problems in ecosystems. It proposes evolutionally developments in synthetic organisms that allow them to adapt and evolve efficient enough to recover from the detrimental environmental impacts of humankind.

Speculative design scopes the big societal issues and explores the possible future scenarios for the products or the systems.

ethically positioned speculative design

This project starts with the exploration of the designer's thoughts on current scenarios and then broadens into future possibilities. It is believed that before imagining the future, it is important for the designer to explore the thoughts about social perspectives. In that way, the designer can place itself in the system and create a better understanding of the problem that needs to be portrayed and articulated. That is also the reason it is called ethically positioned speculative design because it includes the perspective and the discussion of the designer about the problem via solution.

designing the right   design things right

scope
creative
writing
research
analysis
ideation
scenario
visualisation
work in progress
presentation
feedbacks
self-analysis

scenario
product design
development

output
feedbacks

cultivation

antedate for
errors

discover + define

deliver

design process

social problem

Research process has four sequential points. The first one is the selection of social problem. Eco-anxiety determined as a base and its roots are explored and analysed.

effects in nature

As a second point, the causation of the problem is explored, and plastic pollution is chosen and its journey on planet Earth is studied. Its impacts on marine life are selected as a direction.

science & tech

Then, the scientific and technological developments are explored to create a foundation for the speculative scenario and product design.

narrative method

Finally, technical narrative methods are explored for delivering the design.

research process

Climate change is one of the biggest concerns in the Anthropocene era. Society has been provoked to act for this cause with the individual solutions and demanding for infrastructural and systemtic changes. People feel inadequate and this causes them to feel anxious and stressed out.

"With reports of some children becoming terrified by climate change and protest group Extinction Rebellion holding "grief-tending workshops", there is an increasing awareness of so-called eco-anxiety."

*Penny Sarchet, 2019
New Scientist, pg.12*

"As individuals, people often report feeling hopeless that they can effect change on a scale that matters for something as big as climate change. But individual behavior change when taken up by billions of people makes a decisive difference.

...

Scientists agree that humans are the primary driver of global warming, and that this process is happening at an unprecedented pace; we need increased political will to act and deliver on agreed global temperature targets to avoid the most catastrophic consequences. However, climate change needs to become everyone's business."

Williamson, K., Satre-Meloy, A., Velasco, K., & Green, K., 2018. Climate Change Needs Behavior Change: Making the Case For Behavioral Solutions to Reduce Global Warming.

It is needed to grow awareness about the problem through reading articles, news, watching and producing documentaries following that creating conversations in society to understand it more deeply.

The awareness changes into action, stepping toward solutions, learning more about the climate change and the impact in human life and environment. Looking beyond individuals and understanding other living beings is important to see the negative effect of the actions in the planet Earth. By taking the step of learning more about the climate change and its effects on planet helps to make the important transition from awareness to action.

After acceptance of the problems, small steps are taken into account to explore the concepts of moderation and alteration in behaviours.

In this step, the thoughts and behaviours which comes from nurture and moderated living conditions cause a big challenge in current politics, production and consumption systems.

Acting for climate change and preserving the new thoughts and behaviours will be easier for the next generations. And hopefully, there will be more action for the bigger systems after it has been processed and overcome by individuals in societies.
This adaptation and recovery cannot think separately from the bigger social norms and economical and political systems.

1
awareness and early acknowledgement

2
consideration

3
exploring recovery

4
early recovery

5
active recovery and maintenance

psychological analysis - addiction recovery process

This project starts to aim to create a calm but effective approach to provoke people to grow awareness and then take action for 'consumption-production behaviours-thoughts' of climate change.

People have already known about climate change and started provoking and acting for it, but researches show that people feel frustrated and stressed out without the positive approach.
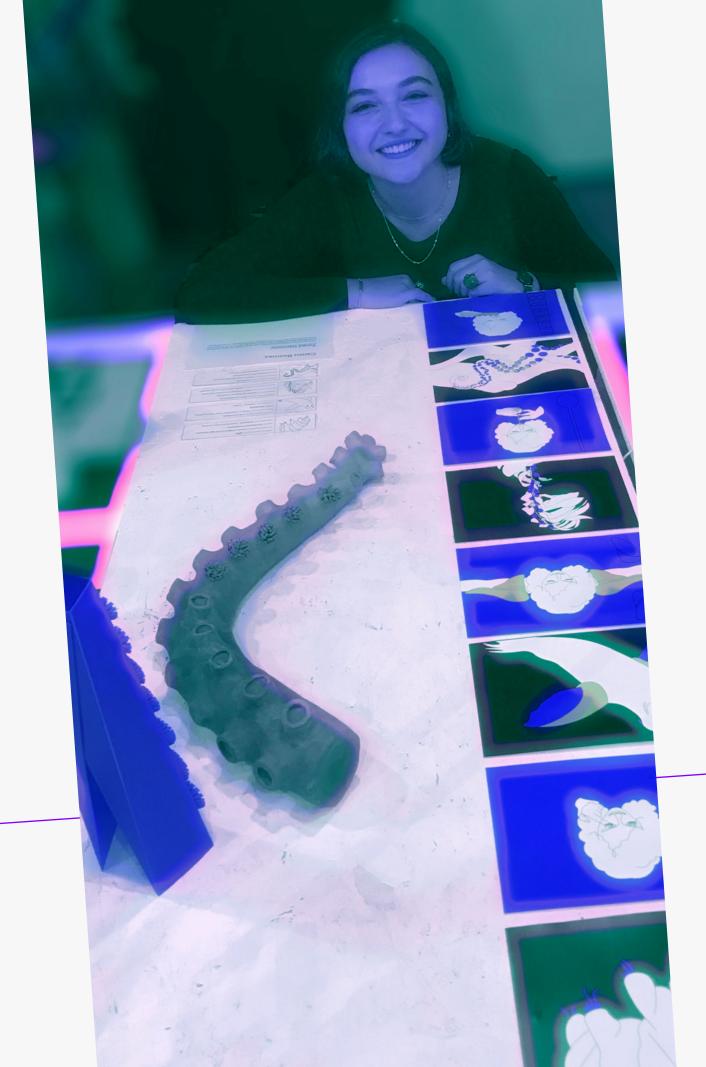
Society has been exploring the opportunities in different fields and developing systems which require long term commitment and permanence.

In the development process, exploration of the products and systems comes with its efficiencies and harm. Society has been innovating, designing, creating new opportunities and experiences. Some of them have caused big problems all around the world both physically and mentally, while others becoming the solution to these big problems.

There are always things that cannot be foreseen in multiple systems. That is the outcome of diversity and it is acceptance. It helps to find out the most beneficial and harmful thoughts, actions, and experiences. With being empowered and encouraged, society experiments life and find the best ways for living and developing. Even the worst things help to develop and boost to have a better living.

On the other hand, sometimes changing the 'human benefit perspective' may work. As a fact the society will not give up its production and consumption systems and will only use methods of political improvement and renewal, it directs the questions from the society to nature. Although environmental policies have been creating and revising, the fact that people use nature to produce and develop things remains unchanged.
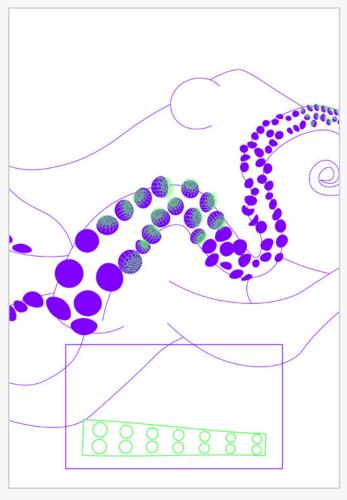
Therefore, the question of 'how nature can keep up with the pace of human-based developments and what people can do directly on this issue' should be asked besides perhaps the need for social change.

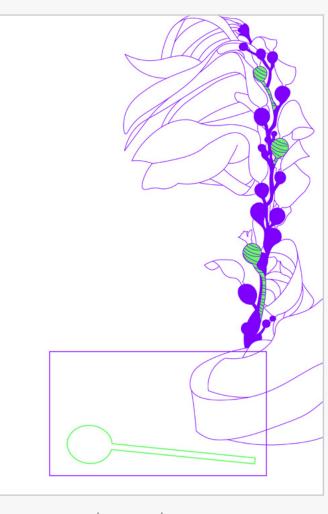**initial ethical reasoning**

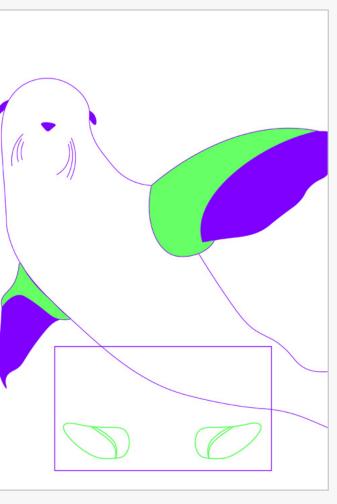## work in progress exhibition

At the beginning, the project aims to design products that reduce the "scary thoughts" surfacing due to the abundance of plastic in the oceans. Everyday objects are reinterpreted to exist with marine beings in their natural habitat while making them evolve artificially.
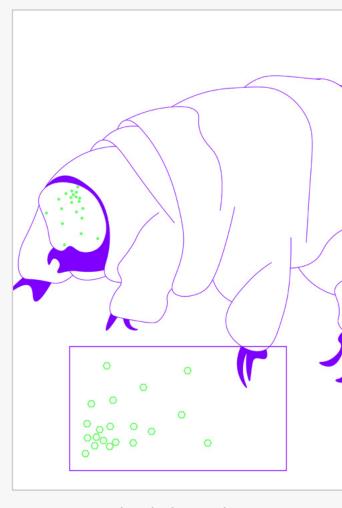
polypropylene toothbrush
octopus

polypropylene straw
kelp

polystyrene food packaging
sealion

polyethylene glitter
waterbear

The idea is to show the change of human-centred design to nature-centred design. The first use of human-made plastic objects is designed to indorse the interaction with marine beings. The aim is to engage the marine beings with the objects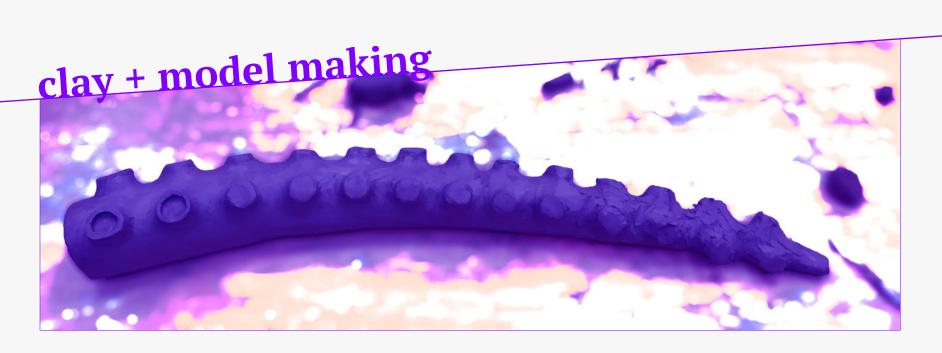 and make connections with them permanently. An octopus, sea lion, kelp, and water bear are chosen to incorporate different species. Daily life plastic objects are chosen in different usage scenarios from the first user; humans. This approach is selected to provoke nature-centred design. It is also the reason that the objects are not ergonomic or user friendly for the first user.

One of the most intelligent being, octopus, is selected as an interactive user and toothbrush is determined as a plastic object. In the fictional scenario it is aimed to design a toothbrush in order to make the octopus interact with the correct form and function which are going to merge in. In addition to this, opposing to the ordinary toothbrush, this toothbrush has multiple bristle brush which is located according to the golden ratio of the tentacle's suckers.
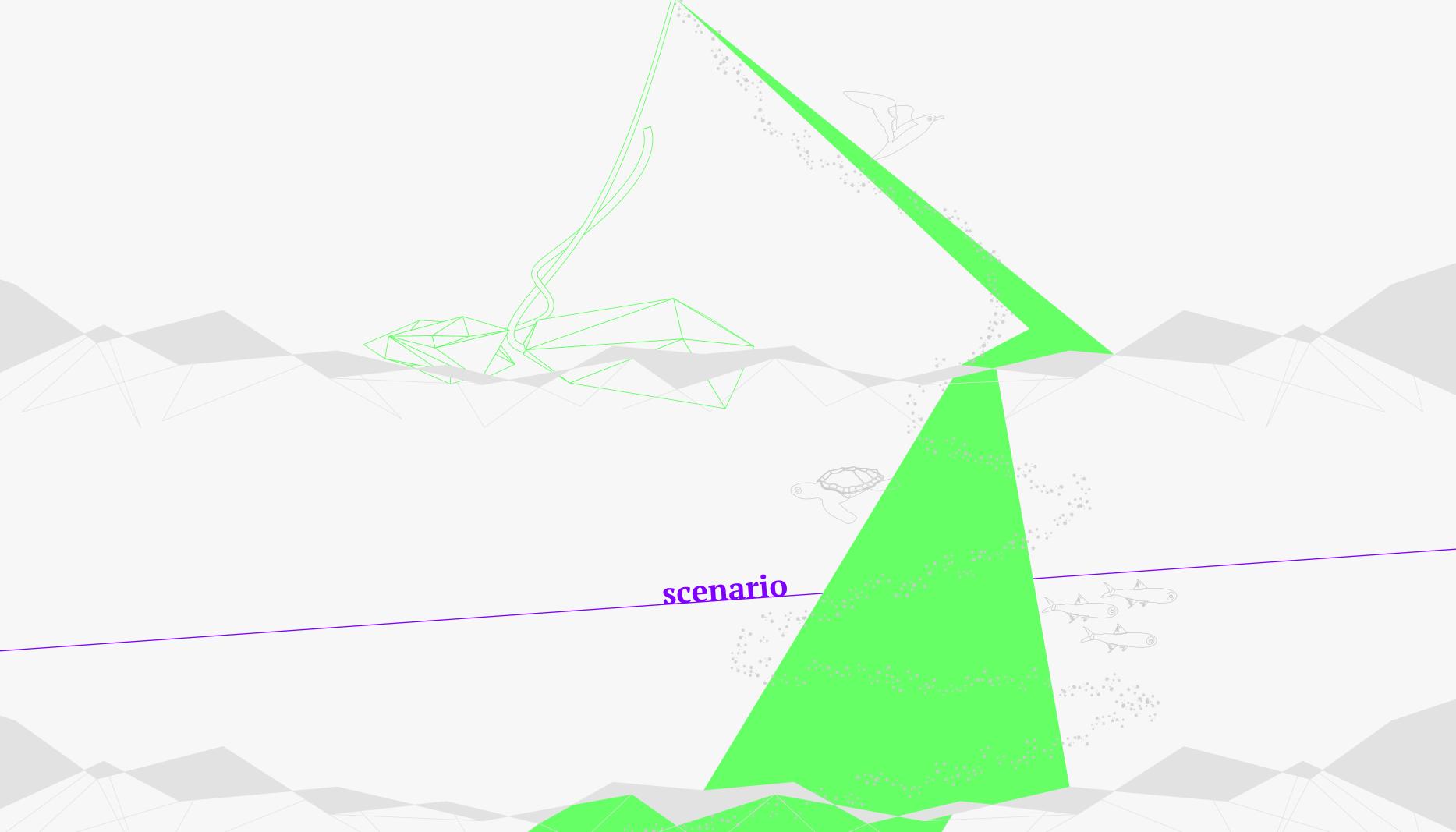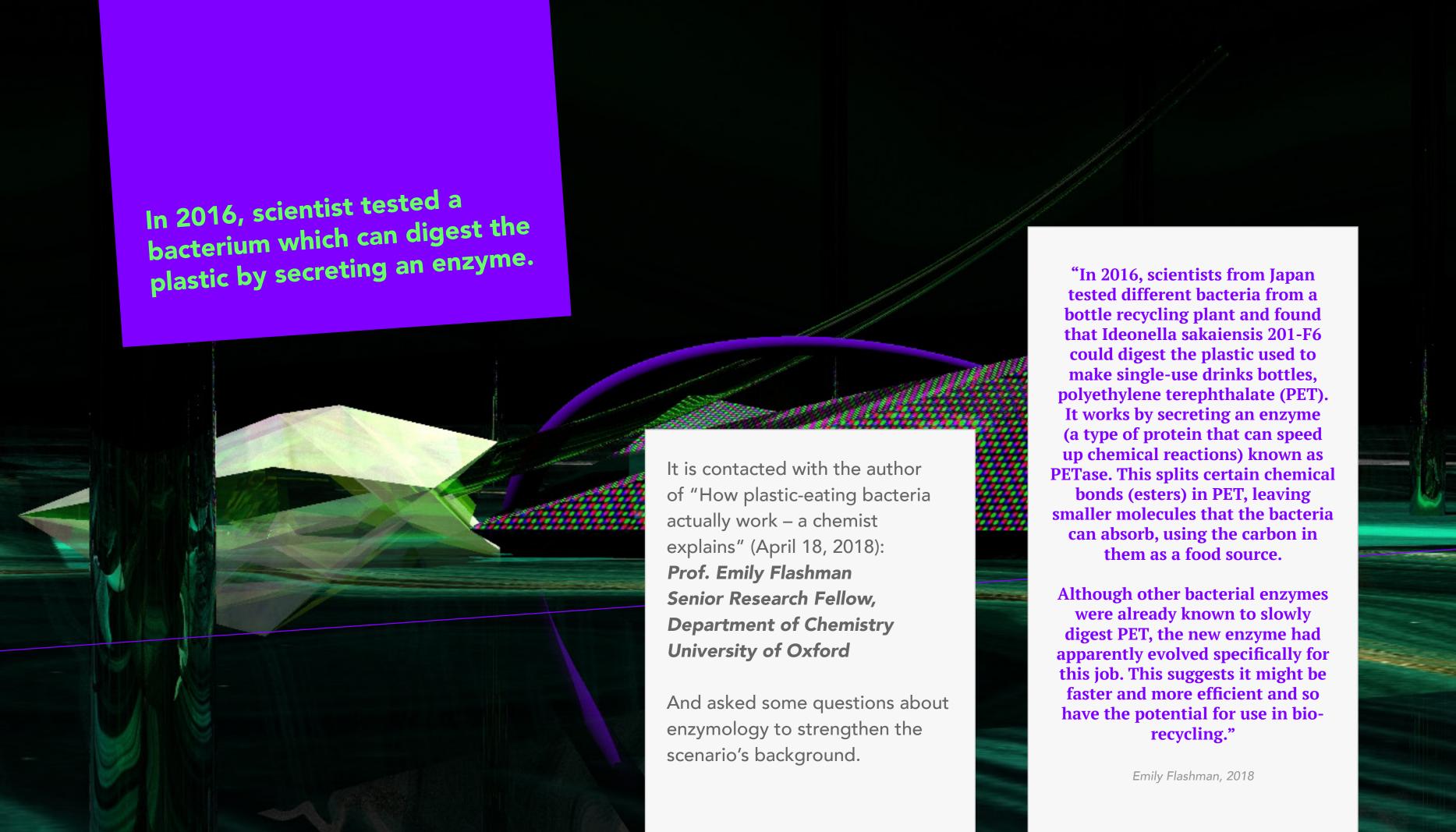
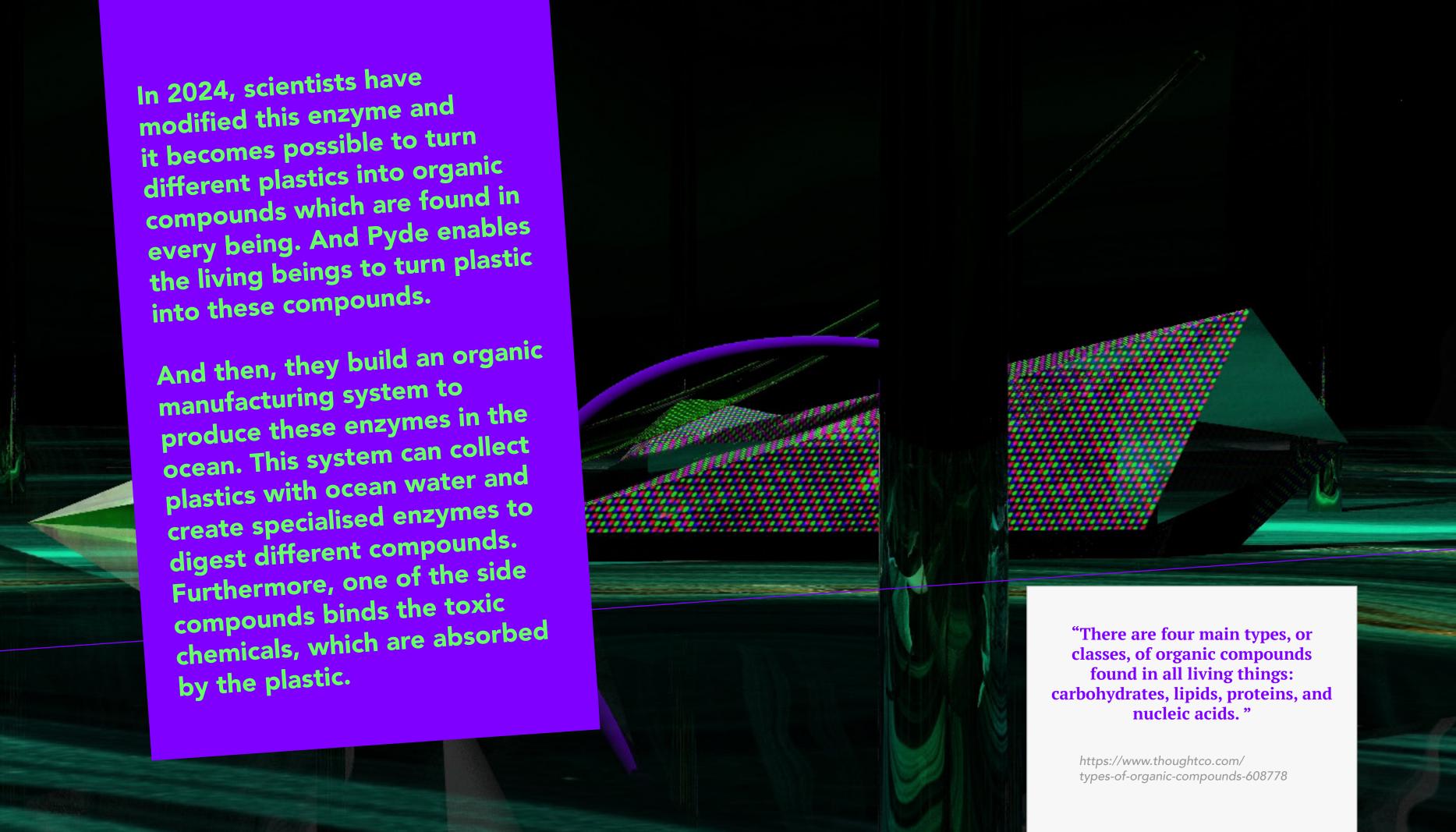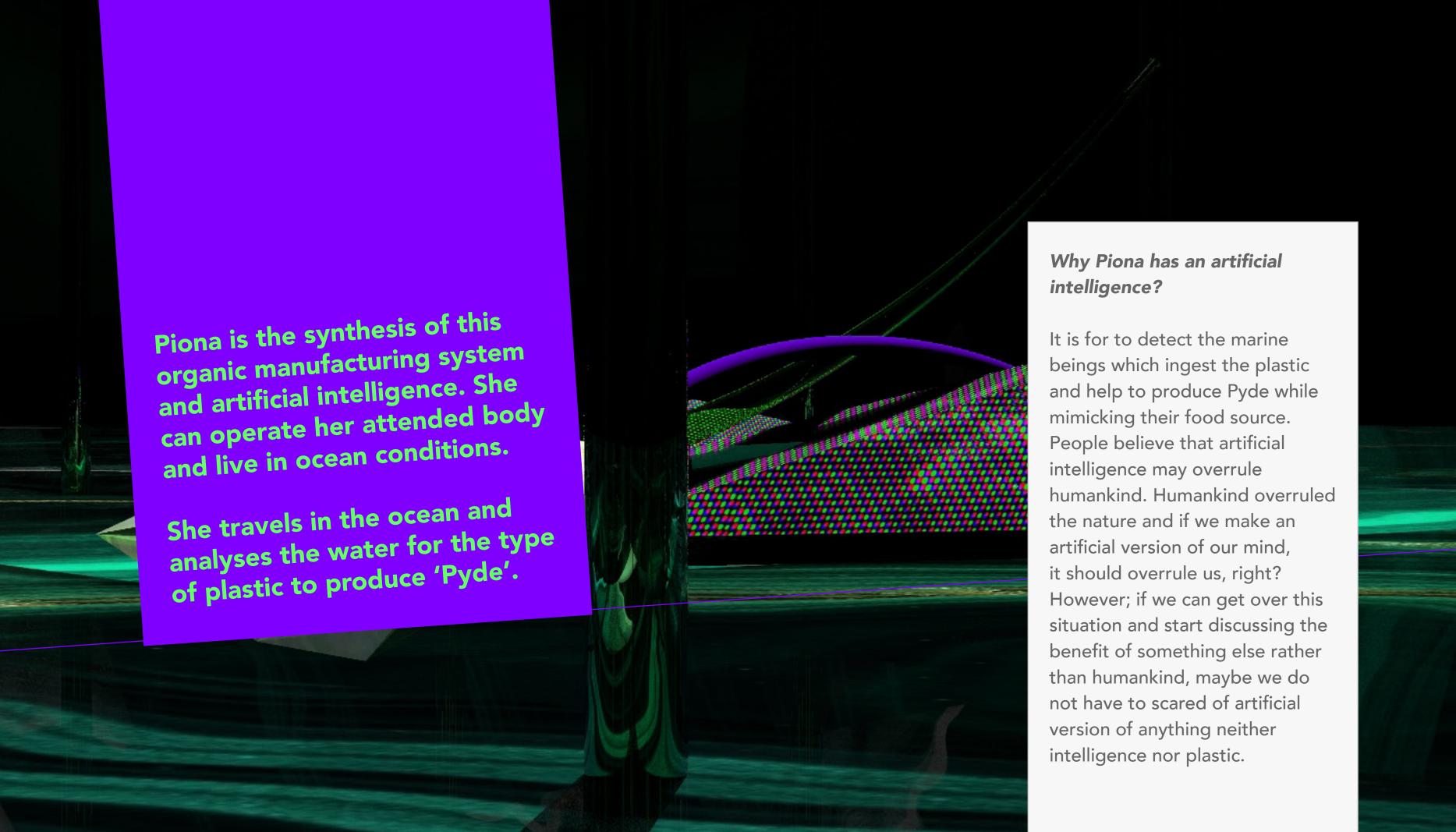*polypropylene toothbrush + octopus*

clay + model making

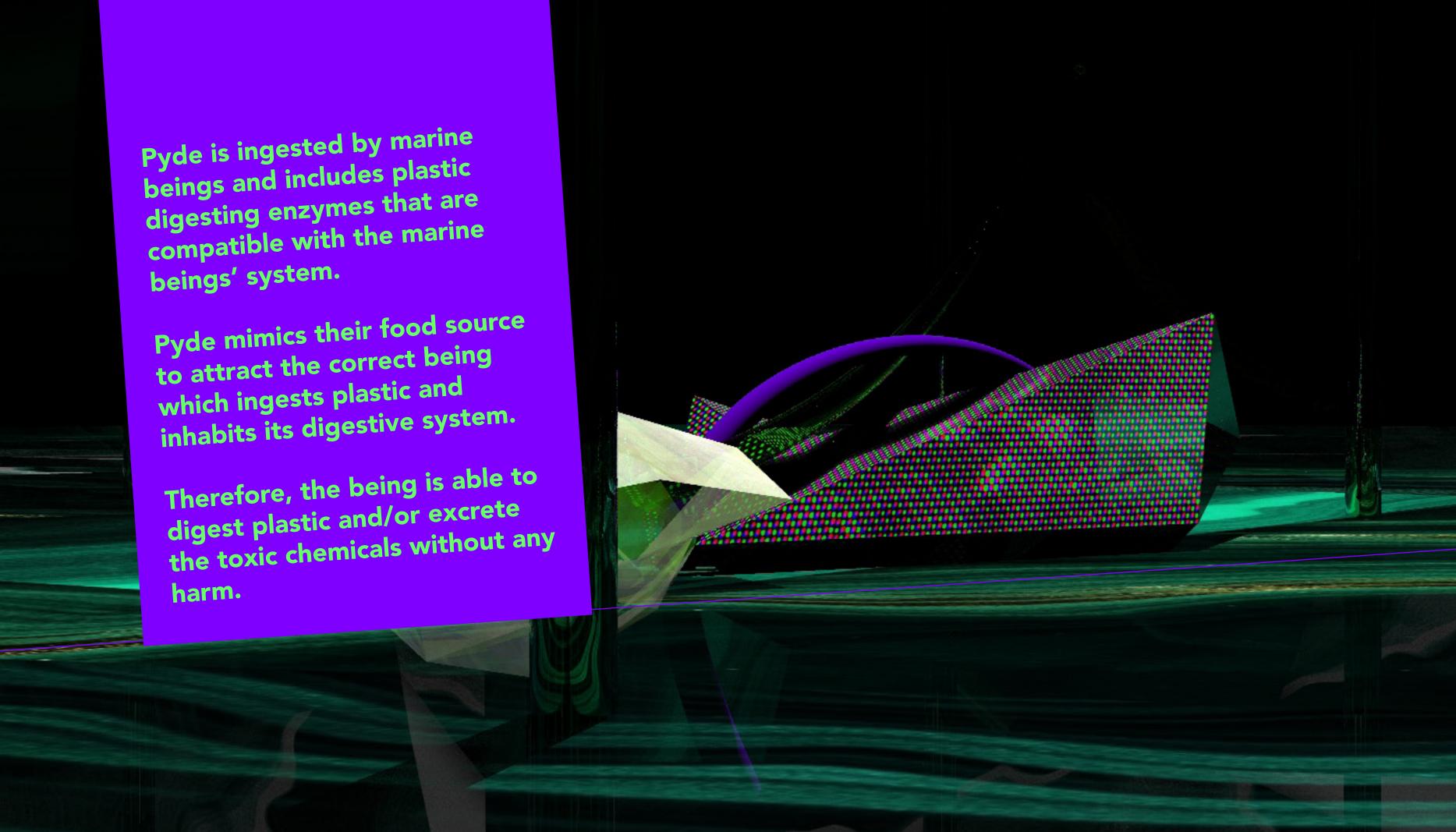## work in progress exhibition feedbacks

The aim, research analysis, and project idea were explained by more than 20 people. It is realised that the evolution of beings with plastic is not a strong narrative for the aim. Therefore, direct relation with plastic and the beings is extracted from the scenario and decided to make a bridge between the material and the being.
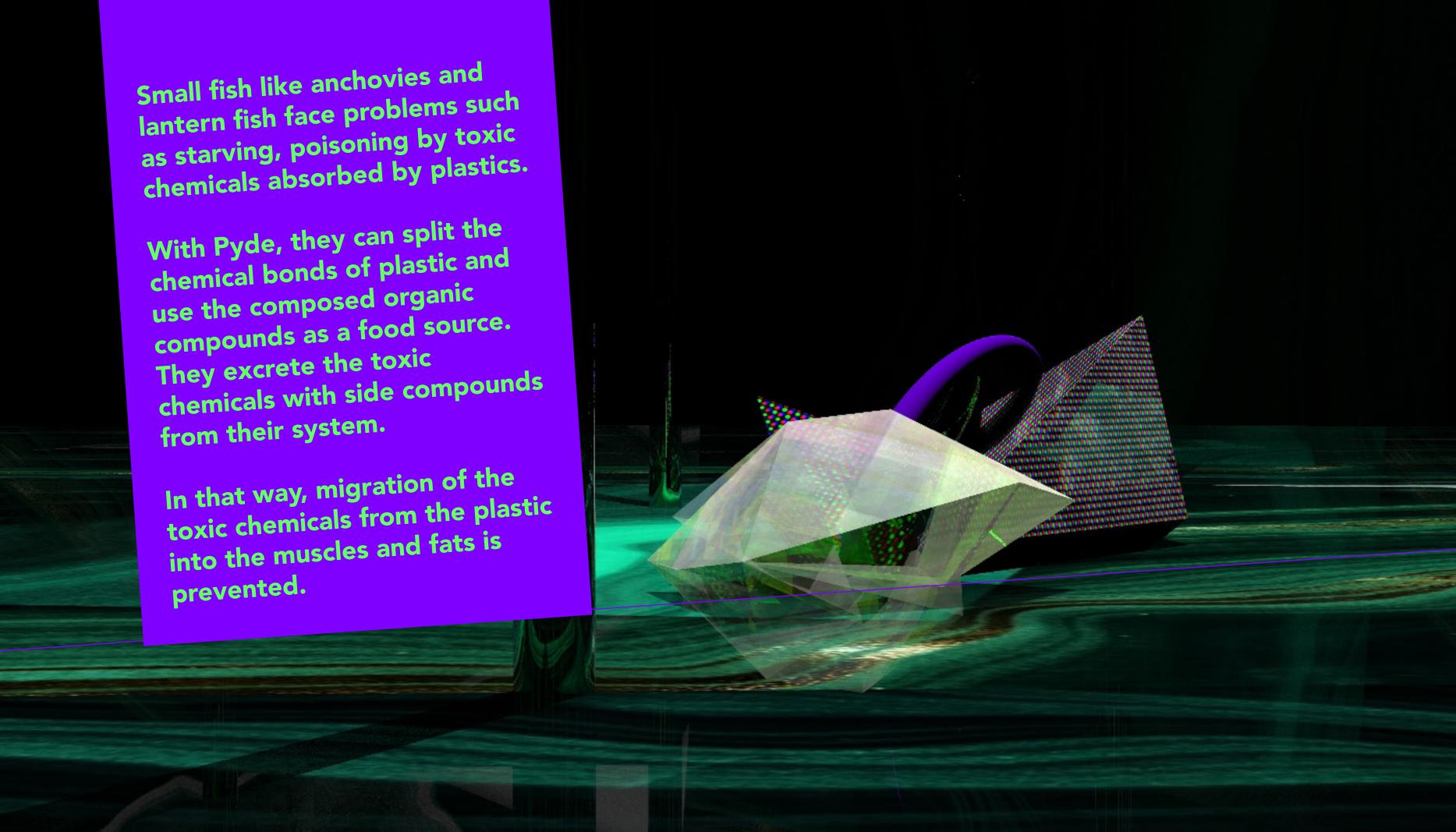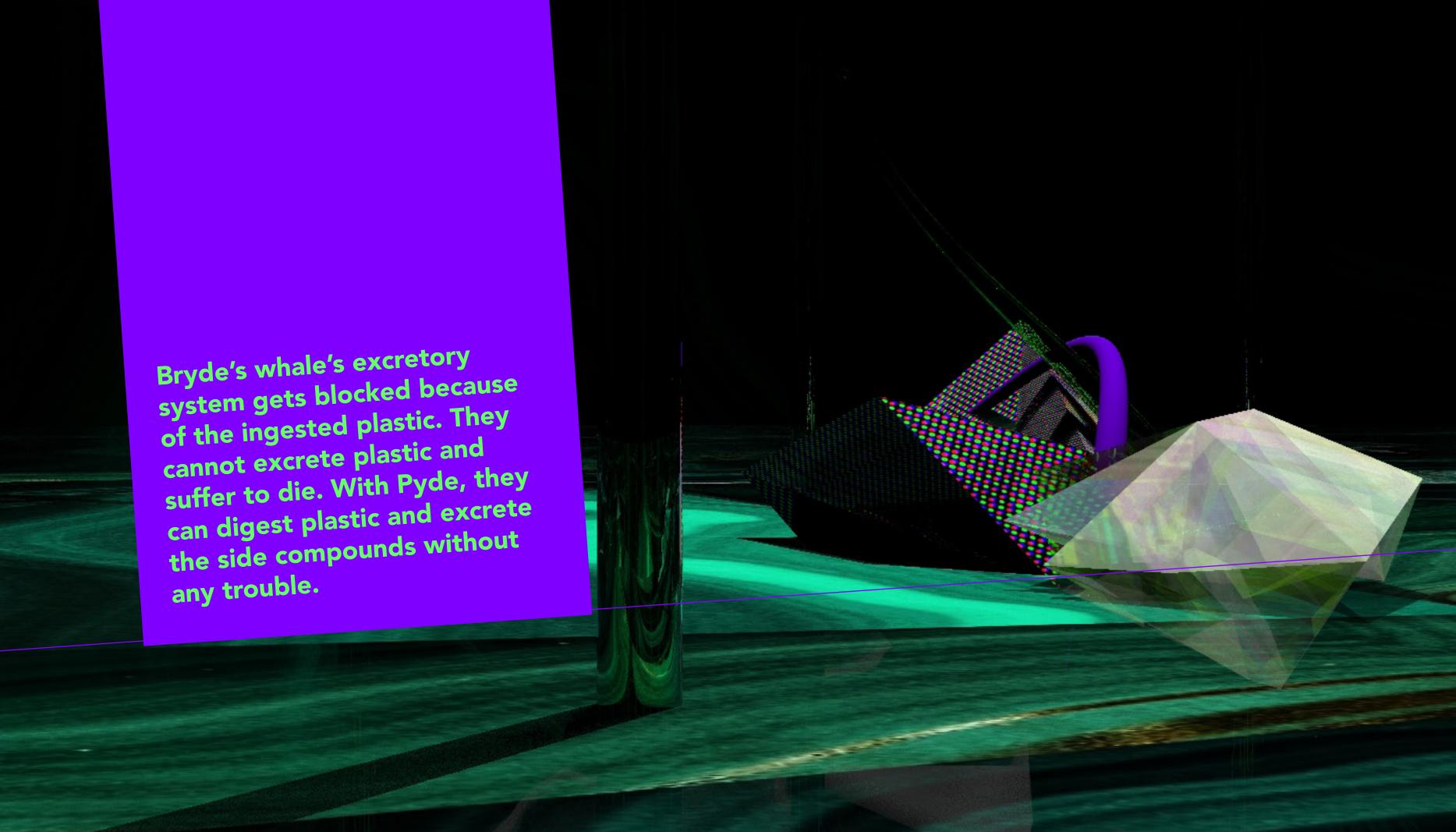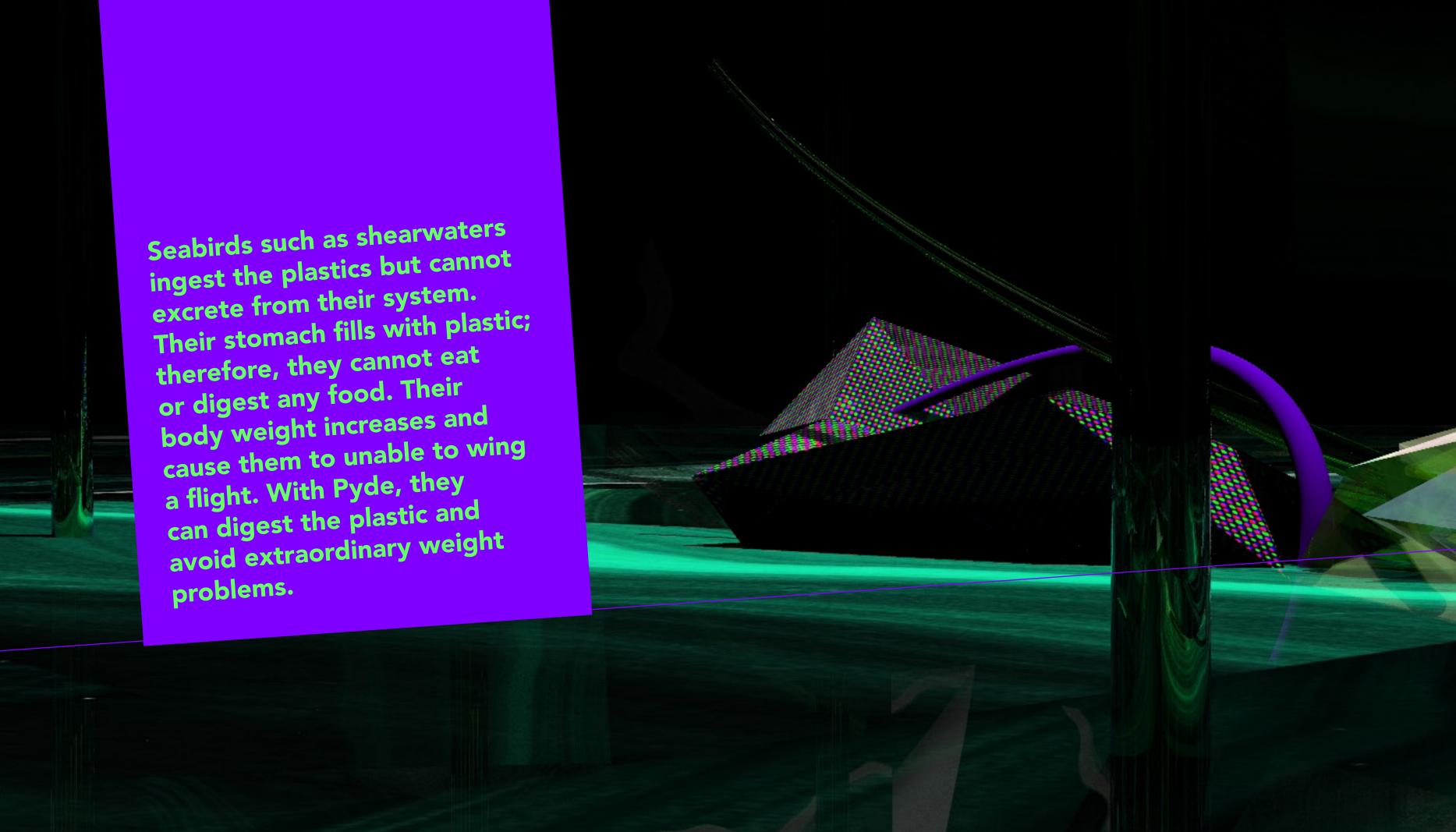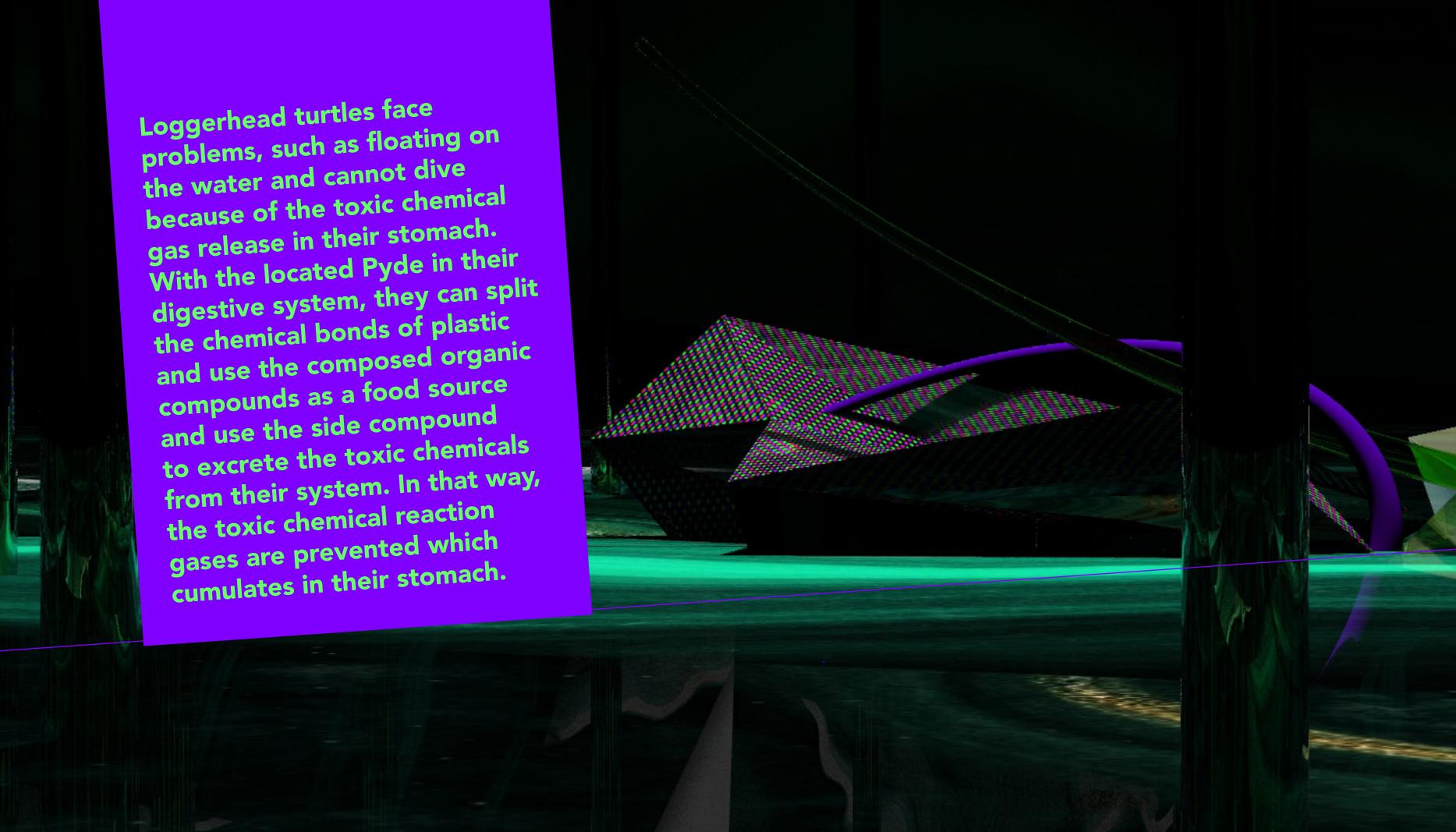
scenario

In 2016, scientist tested a bacterium which can digest the plastic by secreting an enzyme.

It is contacted with the author of "How plastic-eating bacteria actually work – a chemist explains" (April 18, 2018):
Prof. Emily Flashman
Senior Research Fellow,
Department of Chemistry
University of Oxford

And asked some questions about enzymology to strengthen the scenario's background.

"In 2016, scientists from Japan tested different bacteria from a bottle recycling plant and found that Ideonella sakaiensis 201-F6 could digest the plastic used to make single-use drinks bottles, polyethylene terephthalate (PET). It works by secreting an enzyme (a type of protein that can speed up chemical reactions) known as PETase. This splits certain chemical bonds (esters) in PET, leaving smaller molecules that the bacteria can absorb, using the carbon in them as a food source.

Although other bacterial enzymes were already known to slowly digest PET, the new enzyme had apparently evolved specifically for this job. This suggests it might be faster and more efficient and so have the potential for use in bio-recycling."

Emily Flashman, 2018

In 2024, scientists have modified this enzyme and it becomes possible to turn different plastics into organic compounds which are found in every being. And Pyde enables the living beings to turn plastic into these compounds.

And then, they build an organic manufacturing system to produce these enzymes in the ocean. This system can collect plastics with ocean water and create specialised enzymes to digest different compounds. Furthermore, one of the side compounds binds the toxic chemicals, which are absorbed by the plastic.

"There are four main types, or classes, of organic compounds found in all living things: carbohydrates, lipids, proteins, and nucleic acids."

https://www.thoughtco.com/types-of-organic-compounds-608778

Piona is the synthesis of this organic manufacturing system and artificial intelligence. She can operate her attended body and live in ocean conditions.

She travels in the ocean and analyses the water for the type of plastic to produce 'Pyde'.

Why Piona has an artificial intelligence?

It is for to detect the marine beings which ingest the plastic and help to produce Pyde while mimicking their food source. People believe that artificial intelligence may overrule humankind. Humankind overruled the nature and if we make an artificial version of our mind, it should overrule us, right? However; if we can get over this situation and start discussing the benefit of something else rather than humankind, maybe we do not have to scared of artificial version of anything neither intelligence nor plastic.

Pyde is ingested by marine beings and includes plastic digesting enzymes that are compatible with the marine beings' system.

Pyde mimics their food source to attract the correct being which ingests plastic and inhabits its digestive system.

Therefore, the being is able to digest plastic and/or excrete the toxic chemicals without any harm.

Small fish like anchovies and lantern fish face problems such as starving, poisoning by toxic chemicals absorbed by plastics.

With Pyde, they can split the chemical bonds of plastic and use the composed organic compounds as a food source. They excrete the toxic chemicals with side compounds from their system.

In that way, migration of the toxic chemicals from the plastic into the muscles and fats is prevented.

Bryde's whale's excretory system gets blocked because of the ingested plastic. They cannot excrete plastic and suffer to die. With Pyde, they can digest plastic and excrete the side compounds without any trouble.

Seabirds such as shearwaters ingest the plastics but cannot excrete from their system. Their stomach fills with plastic; therefore, they cannot eat or digest any food. Their body weight increases and cause them to unable to wing a flight. With Pyde, they can digest the plastic and avoid extraordinary weight problems.

Loggerhead turtles face problems, such as floating on the water and cannot dive because of the toxic chemical gas release in their stomach. With the located Pyde in their digestive system, they can split the chemical bonds of plastic and use the composed organic compounds as a food source and use the side compound to excrete the toxic chemicals from their system. In that way, the toxic chemical reaction gases are prevented which cumulates in their stomach.

As a result, Piona introduces plastic into the ocean food web and gives a chance to marine life to filter the plastics polluting nature for their benefit.

'Pionism'

noun
The movement which advocates that during the development of humankind, nature should be included in their progress to synchronize nature for its benefit.

verb
'To pionize'
To synchronize nature with humankind for nature's benefit.

pionism

In the process, nature-centred movement is created. Pionism believes that if humankind develops something which is beneficial for its own kind but harmful for nature, it has to be the concern of humankind to reduce its effect in the ecosystem without concerning about its own benefit.

Pionism advocates that humans should also use their intelligence and developments for nature's benefit in order to reduce the human-based problems in the ecosystem. Piona is designed as a result of this movement and the speculative design is used to show how humankind find a new perspective to act for climate change and many other problems.

effects on human society

The project abstract has been shared with people from different fields, psychology, sociology, engineering, design, literature, pharmaceuticals to collect feedback. This will be used to analyse the opinions and reactions to continue with this topic.

Man should not adapt nature to his own order. He must not forget that he is always a part of nature and that it is stronger than himself. Man's mastery of technology and systems may allow him to use nature in his own interests, but nature always clears itself from the leftovers of the human race in its own way - mercifully or mercilessly.

I think the project is fascinating and hopefully the basic science is solid enough for it to be more than wild speculation. It gives hope in a hopeless world. The existential threat of climate change and the parallel reduction of biodiversity seem irredeemable - but maybe, just maybe . . . with projects like this there is some chance that things could at some future point improve.

Realizing that it is wrong to expect from nature to keep up with the development of society and humanity, and creating an artificial adaptation, i.e. synchronization, in order to find solutions to this situation seems very encouraging. About environmentally friendly products, it is questioned whether these products are insufficient. And it is emphasized that the product has a different quality than an environmentalist product. Besides, if adapting nature to development means disrupting the natural structure of nature, it questions what consequences this may have. Artificial adaptation of nature we know with synchronization will ensure its existence, but what will it lose from its naturalness?

I humbly believe that Piona is an act of manipulating the progress of nature and I can happily embrace this idea. After all, humanity is the main reason for degradation of natural life and disruption of natural balance. Current acts on helping the nature are not beyond reducing the rate of distortion, in another way, softening the negative trend. Why not start a healing process for the natural balance, like what Piona would do, and cause for a positive trend instead of continuing with lesser negative trend and hope for nature to find a cure for itself?

...Improving nature as a concept sounds a bit patronizing to me. So, it is safer to say, for example, to interact with nature in a sustainable way and to preserve diversity in nature when you present your ideas. In other words, I believe that nature itself is something in constant change through evolution and human race should not be in control of making nature improve or degrade. It is more about undoing a mistake made by people - plastic pollution - in order to preserve diversity in natural life, species and ecosystems, which you should focus on in your description. ...In my opinion this is about neutralizing the cultural (artificial) impact on nature and letting it exist by itself by its own laws...

D. OZEKICI
Product and Service Designer

R. ORWELL
Tutor + Writer

T. ÇEVİK
Product Designer

O. ŞANAL
Mechanical Engineer

A. EVRAN
Psychologist

scenario abstract feedbacks

It's really fantastic.
You designed a creature which is called Piona, and it has artificial intelligence.
And it is a she.
And it's not clear how it reproduced.

- It grows in a laboratory environment. Then humans release it to the ocean. It does not reproduce. It produces something called Pyde.

Isn't it too much trouble to produce Piona, what if we can produce bacteria directly?

- Plastic digesting bacteria has already existed since 2016. Let's say we produced the bacteria, and released it to nature, these bacteria can digest any plastic which humans may not want it to be digested such as

infrastructure, transportation, communication. Piona is the bridge between the plastic and bacteria, it enables them to digest the plastic only in beings' digesting system. Furthermore, this bridge should be under control, otherwise, it may cause harm to human's ages of development and only for humans most probably. That is the reason its speculative, of course, we cannot be sure.

So, you develop and produce the bacteria via Piona and adapt it to the creatures.

E. MUTLU
Electrical and Electronics Engineer

A very important topic. I believe that people should learn how to live with nature, not to rule nature. However, we, humans failed at this and this is a solution for it.

A. GENÇ
Pharmaceutical Field + Sociologist

... People who has influence should be also included, and this requires a strong plan. These people may also be the same people who are supporting recycling campaigns and polluting the ocean at the same time. Since Pionism will be a brand-new movement, getting the idea known will be the most challenging job.

- Since you already started giving advices, I presume that you would support the movement...
Haha, yes I would support. But you can say that I have some doubts about the process. I can only decide it when I'm aware of the technical details of the project. For example, how else will this solution effect the nature? Will there be any side effects? Otherwise, I don't say that you can not mess with mother nature because we have already messed with mother nature. If there is a risk-free way to reverse this back, this should be our responsibility.

- Well said. We can't know if there will be side effects. Our aim is here to make people think and discuss

about this subject. Maybe under the movement of Pionism, we will only accomplish to adapt the nature to people, even It's not possible to reverse what people have done to nature.

... What will be the aim of this movement in the perspective of humans? To make human species live a little bit longer, or because people actually care about the nature?

- Pionism will stand for people to realize everything they have done by now has only been for themselves. It will tell people to do something only for the favor of nature.
I think it should exactly be like that, only then this movement can be meaningful. It wouldn't make any sense if people support this movement because of fear of extinction someday. As you can see, subject is very available to speculate. Even I do have tons of questions and thoughts right now. I would like to read the full paper when It's completed.

K. YENİPAZAR
Aerospace Engineer

scenario abstract feedbacks

From the feedbacks, it is believed that the main goal is achieved about provoking people about Pionism. The project started with the eco anxiety and climate crisis. As it is mentioned at the beginning, changing the perspective about these problems in society and including nature was the main concern.

scenario abstract feedbacks

The feedbacks helps to create a better understanding about the society and encouraged to express and develop a narrative language while designing something speculative.
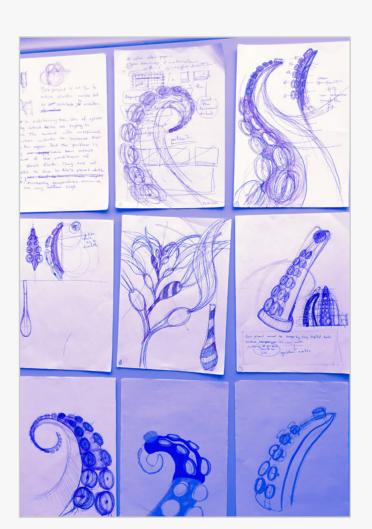
Pionism provokes that humans should also use their intelligence and developments for nature's benefit in order to reduce the human-based problems in the ecosystem without being scared of the idea to interrupt nature. Because we have already done it for our benefit, maybe it is time to do it for nature's benefit.

why industrial design field should include Pionism?

The moment nature-centred is formed, industrial design is exceeded its boundaries. Designers should think about its boundaries again in order to overcome this eco-anxiety, climate crisis and many other problems. We need to work on 'beneficial for human (?)' perspective.
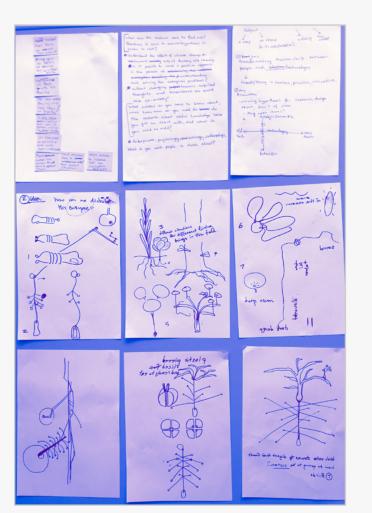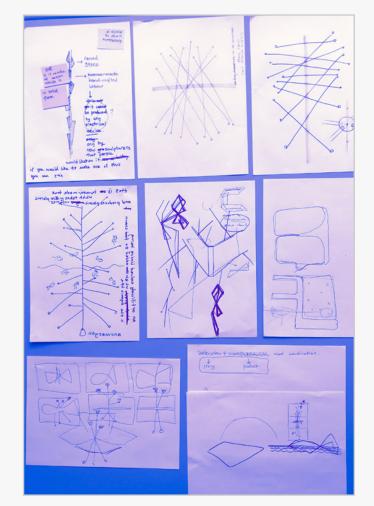
design process

design process

design process

design process

design process

Natural

Uh

W-Oo

Oh

R

F

S

L

D

Ee

Ah

M
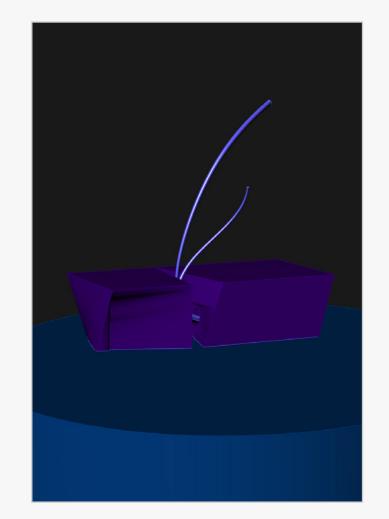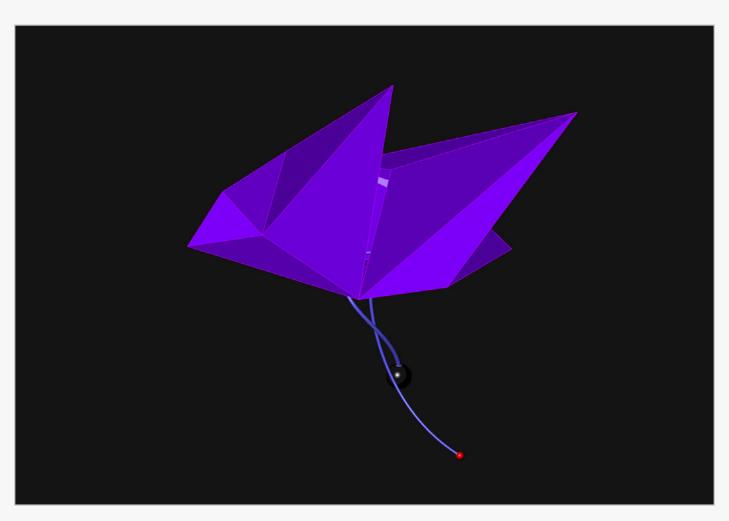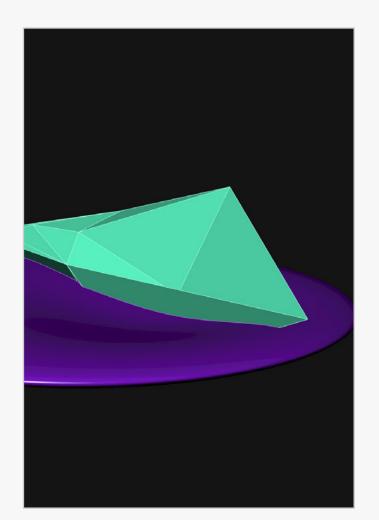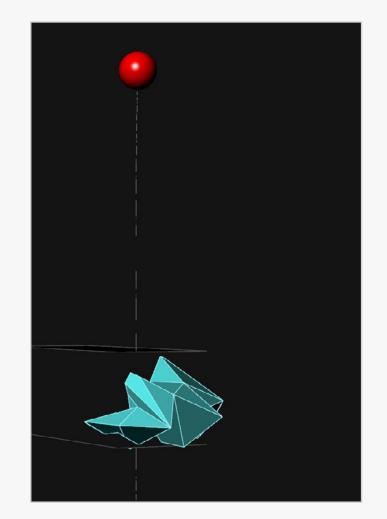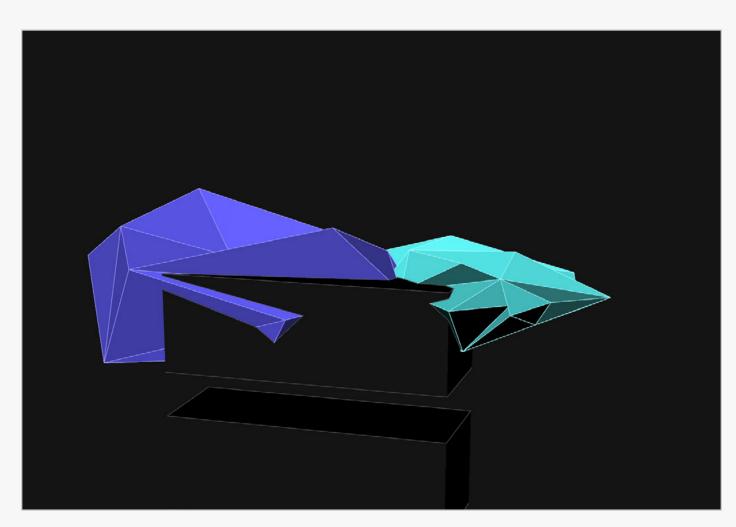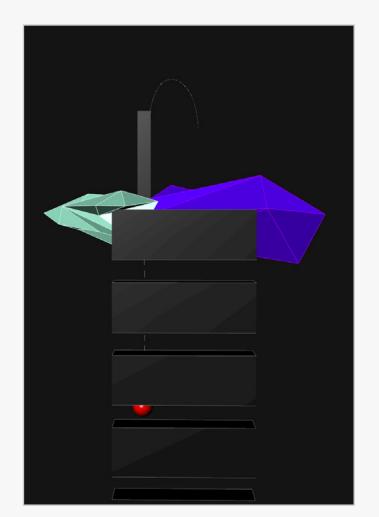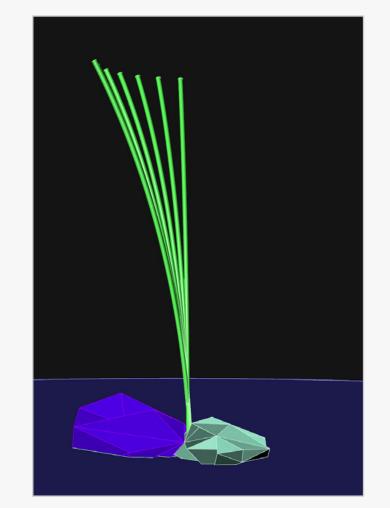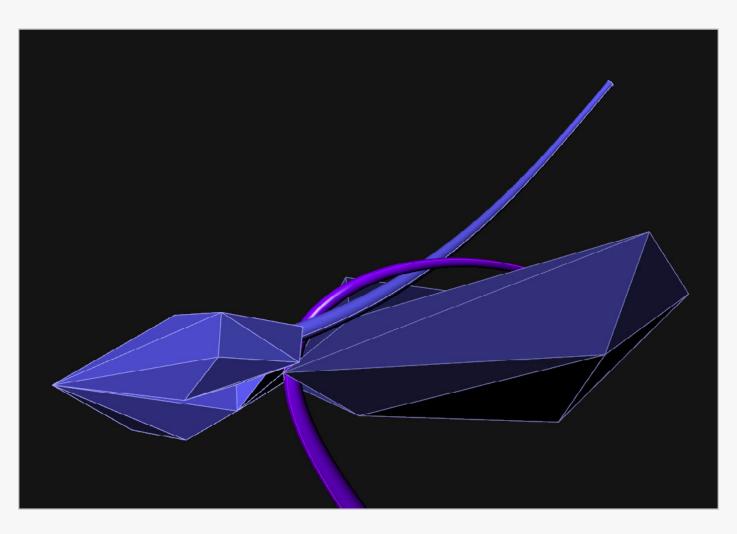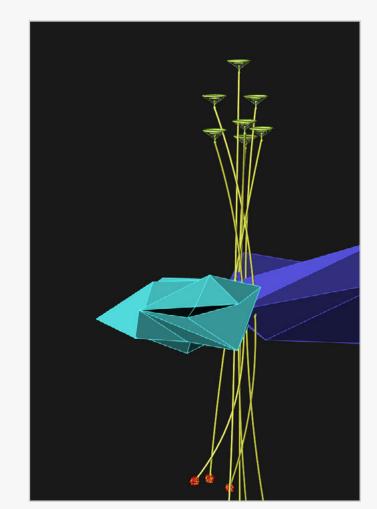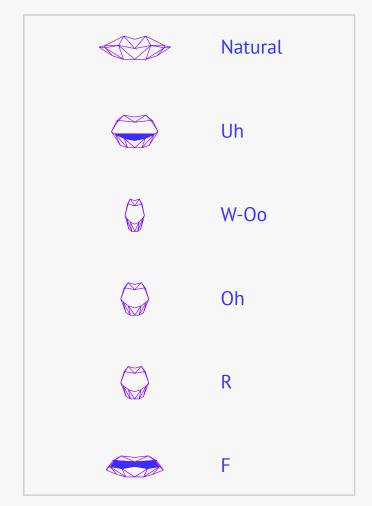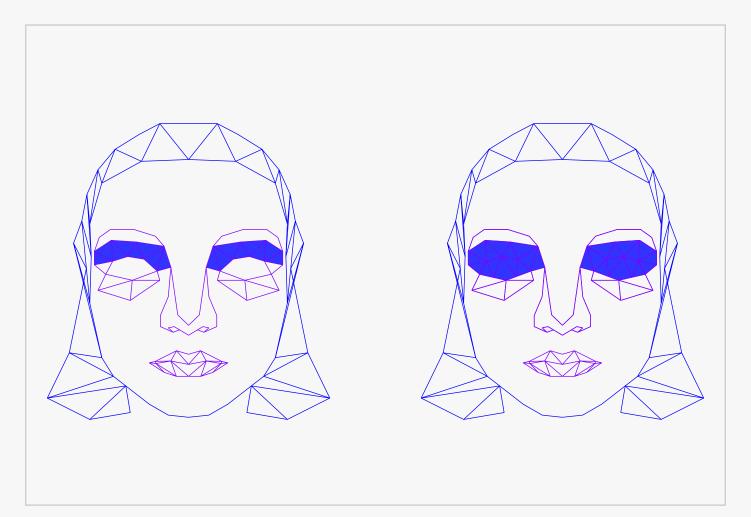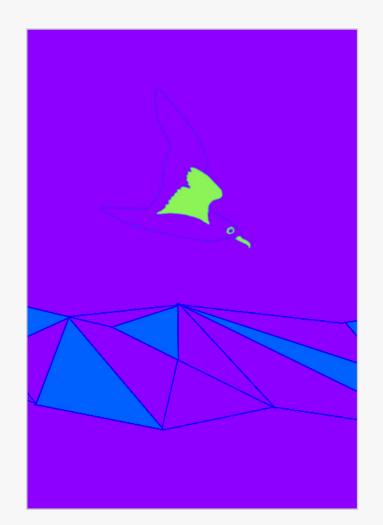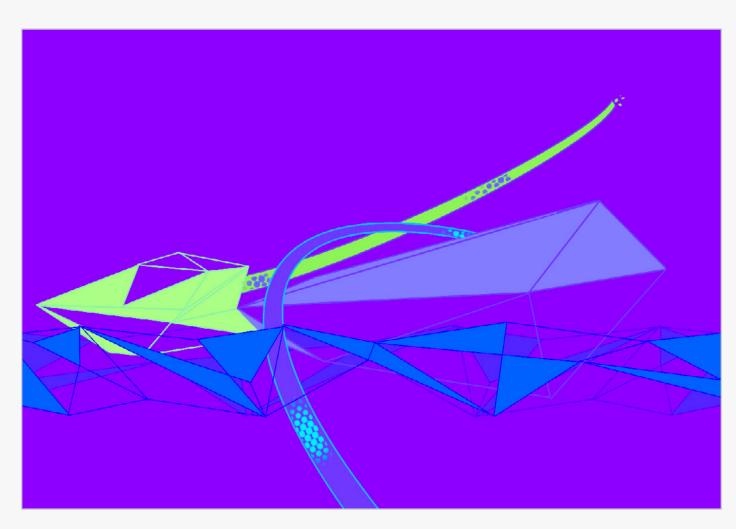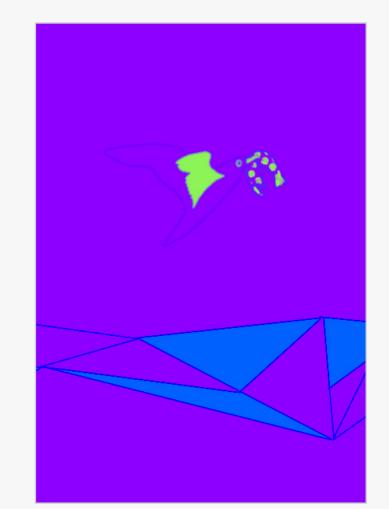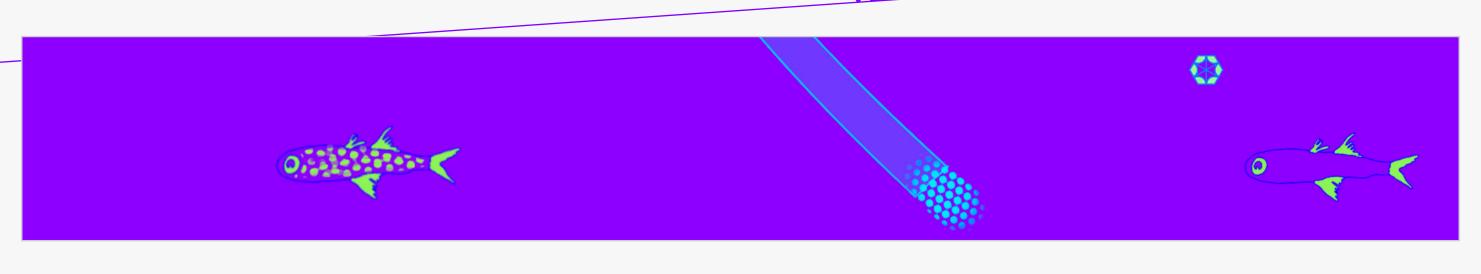
video narratives
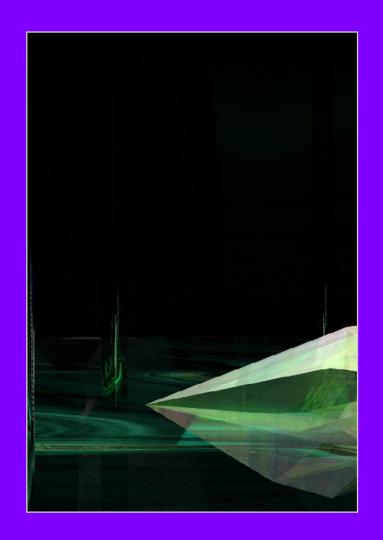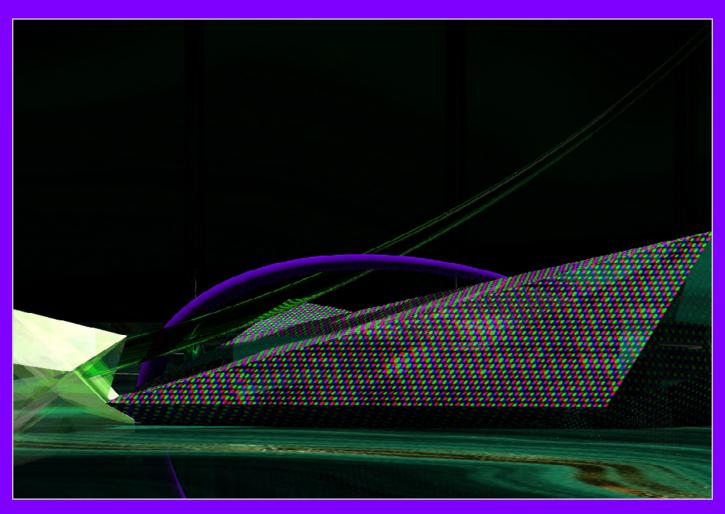
video narratives

piona

piona

publics:
kentish town city farm

London . UK . University of the Arts London . Central Saint Martins . MA Industrial Design . Publics Project . 2019 . Socially Responsive Design . Kentish Town City Farm
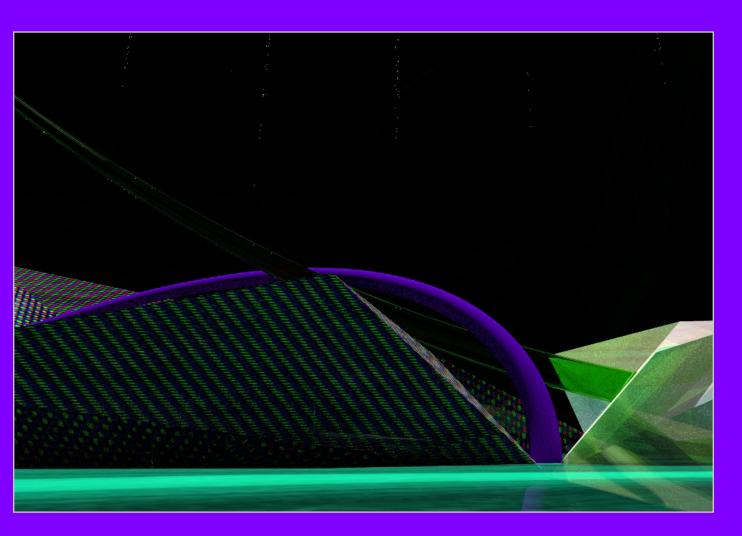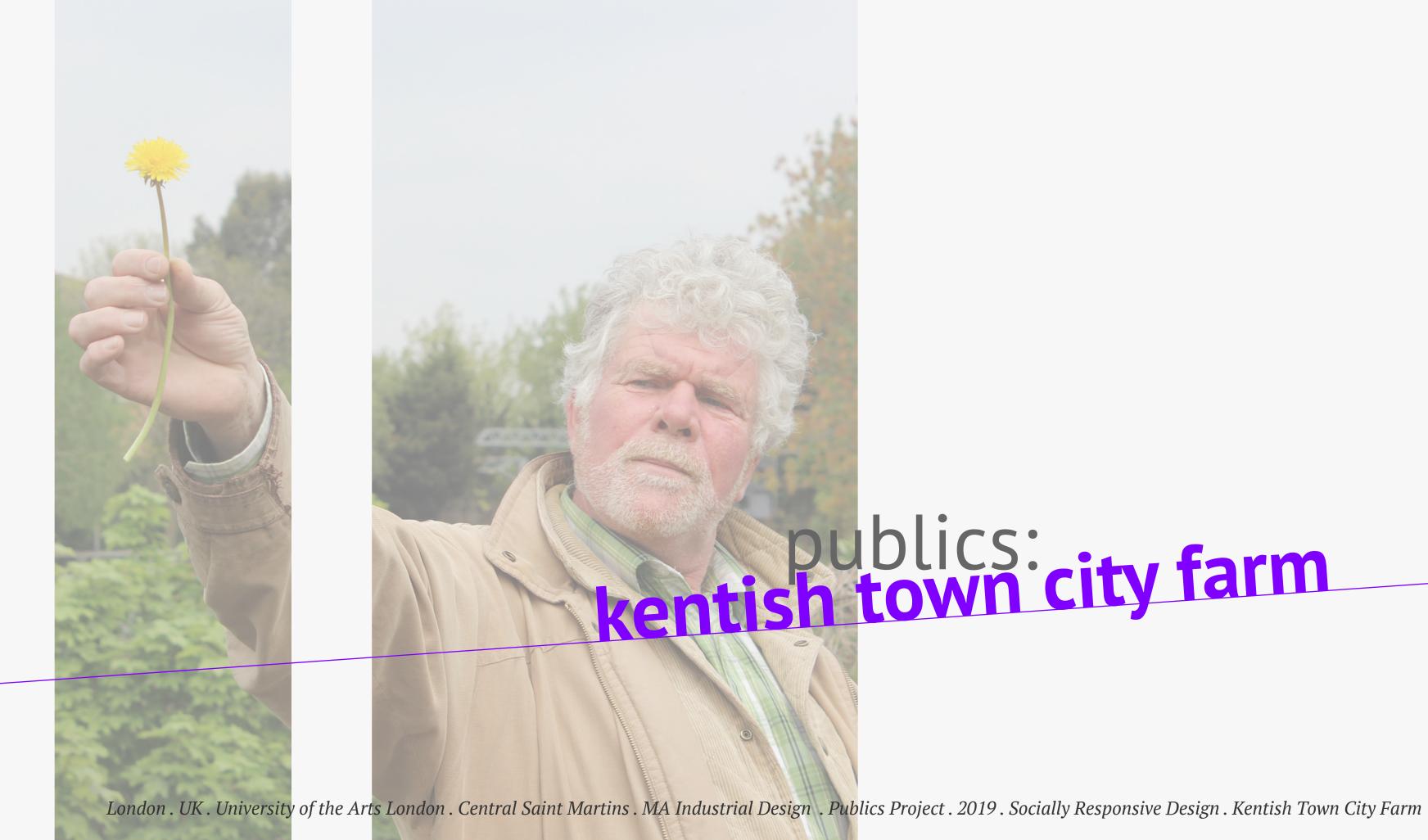
In this project, in response to societal issues and the dynamic challenges that require new ways of thinking and doing is experienced.

Collaboration with
Kentish Town City Farm (KTCF)
Camden Municipality
CSM students and tutors

team

Alberto Giordano
Mengshi Qiu
Jade Echard
Ruiqi Deng
İzgi Güven
Edward Godoy
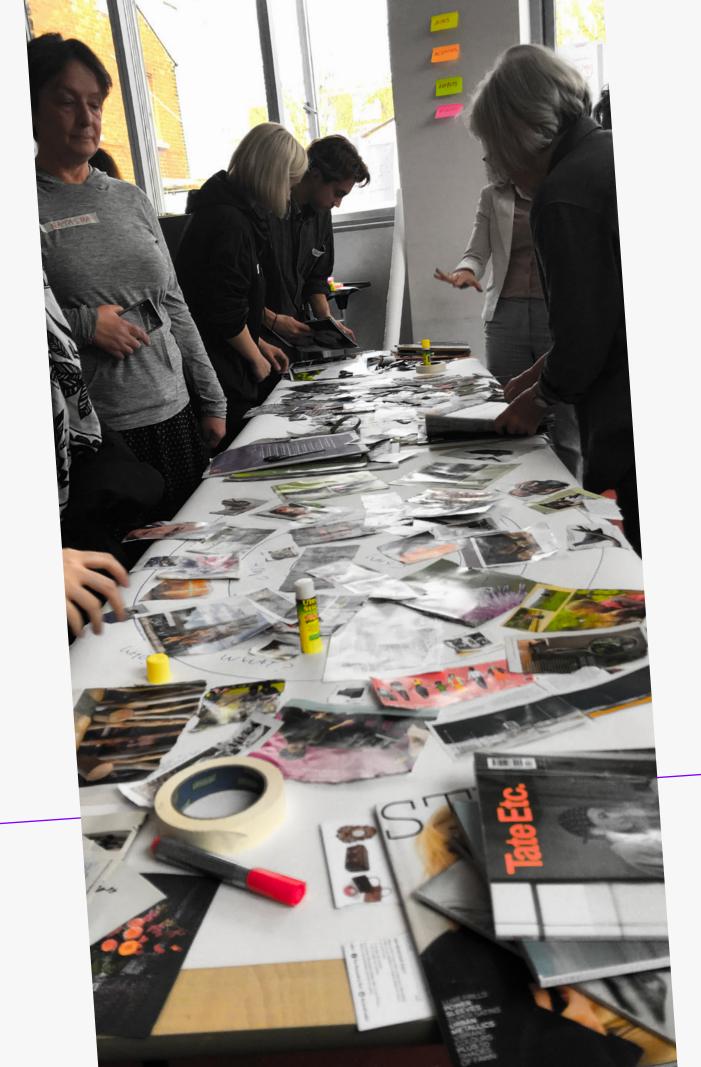
"Design which takes as its primary driver social issues, its main consideration social impact and its main objective social change."

(Gamman & Thorpe, 2006)

socially responsive design
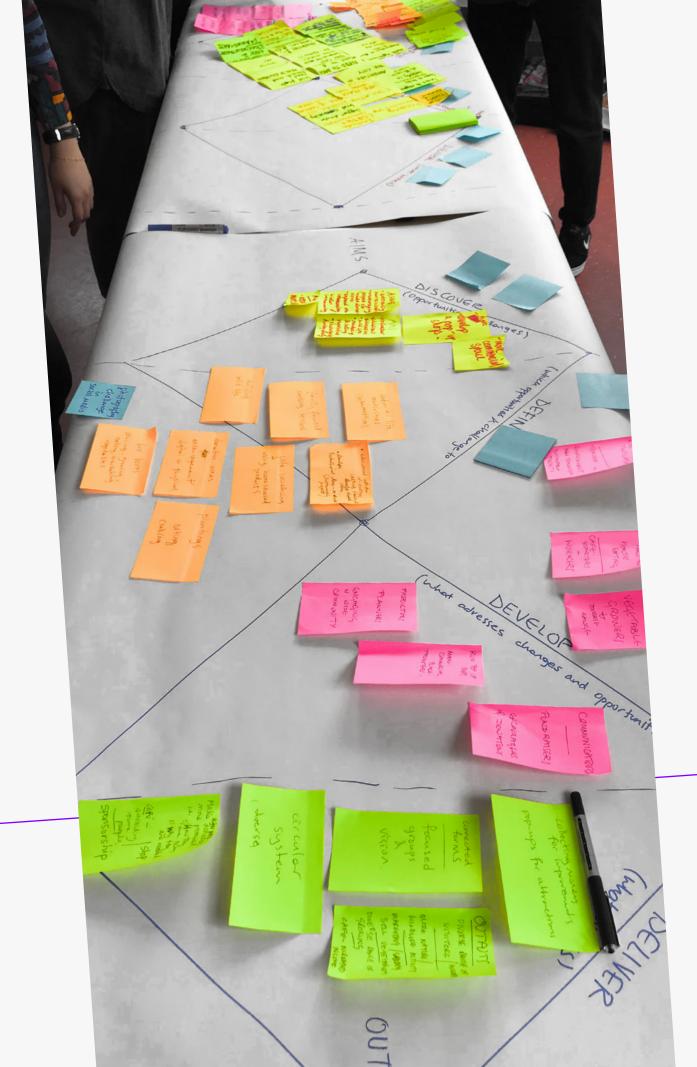
In this first step, the opportunities and challenges with using different design methods such as workshops, shadowing, volunteering, interviews, surveys, observation, activities are explored.

discover

scope . workshop

Old magazines are used to collect opinions to answer 'why, how, who, what' questions. Pictures are choosen, cut and stick from magazines to the paper which are interbedded circles for these questions.
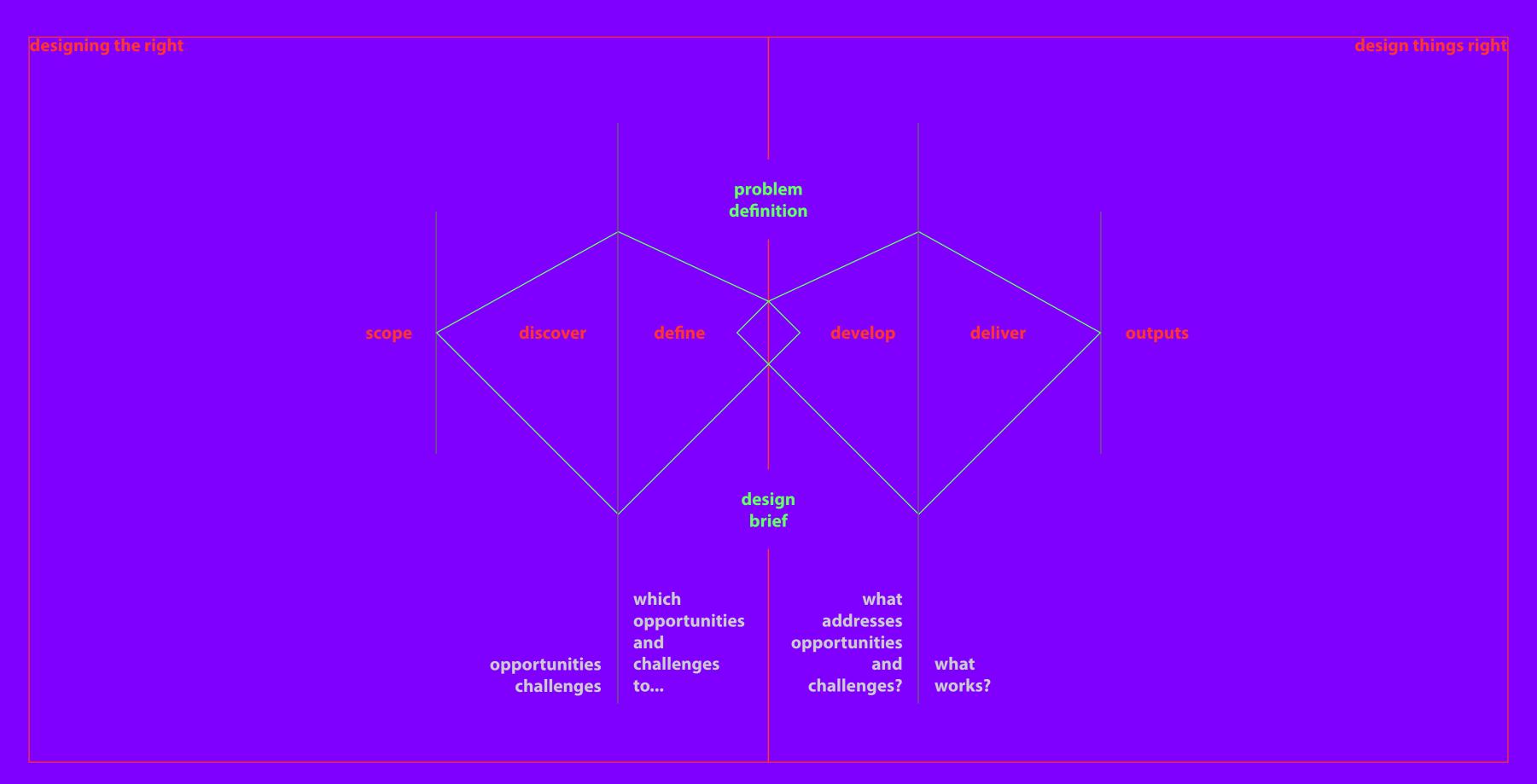
scope . workshop

Thirdly, it is talked about the ideas which are came up with, and each person noted the thoughts and stories according to the aims, actors, activities, and outcomes. As a next step, these notes are placed to the diamond shape of the design method and talked about the priorities and their interactions.

One of my concerns after first workshop was that we were not able to have enough knowledge about the problems because we focused on the solutions. But I realised that it was helpful to shape our structure of the project. While we are discussing as a group, we realised that there are different priorities about each problem and solution. Therefore, after the workshop, we realised that we should focus more on the problems and get more knowledge about the current process and experiences in Kentish Town City Farm. We found out that there are some management and communication issues between the stakeholders. While we are observing, volunteering, interviewing or mapping we should be careful about the wording and the correct environment for the actions to get the best answers from them.

scope . workshop . reflection

problem
definition

scope   discover   define   develop   deliver   outputs

design
brief

which
opportunities
and
challenges
to...

what
addresses
opportunities
and
challenges?

opportunities
challenges

what
works?

design process - double diamond

scope
aims

problem
definition

outputs

volunteering
.
may day
.
market
stakeholder
interviews
.
online
survey
.
farm
benchmark

observation
immersion
shadowing
.
creative
engagement
.
mapping
case studies

aims
actors
values

challenges
cards

stakeholder
map
.
persona
cards

key aims

user
journey
.
future briefs
.
possible
briefs

briefs

prototyping

workshop

workshop

workshop

presentation

design
brief

discover | define

develop | deliver

design process - double diamond

Collected information from the first workshop is discussed and organised, and it leads for the next workshop. This workshop contains three activities. As a start, the standout values according to the feedbacks are written down.

Firstly, all the aims and outcomes are collected then, the group aims are discussed. Eight main aims are determined and two activities are created to verify and improve the data. The first activity focuses to determine the main values. In the second activity, getting more information about the preferances is aimed. In that way, the reasons, problems and the discussions behind these values are become more clear to understand.

discover

Before designing the third activity,
all actors from the first workshop are
written down and a stakeholder map
is created. It is tried to connect the
stakeholders while thinking about their
interests and motivations. Then the same
method is applied into the third activity.
A map which is devided into the internal
and external stakeholders is created.
The circles in the centre is drawn to
reflect the strong and the weak relation.
Moreover, the design process is planned
according to the double diamond
methodology.

discover

"

Starting the discovery part of our double diamond
process, we had to discover the situation we were in.
From the 1st scoping workshop, we analysed all the
data and pieces of information that we gather and
create over them the 2nd workshop. The purpose
of this one was to come back to the community and
validate the information we got. Through two different
activities, we asked the workshop's participants to
prioritize the values that the project should have and
to prioritize and give value to the aims we should
focus on and follow.
The two activities designed for this were simple
games/tools that would allow us to pursue our aim.
The first one consisted of a metaphorical thermometer
in which all the values were arranged from the "cold"
ones, less important, to the "hot" ones, the most
important for the farm and its future.
The second activity was, instead, a planting flower
game. Each participant had three flowers and he was
asked to plant it in the three pots corresponding to
the most important aim that he reckons the project
should focus on. The more we also engaged with the
people working on the farm and the volunteers we got
to know all the realities that were and are connected
to the farm and who we should talk to.
"
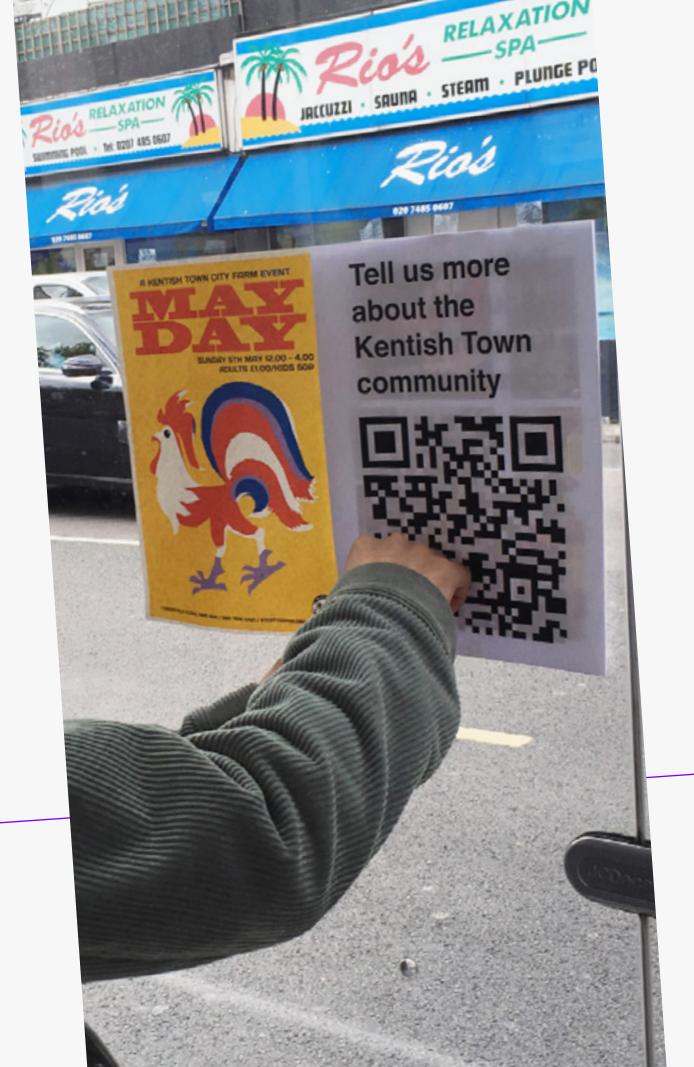
KTCF Report
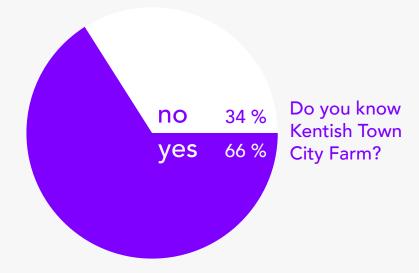
group . reflection
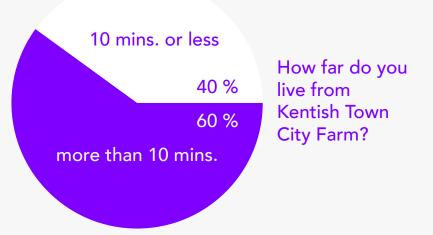
discovery . workshop

Second workshop couldn't be runned as it is planned because of the low number of participants. However, lots of information are collected from the KTCF staff and community members without the activities without the need for creating an artificial environment to get the information.

no 34 %   Do you know
             Kentish Town
yes 66 %   City Farm?

10 mins. or less

                40 %   How far do you
                        live from
                60 %   Kentish Town
                        City Farm?
more than 10 mins.

surveys

" The first tool we tried to achieve information from the residents around the
city farm was an online survey. This type of survey would not let us get detailed
thick descriptions of the local people but would already give us a general
overview."

KTCF Report

interview with farm staff

Chris, farm staff and educator, gave general information about the farm. He talked about the biggest problems and the main values of the farm. Then a report is created.

Gardening Tools Area

This area contains gardening tools and some chopped pine-tree. Only half of it has a roof. Because few years ago half of the roof collapsed, and they removed it. Therefore, if its needed, roof can be added.
KTCF has connections with other associations such as Kings Cross. KTCF lend their tools when they asked for. With the reorganisation, it has a potential for other purposes.

Questions
- *Which associations are you connected with?*
- *How the borrowing process works?*

Animal Feed Barn

When the animal feed arrives from the gate, they stock them in this place, and they are distributed from this area to the farm. It is important to keep the place dry.
It has a potential for other purposes.

Questions
- *How often and what time does the animal feed arrive and how they are distributed?*

Accessible Gardening Space

This space is founded by Camden Council for people who use wheelchairs. Space has pathway and the height of the plant base structure arranged for easy access.

Contaminated Areas

There are two main polluted area in the KTCF.
The biggest one is located in after the horse riding and bee hives. This area has a huge slope and contains unhealthy chemicals for all creatures such as mercury. It has a potential to build something and impossible for gardening or soil related activities.
The second area is located next to the goat slope area.
City Manager has the documents about all the polluted areas and their analysis.

Pond

This pond is made by Chris and he tries to create an ecosystem inside the farm. In that way all the plants, animals and the other living creatures can get benefit from it. The frogs come to the pond only in March to "to get married" and in other times they travel to the other places rather than the farm. The places they come from is going to be the new housing area.
They do not want fishes at the place because they eat the wild life creatures in the pond. Chris also wants to preserve the space as it is behind the pond to keep the wild life in there.

Sheep Hill

The doors keep locked all the time to avoid any harm between sheep and children who try to get inside.
Sheep needs grass and the grass needs a flat surface to grow. Slops are not suitable for grass to grow because of the animal movement and the rain.
Wild garlic grows in the farm which is sold in Borough Market for 80 pounds per kg.
"This hill is considered as a new pathway for the new housing to create an alternative route for the residents" which does not welcome by the farm and the visitors.

Arch

Back of this arch, after the fences is the new housing area. In this area, "Japanese (similar to bamboo) plant" grows and has a really good strength as a material, but it is really hard to remove from the soil. That's why to remove these plants for the new housing, they need to use harmful chemicals.

Gardening Space (Pathway)

This area has a potential for gardening but not using efficiently. At the moment, most of the plants are flowers. Eatable plants are not taking care of.

Gardening Space

This area needs arrangement and organisation to use its maximum potential. The cabinet is made by Chris and there is another greenhouse in the back of the space.

Horse Riding Front Side

This place also has a potential for other purposes. The car belongs to Simone and It does not work, and they do not have any attempts to get rid of it at the moment. They are planning to use it for May Day as a photo booth activity.
"I do not like cars."

Gardening Space (Alison)

In this space, Alison plants her own vegetables such as mustard. She is responsible for this area. She grows these plants to eat at home.
"When I give eatable plans to kids to taste them, at the beginning they scare and do not want to eat but if one of them eats the other kids also want to taste."

Questions
- *How much time does she spent in the farm?*
- *What kind of tools or things does the farm provide?*

Donation Box

They have a connection with few people who come and collect the manure they have. It is mutually beneficial. It costs nothing to the farm and these people donate generously around 20 pounds.

Questions
- *How often do they come and how much do they take from the manure?*
- *Is it possible to find more connections?*

interview with Chris

volunteering

Being a volunteer and learning the process of being a volunteer was exciting. I needed to be open and talkative while observing the situations. Implying the design perspective while living and acting as a volunteer helped me to see the insights of the process and the theme of it.

shadowing

Using a shadowing method to understand Chris's daily schedule and his interaction with the animals and the visitors, gave us lots of information and insights about the farm.

research about the other city farms

Other city farms in London are visited to compare and see the possibilities and boundaries. Then the findings are presented to the Kentish Town City Farm stakeholders.
Hackney City Farm, Mudchute Farm, Spatialfields Farm

Hackney City Farm

Mudchute Farm

Spatialfields Farm

other city farms

Interviewed with people from different stakeholders to understand their thoughts and expectations from the community and the KTCF. It is asked about their occupations, their possible future contributions, hobbies, possible reasons to visit the farm or feeling inclusive of the community. Queen's crescent market is visited to get a voice from the community. Talked with the Camden Council, the Board of Trustees, staff, volunteers, and visitors. It is helped to create stakeholder map and personas.

interviews

may day

The celebration of spring in Kentish Town City Farm is used as an opportunity to get insights and observe visitors' thoughts and experiences. It also gives a chance to understand the workload of the staff and their organisation methods which includes the volunteers.

photo booth

articulated sentences

planting seeds

Three activities are designed for the May Day. The first activity is to attract visitors and make a polaroid photo memory corner in KTCF. Then, in the second activity, it is asked them to write down on the chalkboards their ideas, thoughts or anything they were concerned about the farm. The sentences, which are expected
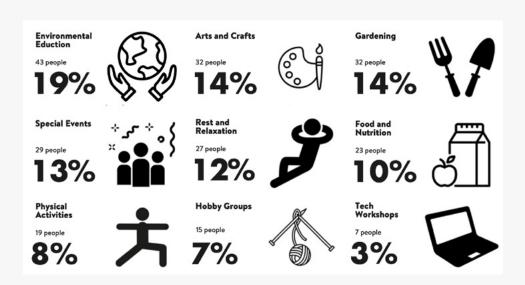
to finish, are always articulated to leave the visitor the ability to explain more and never as a yes or no answer: what I would like to say is..., my idea for the farm is..., what I could give to the farm is..., etc. As a third activity, we asked them to plant a seed in the pots which are named by the first workshop outcomes.

may day
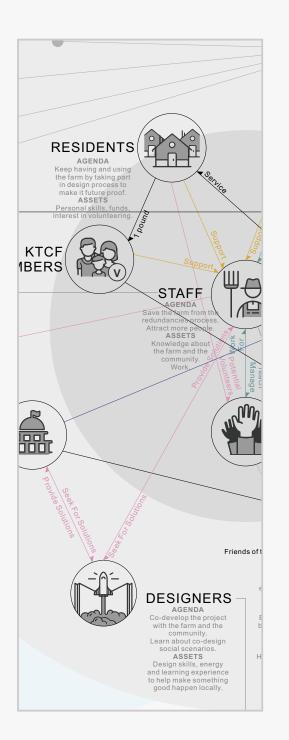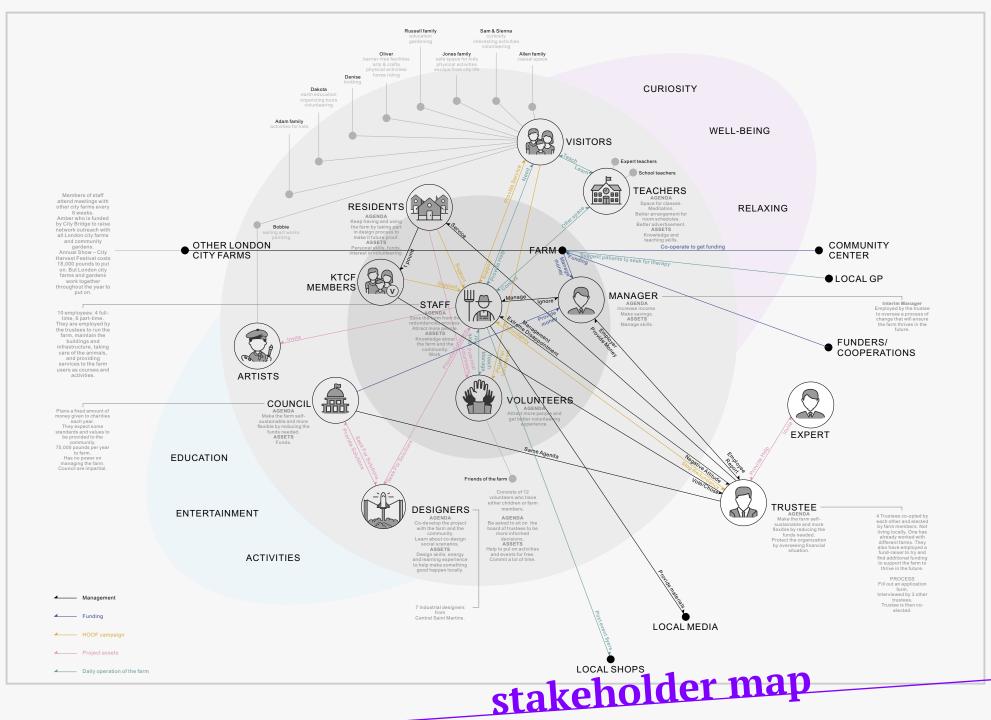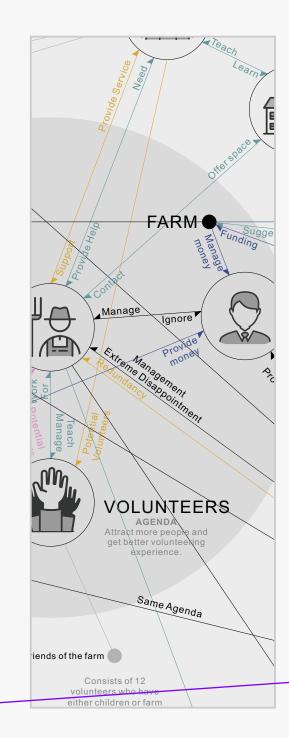
define

May Day is the finalization of the discover process in double diamond. With the collected data until May Day, defining process is started and lead to describe the problem and the brief of the project.

stakeholder map
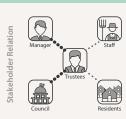
A system map is co-developed to visualise all the stakeholders relations which are related to the farm, and to show their agendas such as their motivation for involvement and assets and how they can contribute to the farm.

Trustee
Joseph / 50

I have been on the board for a year at Kentish Town City Farm. KTCF members have selected me as a trustee. I have experience working on farms. I feel that there is a division between the staff and the board/manager. I do not go to the farm very often because of this division. I don't feel welcomed. As trustees, we are having trouble with the farm budget and we cannot get on to the same page with staff to find solutions. I want the future of the farm to be inclusive and grow with the changing community and future developments. I hope that it can be self-sustaining one day financially and that we can have a constructive and supportive relationship between the trustees and the staff.

Challenges

. Make the farm self-sustainable and more flexible.
. Have fewer employees in order to have fewer expenses and stop the farm deficit.

Opportunities

. Redirecting the cash flow for making the farm more efficient and for running the activities from external funds.
. Free up the cottage space to use those rooms for the farm's benefit.

Values

. inclusivity
. communication

Council
Lucas / 42

I work for the council taking care of local charities. My job is to give money to different charities in the neighborhood to provide social services for the community. Even though some people think that I am the decision maker for the redundancies and the management of the farm, I have no control over these subjects. In fact, the managing of the farm is not related to the council but to the trustees and manager. The council asks the charities it is giving money to, to respect some standards and values decided when we donate funds.

Challenges

. The gate of the farm is closed, therefore the place looks locked for the community.
. The gardening section is locked and accessible by just one person.
. The cottage is a big unused resource for the farm

Opportunities

. To give an inclusive perception to the farm the gate could be redesigned.
. They should run safety and hygiene tests.
. They could improve the value of volunteering to have more people coming.
. The new housing could be really positive for the farm, connecting the other side of the road to KTCF to attract a lot of people.

Values

. inclusivity
. accessibility
. reliability
. attractability

Volunteer
Alice / 12

I live two minutes away from the farm so I decided to volunteer. The reason I volunteered was because I like animals. If I have holidays I come to the farm for the whole week but normally I work once a week. I have been doing this for a few months now. The staff is really friendly and I enjoy being on the farm.

Challenges

. Didn't have any training for volunteering.
. Work hours make it difficult to volunteer

Opportunities

. It would be better if the animals could have babies.
. Most of the people living around know this place.

Values

. service to others
. well-being
. environmentalism

Volunteer
John / 53

Although I do not live nearby, I have been volunteering on the farm once a week for 3 years. I found out about the farm from the Internet. I also worked in the other farms. Helping the community is really important for me.
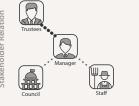
Challenges

. I have concerns about the new construction area which may negatively affect the farm in the future.

Opportunities
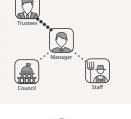
. I feel free to explain my concerns about the farm with the staff.
. I have many connections with the other farms I serve at so I can provide connections for the farm to collaborate and help each other and the whole community
. I has perspectives that are different from most volunteers because I don't live nearby.
. I have been at the farm 3 years so I've seen a lot of the financial problems and know about the current situation.

Values

. service to others
. environmentalism
. sociability

Manager
Nickholas / 45

I have been working on KTCF since January as the interim manager. This is my temporary job. I know about the necessities of working on the farm because I have lived on one before. The relations with the staff are not good at the moment. We are having disagreements from time to time. I feel that my ideas aren't received well and solutions haven't been found for the farms' needs. I feel like more effort should be put into making the farm open to the community and also put a focus on improving the user experience.

Challenges

. Not significant community use
. I have ideas for the farm but don't believe there is enough infrastructure to realize them.
. Garbage problems
. I feel communication between the farm staff and manager can be improved.

Opportunities

. Changing how things are done on the farm
. Find better uses of the spaces (lots of grey areas)
. Designing user experience for the farm
. Designing a better layout for the whole farm
. User experience for everyone
. The farm should be more visible to the community by changing the entrance.
. The Cottage could be used for the farm and a long term solution for the person living in the house should be found.

Values

. inclusivity
. accessibility
. attractability
. motivation

Staff
Edward / 74

I have been working at the farm for years. I have an agriculture background and I am trying to create an ecosystem in the farm. Biodiversity is one of the most important things for the farm, that's why I plant various trees, plants and I'm trying to create an environment for other creatures. In order to create a self-sustaining system on the farm, I think we should focus more on edible plants and use all the space efficiently.
I am worried about the new construction area which is close to the farm. One concern is, it is going to reduce the other creatures living space lower the biodiversity; they will also use lots of chemicals to reduce the plants for the infrastructure which is going to cause pollution and affect the plants and animals on the farm. I talk about the animals, their behaviors, plants and their importance to the farm. My aim is to educate children and adults about the importance of environmental education. I have a really busy schedule which sometimes causes me to skip my lunch time.

Challenges

. I think that with technical support, we can generate our own power source for the farm such as solar power or wind power systems.

Opportunities

. I built a cabinet and created a pond for the farm.
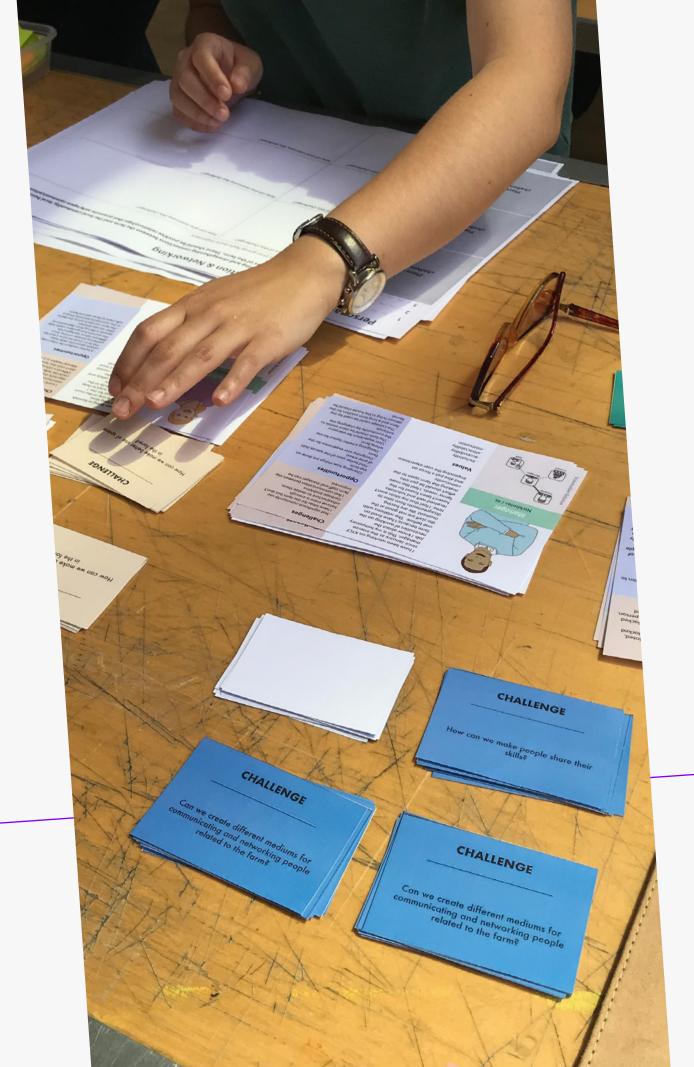. I'm good with my hands and know a lot about farming and the environment.

Values

. environmentalism
. education
. self-sustainability
. food and nutrition

---

personas

With the collected data in the discovery part, personas are created to show different stakeholders and their relationship with the farm. Their needs, desires, challenges, and opportunities are embedded into the persona cards and prioritise their connection with the community with the help of the stakeholder map which is previously made.

define . workshop

The personas, stakeholder's challenges cards are made and grouped them into four main topics. Elito Method is used to enrich the workshop. It helped to define the problem and create a design brief with the stakeholders via workshop.

define . workshop

user experience

The overall experience of a person using the service or the website provided by the farm, especially in terms of how easy or pleasing it is to use.

education gardening

The process of receiving or giving instruction on gardening, arts, and crafts, physical activities, or environmental understanding, especially in educating children, and the people of the local community.

funding

Providing money for various specific needs of the farm through creative ways such as providing services or goods.

network

Providing, expanding and strengthening connections between the farm and the local community, local businesses and other stakeholders of the farm. These should be positive relationships that promote safe/open communication and idea generation.

define

develop . workshop

Data from the defining workshop is organised and analysed and embeded into previous findings to developing workshop. While designing these workshops, the complexity of the process is taken into consideration and different visual methods are used to explain it better and simpler while keeping the complexity. Four complementary activities are developed which includes the selection of data and to help to develop the briefs with stakeholders.

develop . workshop

What could they contribute to the success of the farm?

What could a city farm of the future look like?

What would their motivation be for using the farm?
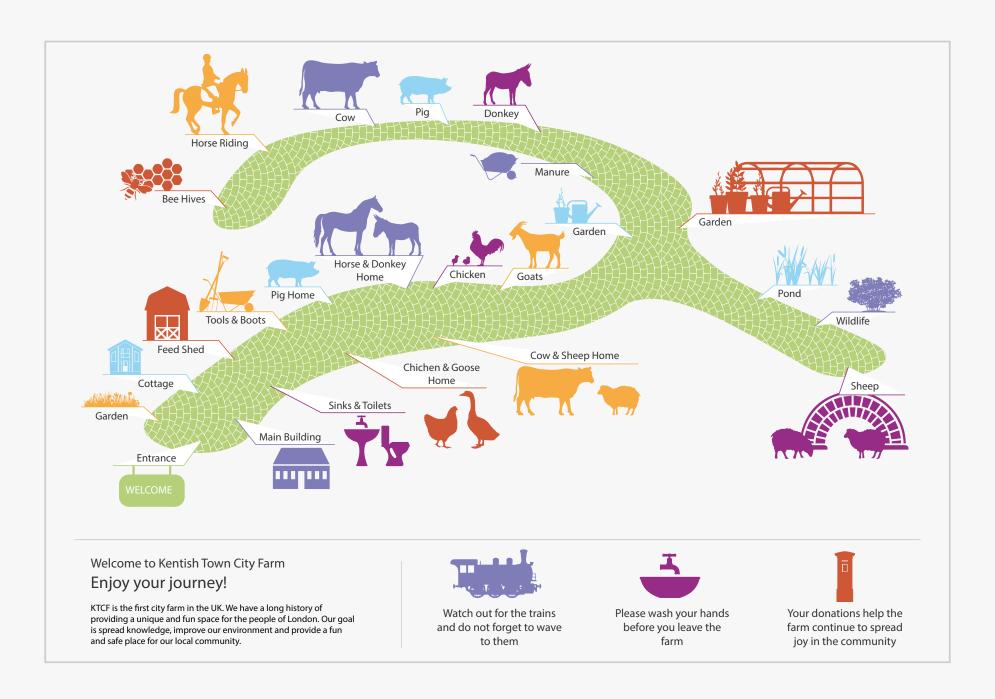
Who are the individuals and organisations that would use it?

What would they want to do there?

briefs

deliver
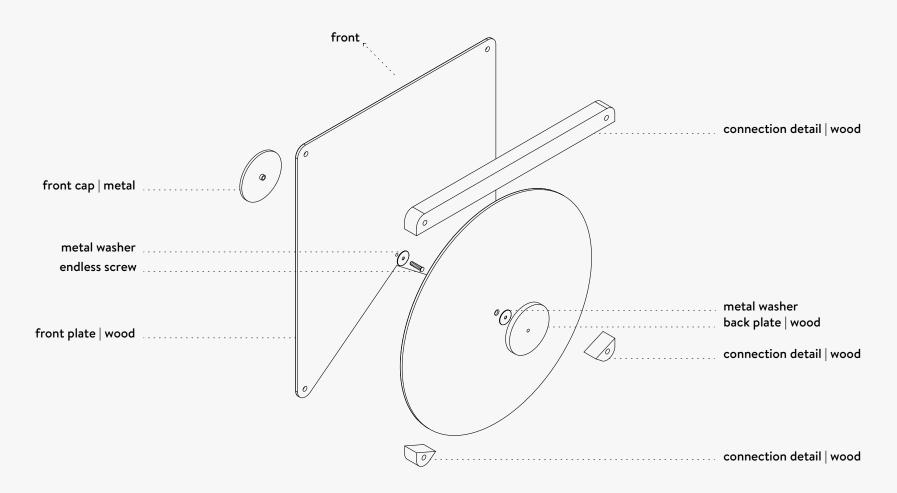
As an outcome we created a Kentish Town City Farm Report for the community as a resource for future possible problem solving and improvements in the farm. The product and the service design outcomes presented to the KTCF stakeholders.

Welcome to Kentish Town City Farm

Enjoy your journey!

KTCF is the first city farm in the UK. We have a long history of providing a unique and fun space for the people of London. Our goal is spread knowledge, improve our environment and provide a fun and safe place for our local community.

Watch out for the trains and do not forget to wave to them

Please wash your hands before you leave the farm

Your donations help the farm continue to spread joy in the community

visitor map

According to the findings of the journey in the farm and a map is designed for volunteers and visitors to improve their experience.

Technical diagram labels

front

connection detail | wood

front cap | metal

metal washer
endless screw

metal washer
back plate | wood

front plate | wood

connection detail | wood

connection detail | wood
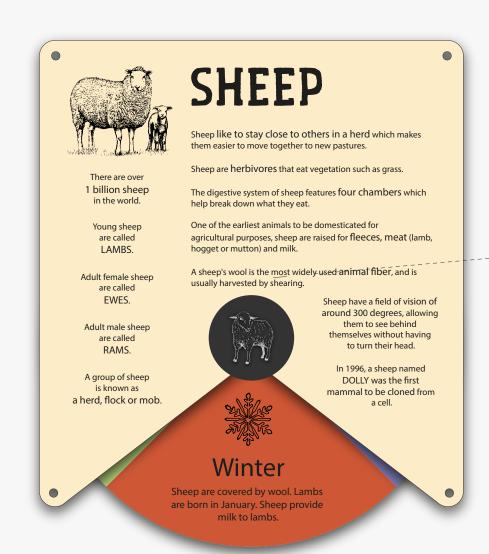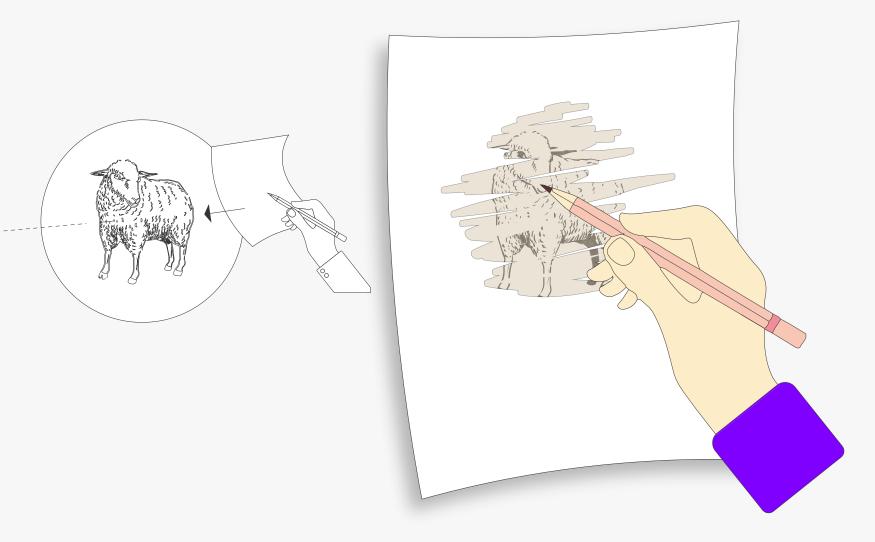
signage technical details / 500 x 550 mm.

signage

waterproof
durable
easy to manufacture
long-lasting material
replaceable
eye-catching

interchangeable
easy to read
different ergonomics
including a game
attractive
educative

SHEEP

There are over 1 billion sheep in the world.

Young sheep are called LAMBS.

Adult female sheep are called EWES.

Adult male sheep are called RAMS.

A group of sheep is known as a herd, flock or mob.

Sheep like to stay close to others in a herd which makes them easier to move together to new pastures.

Sheep are herbivores that eat vegetation such as grass.

The digestive system of sheep features four chambers which help break down what they eat.

One of the earliest animals to be domesticated for agricultural purposes, sheep are raised for fleeces, meat (lamb, hogget or mutton) and milk.

A sheep's wool is the most widely-used animal fiber, and is usually harvested by shearing.

Sheep have a field of vision of around 300 degrees, allowing them to see behind themselves without having to turn their head.

In 1996, a sheep named DOLLY was the first mammal to be cloned from a cell.

Winter

Sheep are covered by wool. Lambs are born in January. Sheep provide milk to lambs.

scavenger hunt

In define and develop processes, children feel more connected and interested in exploring and learning. Therefore, we designed the signage which includes scavenger hunt tools. And with the rotatable part, they have a chance to learn related seasons.
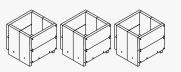
gardening experience

. space saving planting boxes
. storage and seating solutions
. clear assembly instructions for DIY

. new revenue generating gardening program
. expert guidance for planting from farm staff
. gardening notebook for users

KENTISH TOWN CITY FARM

**garden unit #1
instruction manual**

what you will need
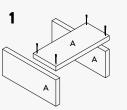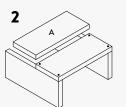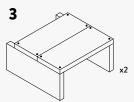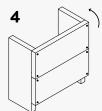
A	34 x 2.5 x 14.5 cm 8 pieces | *for the sides*
B	29 x 2.5 x 14.5 cm 2 pieces | *for the bottom*
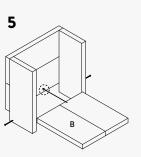
screws x 24

* For material, treated timbre with 14.5 length and 2.5 width could be used. All of the pieces could be cut down from one timber.

1

2

3 x2

4

5

6

7

8
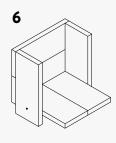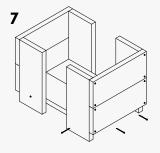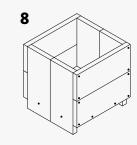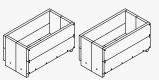
34 x 34 x 34 cm
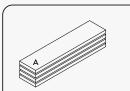
gardening experience

KENTISH TOWN CITY FARM

garden unit #2
instruction manual

what you will need
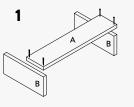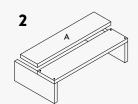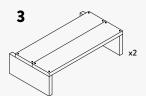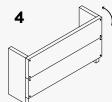
A	B	C	screws x 28	+
63 x 2.5 x 14.5 cm	34 x 2.5 x 14.5 cm	29 x 2.5 x 14.5 cm		
4 pieces | *for the sides*	4 pieces | *for the sides*	4 pieces | *for the bottom*		

* For material, treated timbre with 14.5 length and 2.5 width could be used. All of the pieces could be cut down from one timber.

1   **2**   **3**   x2   **4**

5   **6**   **7**   **8**
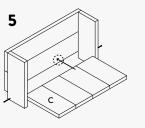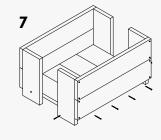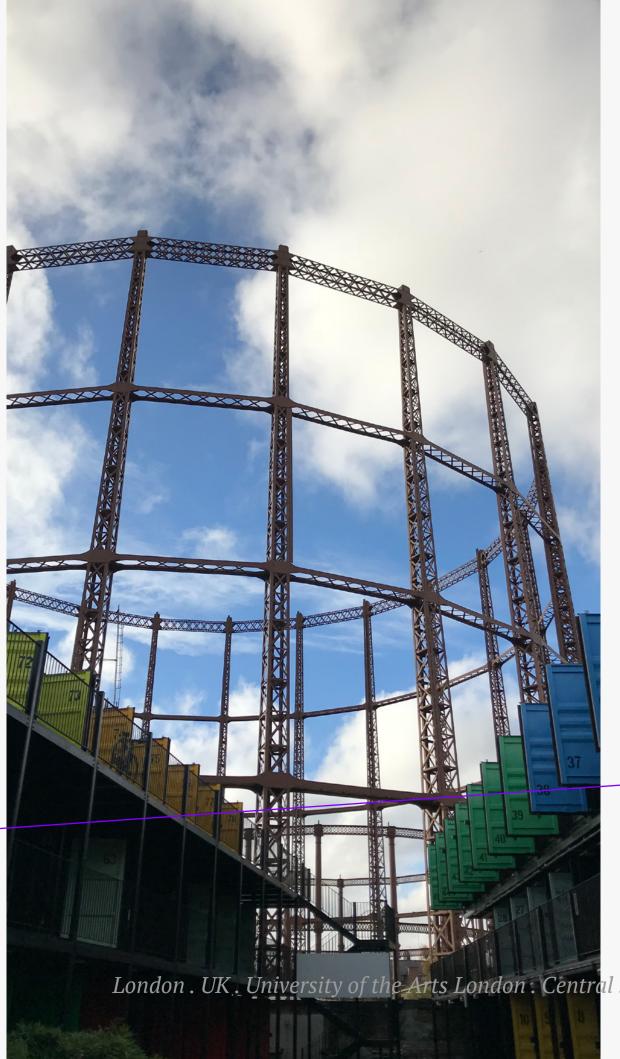
63 x 34 x 34 cm

gardening experience

gardening experience

open
design
and
manufacture:
fabfarm

London . UK . University of the Arts London . Central Saint Martins . MA Industrial Design . Circular Economy . 2019 . Open Design and Manufacture . FabFarm

How Can We Design Locally, Make Globally?
It can be seen the real and significant consequences of the linear 'make-use-dispose' paradigm that has traditionally existed in the design and manufacturing industries, so what is the alternative?

designing interventions that enable more circular flows of resources or perhaps map opportunities and threats in product development.

brief

team
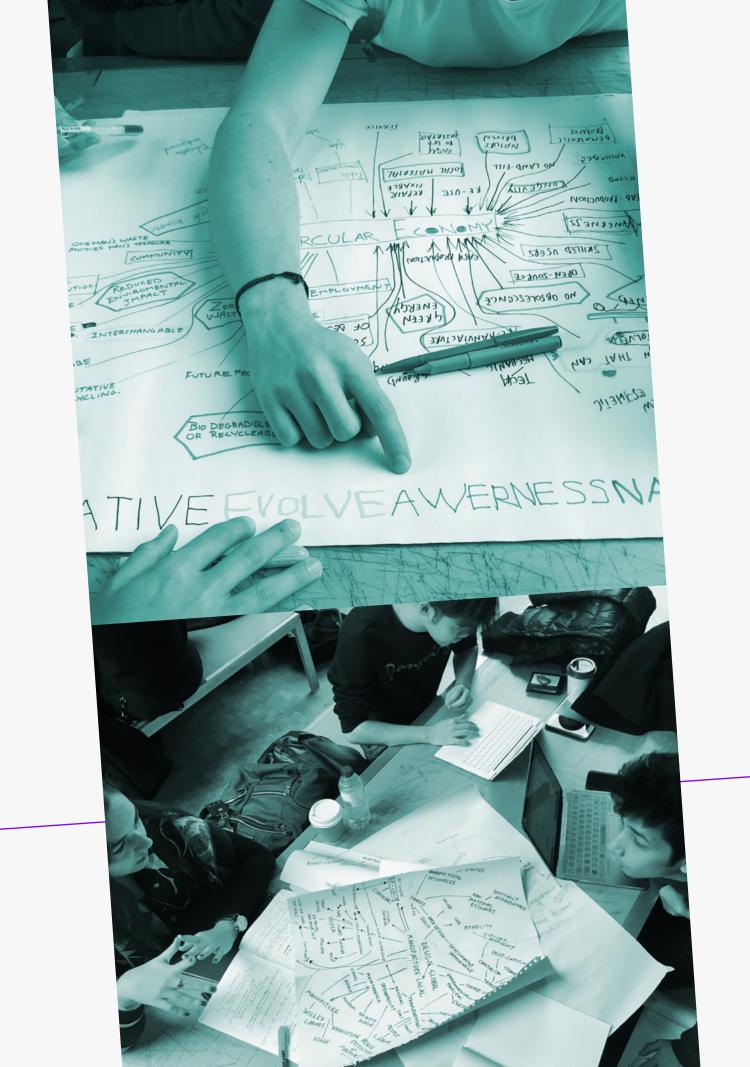
Alberto Giordano
Mengshi Qiu
Pralekh Bhuyan
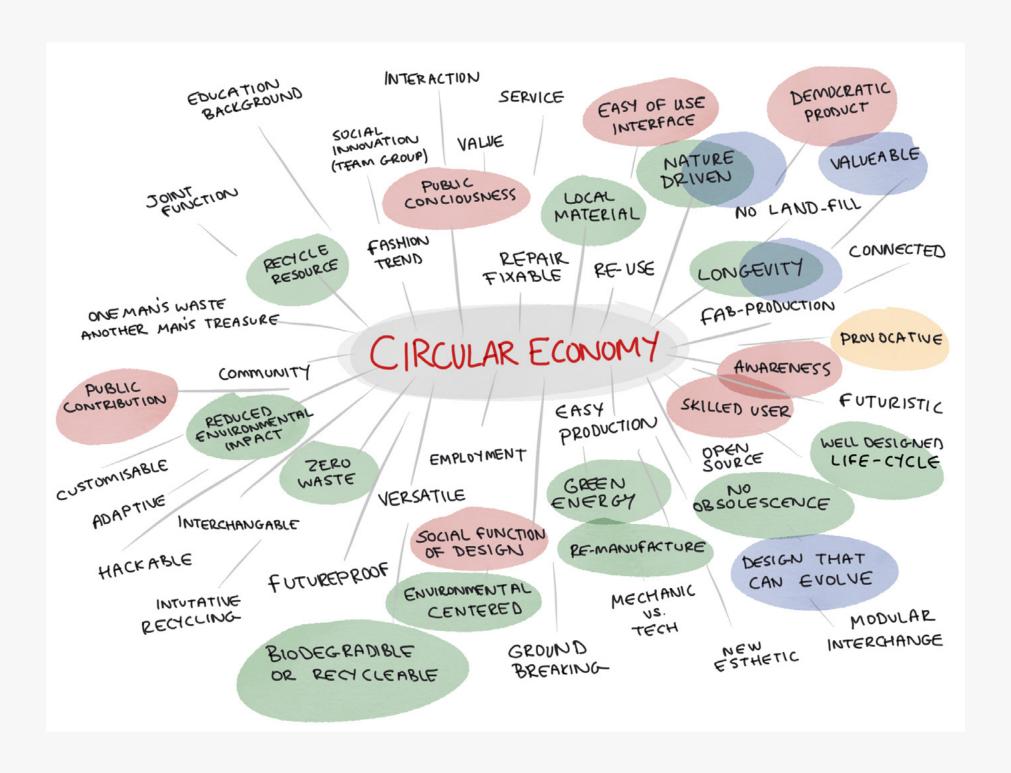
aim

In this project, aim was learning in a context of open design, engaging socially responsive thematics, testing learning recognition models in formal and informal learning contexts and being innovative in doing so.

design tools

CIRCULAR ECONOMY

EDUCATION BACKGROUND
INTERACTION
SERVICE
EASY OF USE INTERFACE
DEMOCRATIC PRODUCT
SOCIAL INNOVATION (TEAM GROUP)
VALUE
NATURE DRIVEN
VALUEABLE
JOINT FUNCTION
PUBLIC CONCIOUSNESS
LOCAL MATERIAL
NO LAND-FILL
FASHION TREND
RECYCLE RESOURCE
REPAIR FIXABLE
RE-USE
LONGEVITY
CONNECTED
ONE MAN'S WASTE ANOTHER MAN'S TREASURE
FAB-PRODUCTION
PROVOCATIVE
COMMUNITY
AWARENESS
PUBLIC CONTRIBUTION
SKILLED USER
FUTURISTIC
REDUCED ENVIRONMENTAL IMPACT
EASY PRODUCTION
WELL DESIGNED LIFE-CYCLE
CUSTOMISABLE
ZERO WASTE
EMPLOYMENT
OPEN SOURCE
ADAPTIVE
VERSATILE
GREEN ENERGY
NO OBSOLESCENCE
INTERCHANGABLE
SOCIAL FUNCTION OF DESIGN
DESIGN THAT CAN EVOLVE
HACKABLE
RE-MANUFACTURE
FUTUREPROOF
ENVIRONMENTAL CENTERED
MECHANIC VS. TECH
MODULAR INTERCHANGE
INTUTATIVE RECYCLING
BIODEGRADIBLE OR RECYCLEABLE
GROUND BREAKING
NEW ESTHETIC

provocative

An approach that stimulate a user's decision into a pre-determined path.

evolving

An approach that make a product grow with trends or sustain the change.

awareness
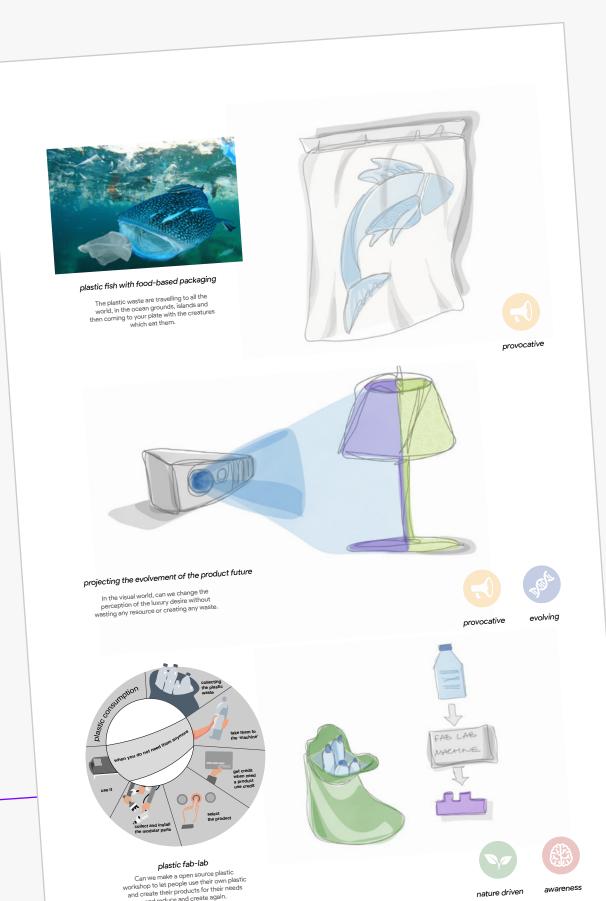
An approach the nurtures one's attitude into a distinctive path.

nature driven

An approach that is driven by the desire of sustaining or enhancing nature.

plastic fish with food-based packaging

The plastic waste are travelling to all the world, in the ocean grounds, islands and then coming to your plate with the creatures which eat them.

provocative

projecting the evolvement of the product future

In the visual world, can we change the perception of the luxury desire without wasting any resource or creating any waste.

provocative   *evolving*

plastic fab-lab

Can we make a open source plastic workshop to let people use their own plastic and create their products for their needs and reduce and create again.

nature driven   *awareness*

initial ideation

It is arranged a meeting with Nat Hunter. The research, possible briefs and initial ideas are presented to get an opinion.

machine room

This place is one of the biggest supportive place for circular economy vision in London. It gives an opportunity to co-making and co-working. It is needed to have a software and hardware knowledge to use the facilities.

inspiration trips

Science Museum
The group visited the Science Museum to relate any kind of information in there.
Design Museum
The group attended an e-waste talk to get more knowledge about its lifecycle.

workshop

A 1998 hp printer is broken into pieces to understand better about the production and design process of an industrial product.

field research

Some of the food supply chains are observed and researched to collect data about the cycle of the products and their side products.

LWARB
London Waste and Recycling Board
LONDON'S CIRCULAR ECONOMY ROUTE MAP

Sticky notes (left / LWARB section):
- renting tools and equipments rather than buying
- re-used or adapted materials
- recover parts and materials
- provide access to the housing, business premises and infrastructure
- built environment food textiles electricals plastics
- circular economy programs in education
- maximising the reuse of unwanted business IT equipment
- short term medium term long term action & policy options
- high level of embodied carbon ex: concrete steel
- lack of funding available for circular SMEs
- virgin raw materials
- 65% recycle by 2030 & zero carbon city by 2050
- new business models rely on new technology
- community & global corporate level
- more stable operating environment for manufacturers, retailers and consumers
- source of recycled materials (Sainsbury stores)
- post-Brexit economic environment
- £48 of London waste comes from construction, excavation and demolition
- local authorities
- new job opportunities
- managing supplies of existing resources through re-use and remanufacture
- raw material supply chains

FOOD

Sticky notes (Food section):
- food / food surplus / food waste
- Snact
- surplus food animal feed
- $ million tonnes of food consumed in London per year by 8.6 million residents
- TIPA sustainable packaging
- anaerobic digestion facilities
- community gardening
- segregated food waste
- FoodSave initiative
- local-to-London livestock farmers
- NNFCC
- extracting chemicals from food waste (bio-refining)
- wrap
- Courtauld Commitment
- Food Data Labelling
- Reduce food waste
- transport reduction urban food growing
- consumer habits & awareness

Food and drink material hierarchy
(Prevention, Redistribution, Recycling, Recovery, Disposal)

ELECTRICALS

Sticky notes (Electricals section):
- collection re-use recycling
- data security & poor storage of equipment
- durability reparability recyclability
- Globechain online re-use platform
- Restart Project platform for fixing electronics
- UK household spends £800 a year
- high durable products higher costs lower overall sales
- phones, laptops & white goods
- sharing renting leasing maintenance
- the lower cost of buying a new product
- iFixit wiki-based teaching repairing
- newest and fastest gadget demand
- 25% of WEEE can be re-used
- incentives & awareness
- UK purchases about 1.4 million tonnes per year
- 40% goes to landfill
- complex mix of materials which makes products hard to recycle
- less than 10% re-used

PLASTICS

Sticky notes (Plastics section):
- oil based causes climate impact from production & burned in incinerators
- marine pollution
- Overall UK plastic waste 3.7 million tonnes
- 2.2 million tonnes (59%) packaging waste
- quality and uniformity of input
- consume %20 of the worlds oil
- 1.5 million tonnes packaging used in consumer sector
- 1.5 million tonnes non-packaging waste
- on the go & take away eateries
- pre-treatment of waste or enhanced sorted collection
- responsible for 15% of CO2 emission
- 0.7 million tonnes packaging used in non-consumer sector
- not all the pots, tubs and trays at the kerbside being collected
- The Ellen MacArthur Foundation
- How can plastic waste be prevented and its incineration reduced?
- non-standardised and may contain mixed of materials
- about 50% of plastic packaging will never be re-used or recycled
- plastic prices do not reflect the true cost to society
- consumer behaviour change
- How can the volume of plastics making their way into the Thames and onwards into the world's oceans be stopped?
- bags cutlery crockery bottles
- 92% of plastic packaging escapes collection system
- consumer behaviour change
- the Recycle for London campaign
- by damaging the ocean and clogging urban infrastructure
- material efficiency durability re-usability recyclability
- higher quality products essentially recyclable products

research

To design an end to end service for London to reduce as well as utilise plastic and food waste, helping it in becoming a zero carbon city.

FabFarm Vision is a nature driven service system design which aims to reduce the environmental polution caused by linear economy and create a better future living with circular economy.

re-brief

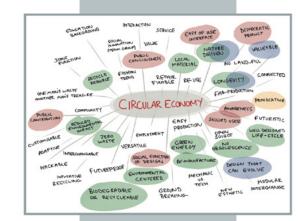*provocative*

evolving

awareness

nature driven

- Reducing steps in the recycling process
- Better management of food production and decreased food waste
- Changing eating habits through fabeat
- Opensouce system which can evolve
- Zero Plastic
- Up-cycling existing plastic
- Growth of urban agriculture
- Creating employment
- Connecting user to the system

FABFARM
vision

ANALYSIS

provocative
An approach that stimulate a user's decision into a pre-determined path.

awareness
An approach the nurtures one's attitude into a distinctive path.

evolving
An approach that make a product grow with trends or sustain the change.

nature-driven
An approach that is driven by the desire of sustaining or enhancing nature.

Group C
Alberto Giordano
Cansu Bezmez
Pralekh Bhuyan
Mengshi Qiu

RESEARCH

Circular Economy
Circular economy minimises waste through reusing, repairing, refurbishing and recycling existing materials and products.

Share
With a shift from ownership of products to their accessibility, more efficient consumption is possible. The sharing of goods (e.g. car-sharing) makes their use more efficient.

Repair
Products are generally less durable and repairable than they were. Enabling and promoting repair, for instance by making spare part, can bring old products back to life.

Remanufacture
Products such as electronic goods can be rebuilt to the original manufacturer specifications using a combination of reused, repaired and new parts.

Recycle
Products such as metals, paper, glass or plastics can be recycled as a source of secondary raw materials

Reuse
Products such as glass bottles can be reused a large number of times before being discarded.

use of resources

Prevention
Preventing waste generation, e.g. by reducing packaging or making products last longer.

Reuse
For instance, reusing packaging through deposit schemes, or remanufacturing electronics.

Disposal: Landfilling
'polluter pays' principle. This ensures that the costs of preventing, controlling and cleaning up pollution are reflected in the cost of goods.

Energy-recovery
Burning waste in incinerators; in most cases, the energy produced is used to generate electricity and/or heat.

FAB CITY Challenge & Network

In 2014, the then mayor of Barcelona challenged cities to **produce everything they consume by 2054**. Fab City Global Initiative is enabling this shift away from the industrial paradigm of **Product-in Trash-out**, by enabling the return of manufacture to cities supported by a **Data-in Data-out** urban model. It comprises a Network of 28 cities, a core Collective and is governed by a foundation. They are working to make locally productive, globally connected cities and citizens.

Product in / Trash out

Data in / Data out

LWARB

LONDON'S CIRCULAR ECONOMY ROUTE MAP

"managing supplies of existing resources through re-use and remanufacture"

"recover parts and materials"

"65% recycle by 2030 & zero carbon city by 2050"

"post-Brexit economic environment"

"new business models rely on new technology"

"labelled materials as waste and require re-labelling to facilitate re-use"

food

"8 million tonnes of food consumed in London per year"

"anaerobic digestion facilities"

"reduce food waste"

"community gardening"
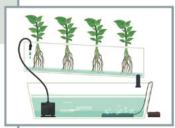
"transport reduction urban food growing"

"food data labelling"

plastic

"plastic prices do not reflect the true cost to society"

"1.5 million tones packaging used in consumer sector"

"on the go & take away eateries"

"about 30% of plastic packaging will never be re-used or recycled"

"non-standardised and may contain mixed of materials"

"Overall UK plastic waste 3.7 million tonnes"

"2.2 million tones (59%) packaging waste"

"by damaging the ocean and clogging urban infrastructure"

"32% of plastic packaging escapes collection system"

hydroponic system

Nutrient Film Technique (NFT)
With NFT hydroponic systems, the nutrient solution is pumped into channels that can hold a varied amount of plants. The channels are slightly sloped, so the nutrient solution flows through the channel, over the plant's roots dangling roots, and back into the hydroponic reservoir. NFT hydroponic systems don't often use grow medium and foam net pot inserts are typically used to secure the plant.

material scanner

Hertzstück™
Hertzstück™ is a infrared detector which is used in applications like moisture detection and chemical analysis to reliably detect infrared light. The focal point of the sensor and our concern to it is the future possibilities in scanning and sorting different materials through a personal device as our smartphone.

Tom Wilcox
37 years old
Computer Engineer
Works 9 am. to 5pm.
Buys lunch as take away while work ing in the office.
Likes to eat different everyday
Buys groceries with maximum date
Although not on his shopping list still prefers buy one get one deals
Goes to park with kids on weekends.
Curious about electronical stuff and loves repairing things.
"I want to leave a good and healthy living environment for my kids."

Natasha Wilcox
31 years old
Full time Housewife
Married
Likes DIY art and craft
Mother of a teenage girl and baby boy toddler
Cooks breakfast, snacks and dinner for family members.
Cooks at least two different foods in a day
Likes gardening and wants to make children involved
"I want to provide all the necessary nutrients for my children's development"

FABFARM
vision

FabFarm Vision is a nature driven service system design which aims to reduce the environmental polution caused by linear economy and create a better future living with circular economy.

PLASTIC WASTE
- SORTING COLLECTING
- MASS COLLECTION
- FABLAB
- HYDROPONIC OPEN-SOURCE SYSTEM
- PRODUCT
- FABFARM

FOOD WASTE
- COLLECTION
- ANAEROBIC DIGESTION
  - SOLID ORGANIC COMPOST
  - LIQUIT ORGANIC COMPOST
  - BIOGAS
  - ELECTRICITY & HEAT
- HYDROPONIC FABFARM
- FOOD

PLATFORM INTERFACE

The aim is to include all the local people into the platform while improving the production and consumption management.

With the knowledge of every local user consumption amount, the management of production increases to decrease the waste.

With the hourly credit system, it is aimed to make users motivated to get involve in the process. Users are able to use the fab facilities and buy fab products from FabShop with their contribution hour credits.

The contribution to FabFarm or FabLabs is increased or when users bring their waste to Fabs, they earn more credit.

FabEat aims improving eating behaviours with healtier foods while reducing the take-away and fast food eating habbits and waste.

With the online-fab-platform, users, FabFarms, FabLabs can able to see the distribution of the separated waste.
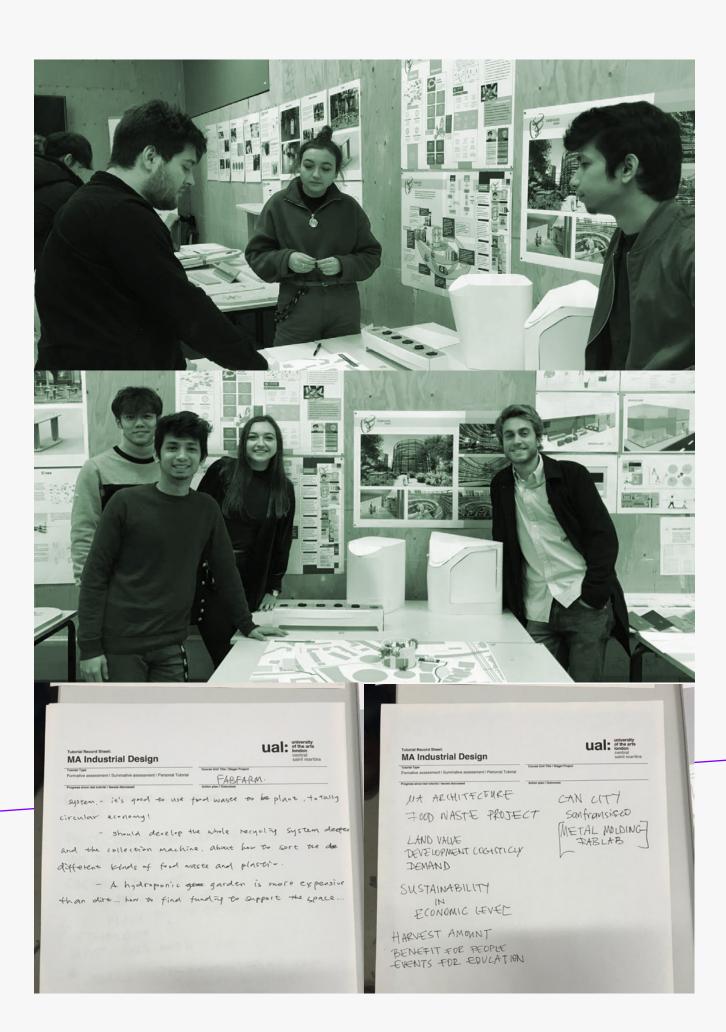
In the FabWaste Tab, users can search material collections for their FabLab or FabFarm projects and reserve them with their credit to use.

LOCAL WASTE
Welcome FAB CITIZIEN !

Find your local fab

- FABPROFILE
- FABFARM
- FABLAB
- FABEAT
- FABSHOP

FABPROFILE
Tom Wilcox

786 hours contribution

183 hours contribution
247 hours service credit

830 hours contribution
539 hours service credit

FABWASTE
Search material...

Results for HDPE

You can find more than **100** recycled materials

DOMESTIC BIN

The users put their waste in the bins which are separated for different materials

The number of bins can increase depending on the type of material consumption.

The users can refer to the scanner to identify unknow material.

PUBLIC BIN

When the domestic bin is filled, the user collect the bin and put it in the machine and before that they are gonna scan their ID and the material they are putting in.

The scanned data gets uploaded to the platform.

The users recieve credits depending on their waste management as well as their waste contribution. When they separate the materials in detail, they recieve more credits.

COLLECTING SERVICE

The aim is to make users to collect and use their own waste in Fabs and reduse the need for mass transportation of the waste.

The separated materials are collected by fabfarms and fablabs.

FABFARM

FabFarms collect the food waste to produce biogas and hydroponic system nutrients. For the open source hydroponic system they use the recycled plastic which are collected by the consumers.

Users can volunteer to the FabFarm or FabLab Production to get more credits for their consumptions. However, they can also contribute with collecting materials.

FABLAB

FabLab collects the separated materials and produces the modular pieces for hydroponic system. Design of the system can be evolve depending on the needs and production methods.

RECYCLING CENTER

For the mass recycling production, recycling center collects the assigned materials.

FABFARM *vision*

feedbacks

There were really good constructive feedbacks about our project. One of the feedback came from an architecture student who gave a lots of information and knowledge that we can discuss to improve our project. They were contained budget solutions, place and area problems which requires different kind of diplomacies and legal issues.

thank you