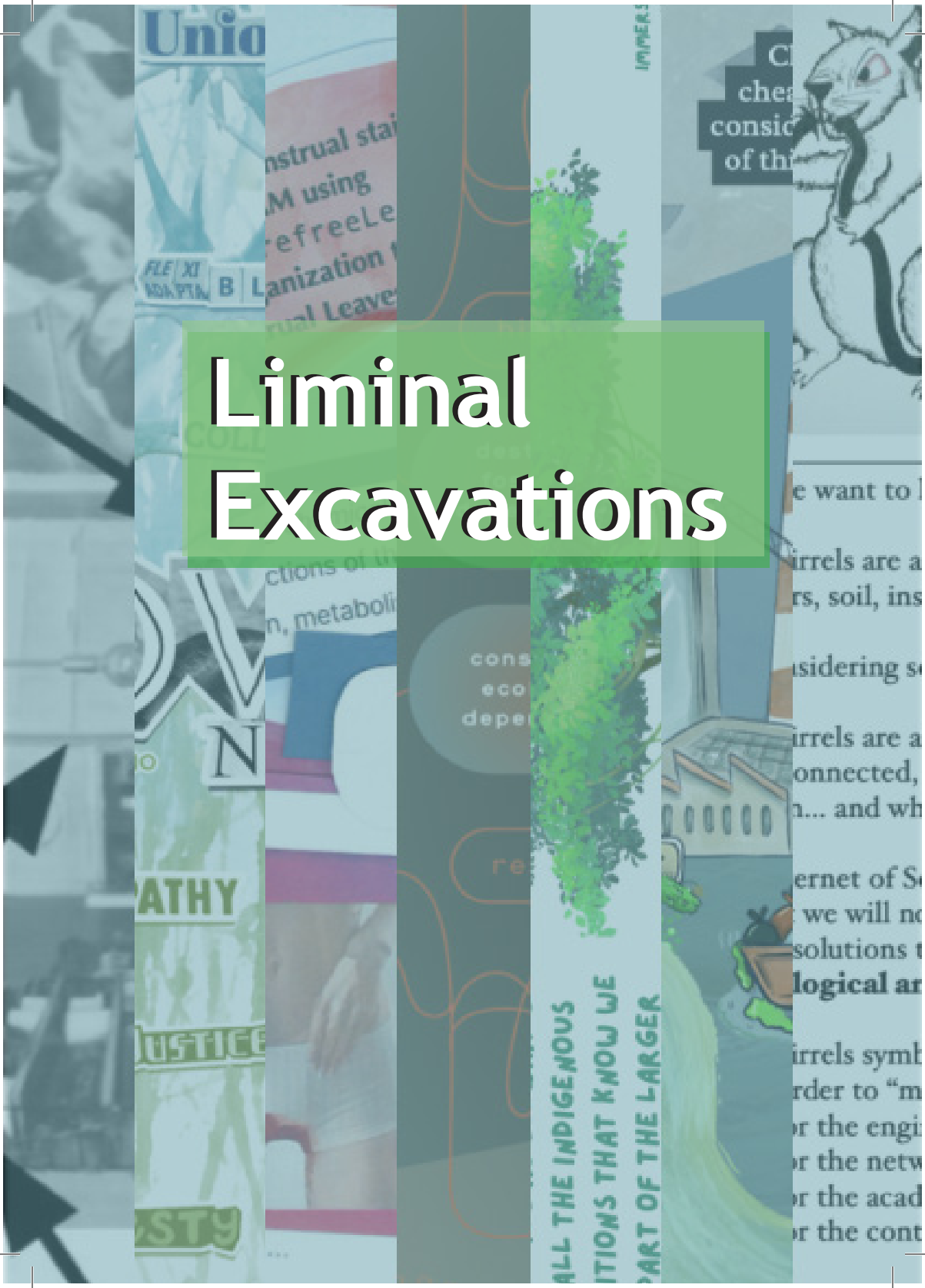

Liminal
Excavations

“When I saw that ICT4S had a Zine chair and it was Aksel I was immediately activated, I had to be involved. What I enjoy the most about a conference like ICT4S is the conversations away from the conference hall, meeting people who are excited to start creative collaborations around anything adjacent to sustainability and ICT. A conference programme can be quite technical and transactional, which limits the vibrant experiences that can be had when creativity is allowed to blossom. Creative spaces are where I started letting myself imagine futures that are different from the norm. A zine is just the start for ICT4S. ”

- Oliver Bates

”We were having lunch at our favourite spot in Stockholm at the start of the autumn reading period, reflecting on all the very interesting discussions and tensions expressed in-between the formal progam at the ICT4S 2023. From this grew the idea of giving space for these liminal expressions in the form of a zine. Going from jotting this all down in the form of a sms conversation, to a zine compilation full of ideas and alternative perspectives on sustainability and ICT is an amazing feeling!”

- Aksel Biørn-Hansen

Table of Contents

Introduction

While academic papers give us space to express our knowledge and expertise, we also need spaces to express our views, feelings, and creative expressions towards a more sustainable life on this planet, where ICT is not always directly implicated.

We are therefore very excited to share the contributions from the ICT4S Zine 2024!

As an alternative to the official program and traditional, peer-reviewed publications, we have taken inspiration from zine culture to gather a set of alternative and DIY contributions that encourage authors to embrace creativity that might not always be encouraged in more traditional academic outputs focused on ICT and sustainability.

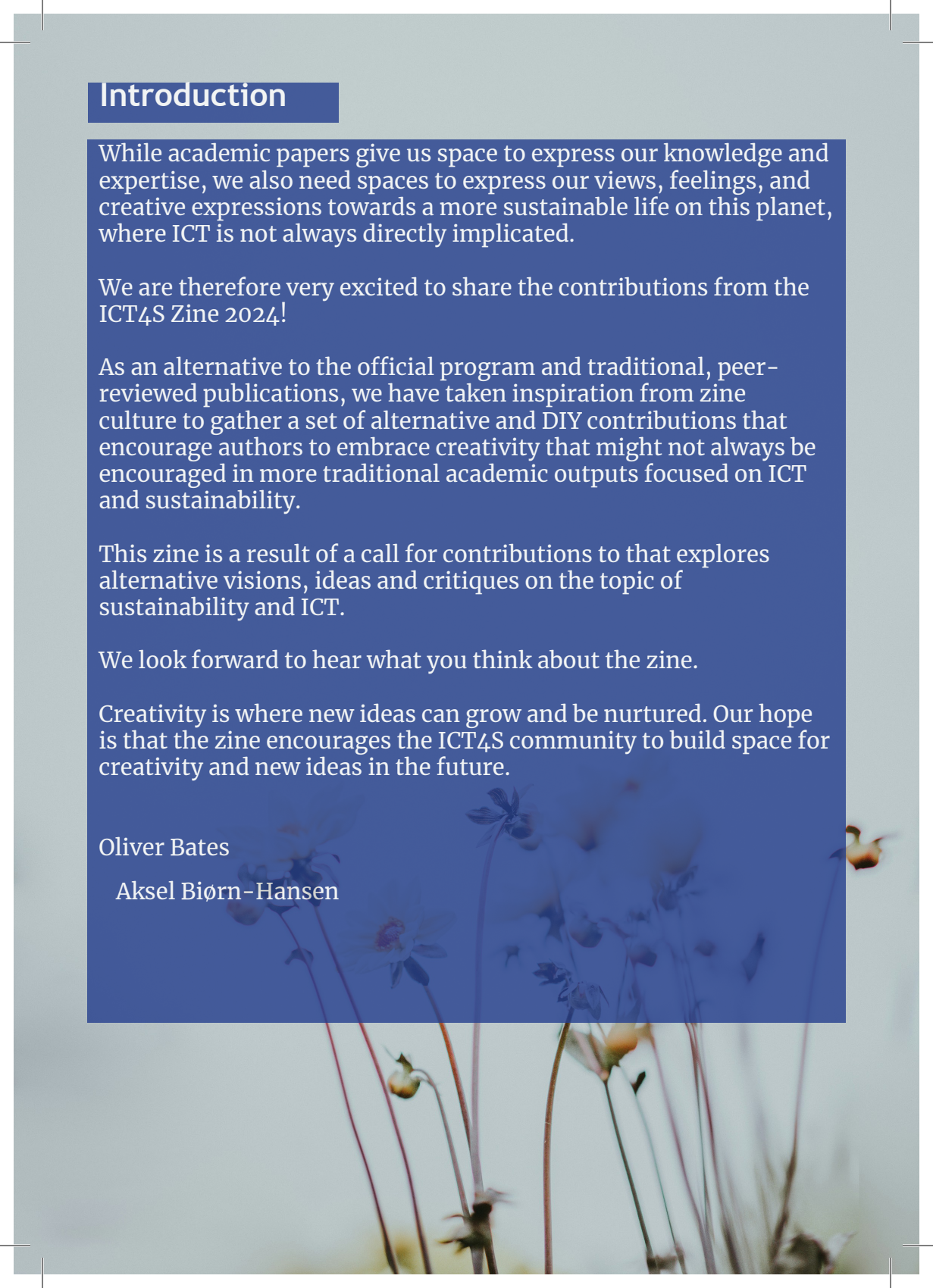
This zine is a result of a call for contributions to that explores alternative visions, ideas and critiques on the topic of sustainability and ICT.

We look forward to hear what you think about the zine.

Creativity is where new ideas can grow and be nurtured. Our hope is that the zine encourages the ICT4S community to build space for creativity and new ideas in the future.

Oliver Bates

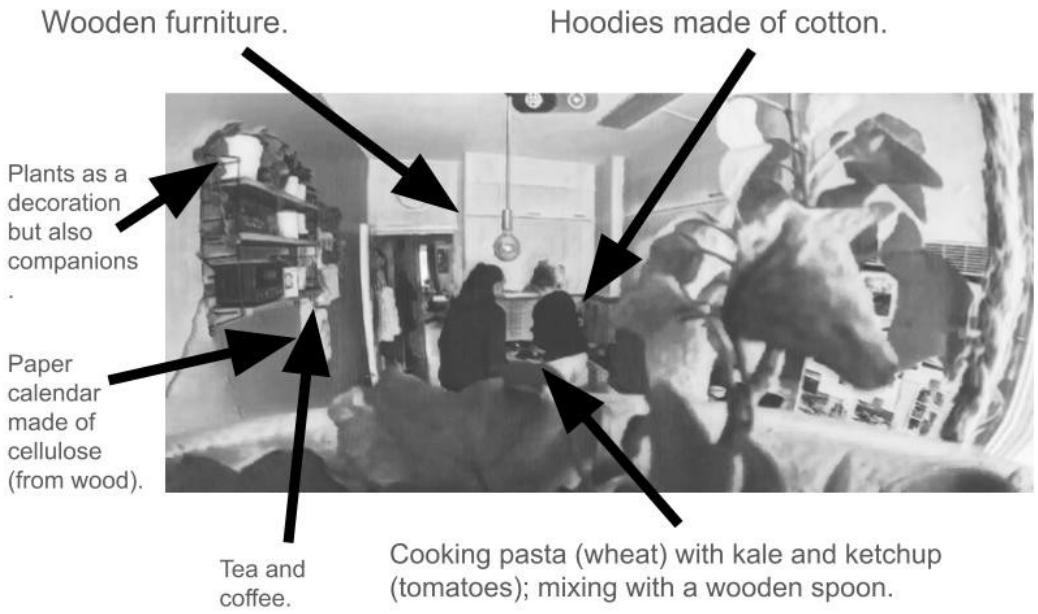
Aksel Biørn-Hansen



Surrounded by plants: towards deeper engagement with plants

In today's Western society, we have lost contact with especially green nature and many of us suffer from something that is called plant awareness disparity (previously known as "plant blindness"). This small piece aims to work against that! In design and HCI, we mainly approach plants as a material, as something to be used. Despite that our lives are intricately connected to plants in a myriad of ways. In fact, individually and as a species we are dependent on plants, we cannot survive without them. It is therefore essential to view plants with deeper concern if we are to create a world suitable for everyone. Below you can find an image from a small pilot study as an inspiration for thinking about:

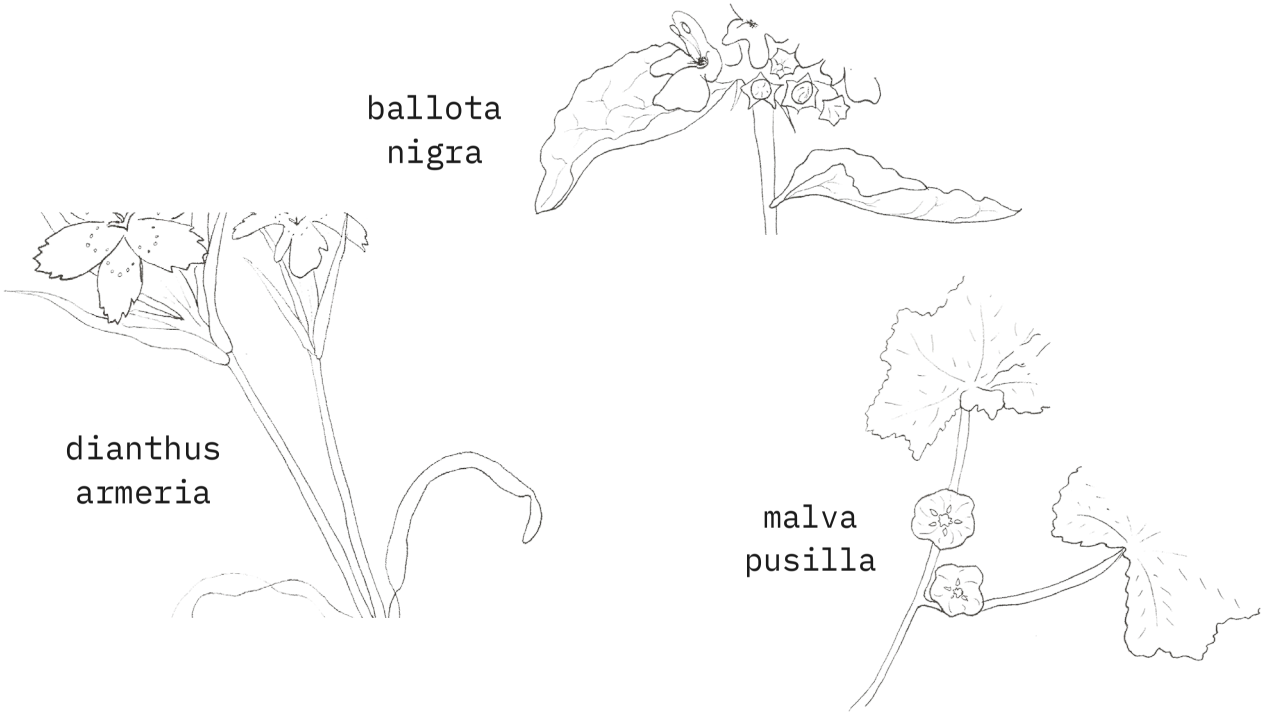
Where do plants play role in my life?



Text and photos by: Katka Cerna; plant illustrations by Gina Christophersen.

The first step for changing out approach to plants is start ***noticing*** them. Which plants have you noticed on the way to the conference or around the conference venue? Draw them or describe them!

Not sure how to start? Finish the drawing of one of the plants below. They are all Swedish plants which are endangered!

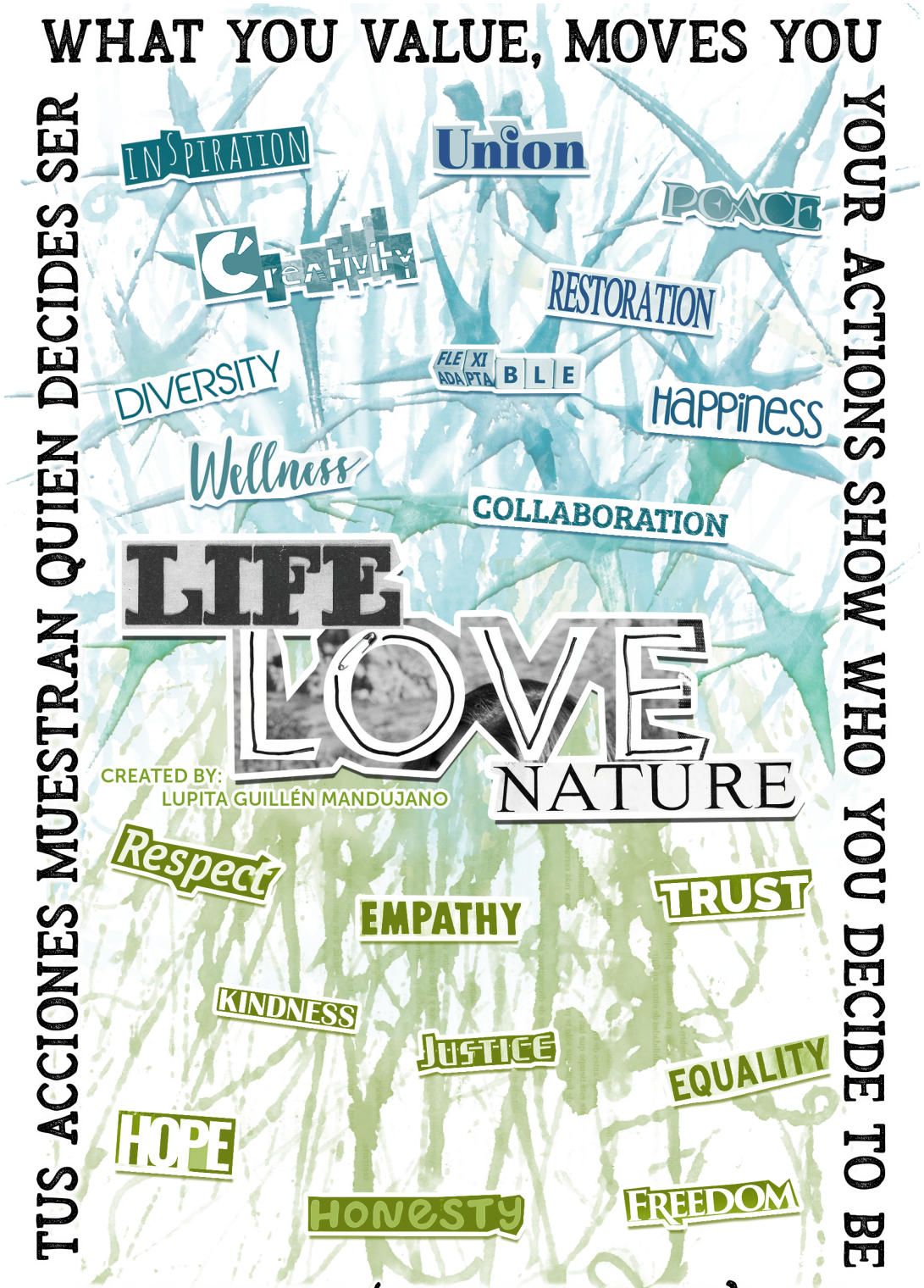


WHAT YOU VALUE, MOVES YOU

TUS ACCIONES MUESTRAN QUIEN DECIDES SER

YOUR ACTIONS SHOW WHO YOU DECIDE TO BE

LO QUE VALORAS, TE MUEVE



¿Con qué he de irme?
¿Nada dejaré en pos de mí sobre la tierra?
¿Cómo ha de actuar mi corazón?
¿Acaso en vano venimos a vivir,
a brotar sobre la tierra?
Dejemos al menos flores
Dejemos al menos cantos.

[*Un recuerdo que dejo.* Nezahualcoyotl]

QUÉ CREEMOS, QUÉ COMUNICAMOS, QUÉ DECIDIMOS

SOMOS MÁS QUE SOLAMENTE NOSOTROS

WHAT WE BELIEVE, WHAT WE COMMUNICATE, WHAT WE DECIDE

WE ARE MORE THAN JUST US

What shall I leave with?
Shall I leave nothing behind me on earth?
How shall my heart act?
In vain do we come to live, to sprout on the earth?
Let us at least leave flowers
Let us leave at least songs.

[A memento I leave behind.
Nezahualcoyotl]

CREATED BY: LUPITA GUILLÉN MANDUJANO

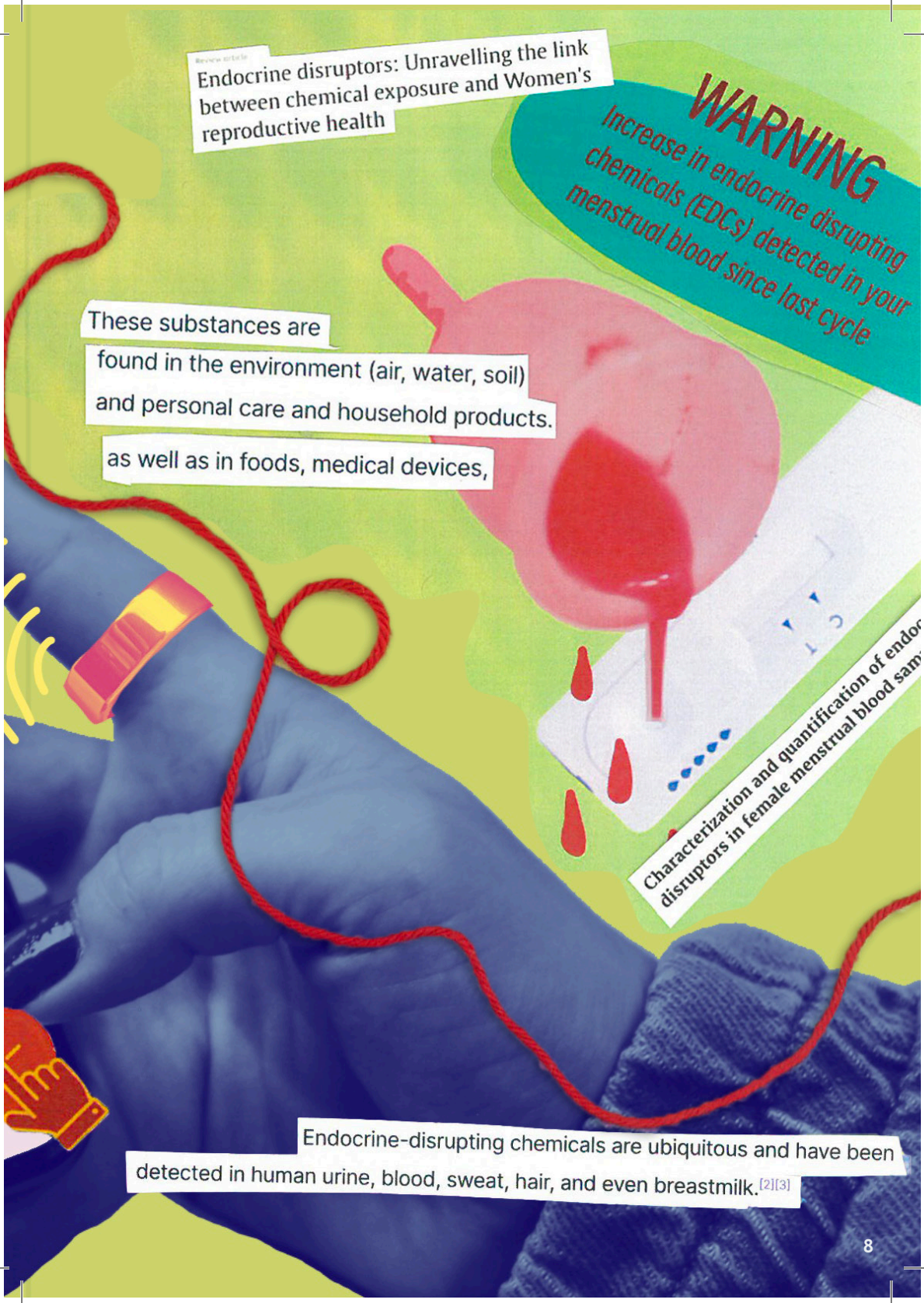
ENVIRONMENSTRUAL SPECULATIONS

speculative scenarios for reflecting on the intersections between environmental health, menstrual health, and digital technologies

Nadia Campo Woytuk & Anupriya Tuli

Impact of EDCs on Reproductive Systems

In the past 50 years, we have seen declining sperm counts, earlier puberty in girls worldwide, and genital malformations in people and animals.


Endocrine disruptors: Unravelling the link between chemical exposure and Women's reproductive health
WARNING
Increase in endocrine disrupting chemicals (EDCs) detected in your menstrual blood since last cycle
These substances are
found in the environment (air, water, soil)
and personal care and household products.
as well as in foods, medical devices,
Characterization and quantification of endoc
disruptors in female menstrual blood sam
Endocrine-disrupting chemicals are ubiquitous and have been
detected in human urine, blood, sweat, hair, and even breastmilk.[2][3]

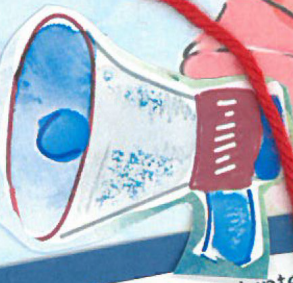
RED is New GREEN

An Exhibition on Menstrual Stains

MODERNA MUSEET | 06-10-2063 to 06-12-2063

Carefree Leaking & Happy Bleeding

Share your menstrual stain art on INSTAGRAM using #IclaimCarefreeLeaking & tag your organization to encash your Menstrual Leaves!



Endocrine-disrupting chemicals (EDCs) are exogenous substances that interfere with the normal functions of the endocrine system, often by disrupting hormone synthesis, secretion, metabolism, and/or transport.[1]

Unveiling endocrine disruptors in menstrual products

February 13, 2024

Celeste Krewson, Assistant Editor

News Article

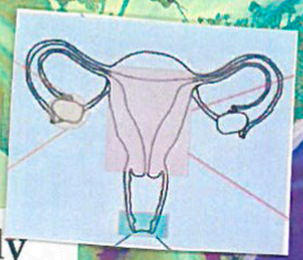
"Sharing my leaking routine with instagram fam today! My monthly menstrual cleansing routine is centered around getting rid of EDCs. To know more, signup for my upcoming workshop at discounted rate...link in bio! #MenstrualCleanseRoutine #FreeFromEDCs

Researchers discover: women with heavier menstrual flow have less chemicals in their body


but among all the pollution, toxicities, oppression and bodily commidification... community-driven alternatives emerged...
COMPOST YOUR USED MENSTRUAL PRODUCTS HERE
Scientists Identify Bacteria That Can Break Down 'Forever Chemicals'
Unveiling endocrine disruptors in menstrual products
Research confirms bodily fluids are excellent sources of nitrogen, phosphorous and potassium
Community menstrual garden
Garden watering status: GOOD
Soil fertility status: NEEDS NITROGEN, add menstrual blood and urine
Capacitive Soil Moisture Sensor v1.2

Harvest ingredients for crafting your biodegradable menstrual products here

Native Plants Used To Detox PFAS-Contaminated Water



Researchers find wetland plant can filter PFAS chemicals

NEWS ECOSYSTEMS

Just 3 ingredients can quickly destroy widely used PFAS 'forever chemicals'

A new process for breaking down these enduring molecules does so in just hours

Scientists Discover Backyard Fungi That Can Break Down Tough Plastic in Just 140 Days

TRANSTOPIAN WORLD-BUILDING

Transtopian world-building is an iterative process where story-worlds and shared realities perpetually influence and transform each other. By embedding current situations and dilemmas into a story-world, this approach expands the boundaries of imagination and enables "worldings" (Taylor & Ivinson 2013) that challenge the hegemony of social realities. The methods draws on the film industry's story-worlds and their potential for neurodivergent research, specifically in addressing ethical climate actions.

Transtopian world-building generates an iterative process where a story-world and a shared reality perpetually transform each other. A looping swirling movement, with an in-between position where the overlaps and possible contaminations are considered. Moving current situations and dilemmas from shared realities through the story-world can push the imagination and expand what is considered possible and enable transformations or "worldings" (Taylor &Ivinson, 2013) in the shared reality, challenging narrow definitions of the present.

In the film industry there is an increased focus on story-worlds rather than characters or stories, because a world concept can support multiple characters and multiple stories across multiple media (Jenkins, 2006). From a story-world, all kinds of products can quickly and coherently be developed as they comes into demand. Star Wars, Lord of the Rings, Marvel etc are all examples of this kind of transmedia storytelling, where everything from books to movies to

toys are created, based on one and the same concept of a world.

This research employs the story-world format for its capacity to contain complex information and channel new scenarios. World-building offers neurodivergent ways to hold information and access memory, compensating for short-term memory deficits and facilitating modes of visual thinking. By using story-worlds as containers for speculative hypotheses, this research processes a continuously growing set of situated knowledge, enabling its application in new and unpredictable situations.

Based at Stockholm University of the Arts (SKH), the world-building method has been utilized on-site to identify potential ethical actions for climate transformation. Immersion into a hypothetical climate-just story-world decentered what was currently considered possible or real, embedding everyday dilemmas within this framework to identify and implement possible actions. These actions triggered new situations, which were processed through the story-world, thus intensifying and scaling up the results.

The underlying concept for this story-world emerged from a collaboration with Professor Ronald Mallett at the University of Connecticut. Learning in dept about Mallett's theoretical model for a time machine was eye opening for me. In short, you could say that if it were to be built, it would have completely different consequences than what we are used to seeing in Sci-Fi stories about time machines, where the main character travels back and forth in time on voyages of (self-)discovery. If we built this machine, we would never be able to travel with it, it would only open up a portal where the future would instead have access to us. As I

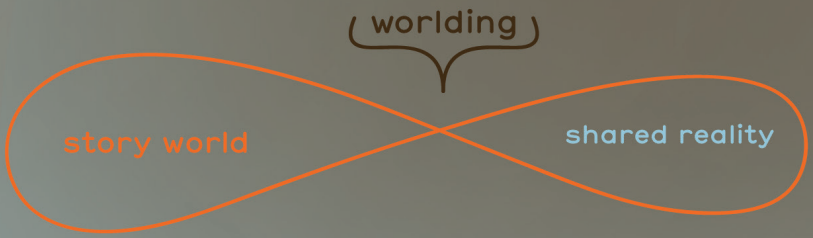
saw it, the consequence would be that futures can intervene into our present time, and revolt against the "colonisation of the temporal", which our current overuse of resources means in practice. It led me to develop a Story-world with the following premise: Future generations has, thanks to Mallett's time technology, hacked the present so that the earth system updated herself into a New Reactive Earth, a cyborg Gaia. A conscious reactive earth that monitors and regulate how all inhabitants use resources & life-space, ensuring regeneration both temporally and spatially.

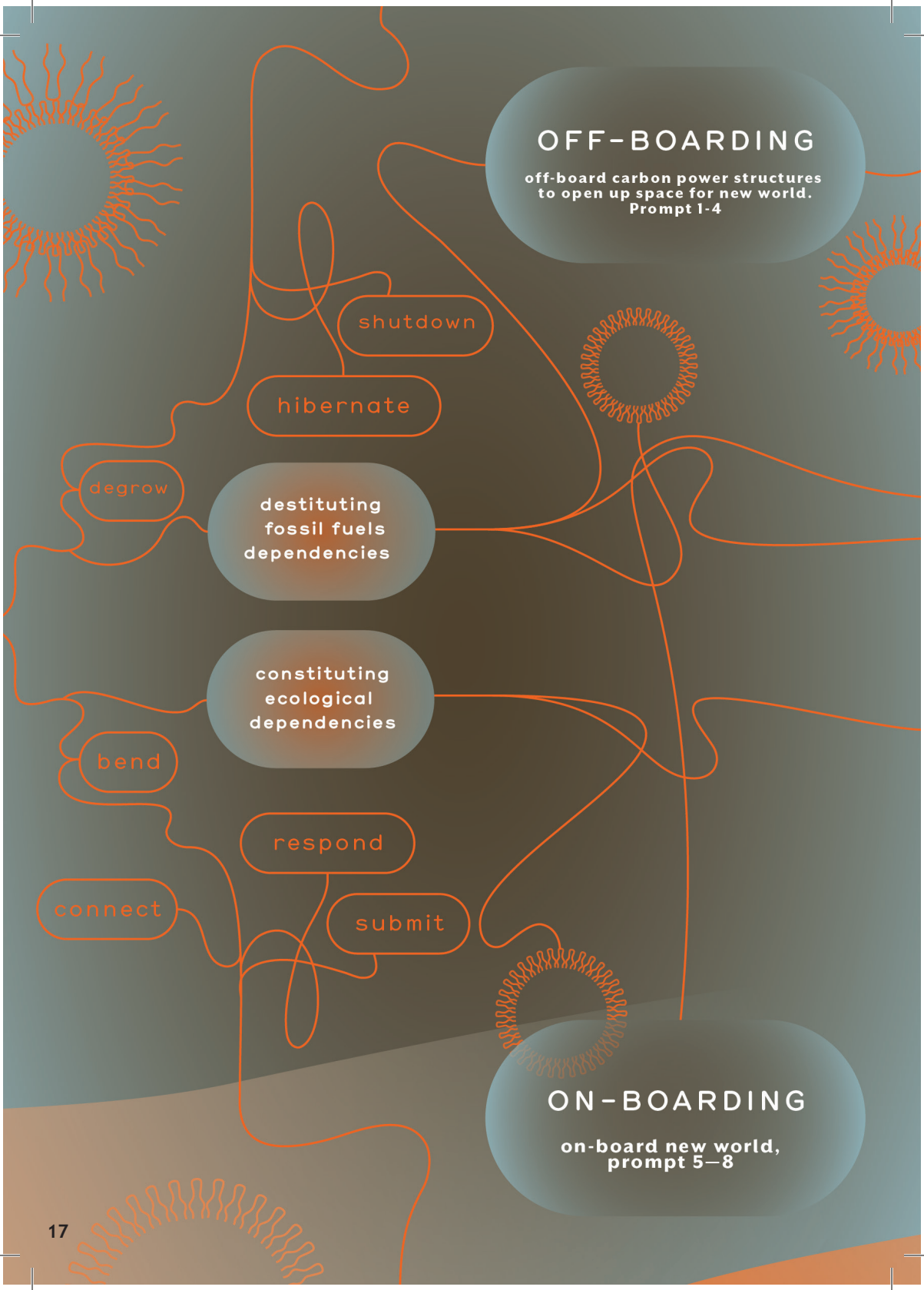
This premise led me to get acquainted with Life-Cycle Assessment as a model for the monitoring cyborg gaia. In collaboration with Anna Björklund, Professor in Environmental Strategic Research, we carried out several LCA's on specific scenarios at SKH. Combined with transcorporeal (Alaimo, 2010) and sensory, embodied CO2 experiments, this worldbuilding resulted in shifted practices and tools for low-carbon film and art practices (see Persson, 2022). The story-world served as an interface to translate and apply neurodiverse knowledge into neurotypically structured research environments, allowing personal embodied experiments to be scaled up and implemented in organizational policies.

Our alter-life (Murphy, 2017) era demands us to rethink what research could be and how it can better serve life. In a world that recompose itself at an increasing rate, neuroqueer (Walker, 2021) perspectives are vital to widen the understanding of how our own protocols recompose what we research. To include them, we need to allow for personally customised practices and methods that can be attuned to their specific affordances (Gibson, 1979). As in the case of this research; (1) allowing for a certain withdrawal into constructing parallel alternative worlds where these

perspectives can be shielded while developed, and (2) allowing for a more direct first-hand engagement with infrastructures, as opposed to go through the fixed protocols of new public management.

This artistic research (Persson, 2023) demonstrates how neurominor methods and strategies can shift assumptions about reality and possibility. Embodied and performative worldbuilding methods can tap into, safeguard, channel, and articulate perspectives not yet defined in the collective consciousness. It can also facilitate integration and application of this knowledge within neurotypically structured environments and structures, thus reshaping its protocols.




OFF-BOARDING
off-board carbon power structures to open up space for new world. Prompt 1-4
shutdown
hibernate
degrow
destituting fossil fuels dependencies
constituting ecological dependencies
bend
respond
connect
submit
ON-BOARDING
on-board new world, prompt 5—8

1
In your daily existence, when you face a painful dilemma, when there seems to be no alternative, and you find yourself trapped on a narrowing path; world your way forward.

DILEMMAS:

2
Direct your focus to energy currents. Are there any carbon emissions or fossil fuel extravagances that permeate this situation?

3
Is there an exhale?
Is there a car ride?
No matter how insignificant it may seem, focus on it.

CARBONDIOXIDES:

4
Use www.elsa.film to further identify the carbondioxides of this circumstance.

5
What positions can you take to impede or deter Co2 emissions and overuse?

SHIFTED POSITIONS:

6
Let a void replace the removed carbon. Notice what things emerge there.

7
Do not to alter anything but your own shape, position and relation to what is already there.

8
Only take actions that don't require force and effort. Be patient and wait until an autopoetical alternative reveals itself.

This is a excerpt from the story-world "New Reactive Earth" by Lina Persson. This world is neither a utopia nor a dystopia but a "transtopia". A place to make a transfer, in order to get beyond the current, get a glimpse of what else could be; transform. With the included prompts 1-6, I invite you to join this shaping, to extend its interplay to your own environment.

REMEMBER: I AM NATURE

BY OTHERING NATURE WE CREATED A LARGE PART OF THE DILEMMA THAT WE ARE IN SOCIETALLY INSTEAD OF UNDERSTANDING OURSELVES AS STEWARDS LIKE ALL THE INDIGENOUS TRADITIONS THAT KNOW WE ARE PART OF THE LARGER CYCLE AND THAT LOVINGLY TEND TO THE OTHER ORGANISMS AROUND THEMSELVES THE SAME AS THEY WOULD FOR FAMILY.

BIRGIT PENZENSTADLER

IMMERSE YOURSELF IN THE FOREST, BREATHE AND FEEL

Internet of Squirrels

2024 International Conference on
ICT for Sustainability (ICT4S)

Vesna Manojlović

BECHA@UnCiv.nl
@becha@social.v.st
https://becha.unciv.nl/

If we want to have "sustainable Internet", we have to "consider the squirrels"!

Squirrels are a symbol for **all** more-than-human beings & ecosystems: trees, rivers, soil, insects, fish, forests, cats, sea-weed...

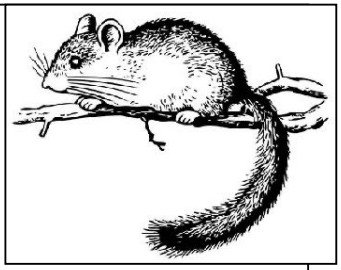
Considering squirrels is an analogy for **ecocentric** attitudes.

Squirrels are a metaphor for all those humans with **no** own voice: the disconnected, the marginalised, the exploited, the oppressed, those not yet born... and who I take the responsibility to speak **for**.

"Internet of Squirrels" is a direct opposition to *"Internet of Things"*, a reminder that we will not achieve SDGs & ESRs through the technological fixes, but that the solutions to our technical problems are, in fact: **social, political, ecological and spiritual solutions**.

Squirrels symbolise "the other" - but taken to the **extreme**;
in order to "move the goal posts" of radical Diversity, Equity & Inclusion!
- for the engineer, squirrel is an "End User" => rfc-editor.org/rfc/rfc8890
- for the network operator, squirrel is a "customer" => forum.ripe.net
- for the academic, squirrel is a "research subject" => degrowthjournal.org
- for the content provider, squirrel is a "consumer"

I am a Speaker for Squirrels: https://wiki.unciv.nl/index.php?title=Speaker_For_Squirrels



On a technical level, Internet of Squirrels represents basic, modest, green connectivity for all, within planetary boundaries, harmless for squirrels: Internet "on the squirrel scale".

Principles of Internet of Squirrels: ecology, sufficiency, reciprocity, empathy, anarchism, commons, altruism, ecocentrism (not anthropocentrism!), solidarity, degrowth, climate justice, decoloniality, intersectional feminism, stewardship, permaculture, regeneration, communality, radically open participation, caring, solar punk, reciprocity, animism...

On a metaphysical level, Internet of Squirrels acknowledges existence of meaningful connections & communication and/or "networks" among (& between) non-human species (murmurations of birds, mycelia networks, crows, ant colonies, Wood Wide Web, dolphins, slime mould, parrots...), and non-technological networks within human cultures.

While the first 50-60 years of the current Internet were based on growth, I imagine next 50 years oscillating between dystopia & utopia: due to polycrisis, Internet has to function (or not) within many disaster scenarios: a war-thorn country, a refugee camp, an aftermath of a hurricane, a flooding, raging forrest fire, a pandemic... a series of collapses.

We have to rely on the equipment to function with little electricity & intermittent connectivity, within a broken supply chain for parts, no way to pay for licenses, and people who are focused on survival needs first, & then meaningful & minimal connections: making emergency calls, finding the loved ones, letting them know you are alive, looking up the direction to a shelter...

Counter-computing movement & alternative networks give me hope: frugal, slow-tech, minimalistic, off-the-grid, retro, low-tech, communal, repaired, DIY, shared, recycled, renewable energy, durable-tech, circularity...

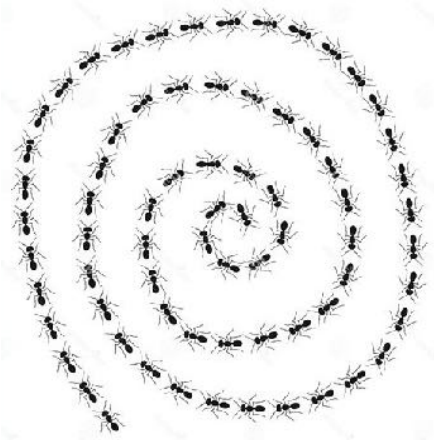
For the distant future, I dream of "just enough" networks, healthy connections in a healthy biosphere, Eco-Net that supports all communities of life.

Short-term, I am enjoying low-tech life in Lika, with the Puh, Lipa, Lisac & squirrels : you are invited to join: scan the QR code for more info!

Squirrels are symbol of innocent victims that are facing extinction, if we continue with developing *"Internet of ecocide"*, within the current social (economic, political, philosophical/spiritual) conditions.

ANTs **against** ANTi things:

- ANTi Ecocide
- ANTi Cloud
- ANTi Data Centres
- ANTi Big Tech
- ANTi Fossil Fuels
- ANTi Patriarchy
- ANTi-Capitalism
- ANTi Techno-Colonialism
- ANTi Techno-Optimism



High-speed Internet & other "advanced digital technologies" (quantum communication, 5G, 6G, HD video, VR, blockchain, AI, online gaming, etc), is what I call the **"Internet of Ecocide"**: a.k.a. Luxury, Excessive, Gargantuan, Gilded Internet... Internet of Affluence, Internet of Exploitation, Internet of Armageddon .

"Internet of Ecocide" is extremely damaging for the environment: burning fossil fuels for operations & shipping, over-consuming water (& energy & raw materials) for manufacturing & cooling, digging-up rare metals, occupying land, extracting value from many for the profits of the few, while externalising pollution (destroying habitats, dumping e-waste — even in space! —, generating excessive CO_2 emissions)...

Quotes

"imagine… a society with a modest standard of living, conservative of natural resources, with a low constant fertility rate and a political life based upon consent, a society that has made a successful adaptation to its environment, and has learned to live without destroying itself or the people next door." ~~ *Ursula K. LeGuin*

"expansion of industrialized Internet production as separating organisms from their relational ecologies and coercing them into maximized production, under late capitalism's growth imperative…"
"(I) approach Internet systems through the concept of more-than-human freedom. (I) aim to bring together the focus on Internet sovereignty and a more-than-human perspective to the organisms involved in Internet creation."
~~ *https://morethanhumanfreedom.wordpress.com*
(paraphrased, replacing "food" with "Internet")

"… those who have no physical voices, but whose biological presence keeps us breathing…" — *"My Octopus Teacher" video*

Degrowth is a social movement and a research framework which advocates for a transition to sustainable and just forms of social organization. The foundational insight of degrowth is that there cannot be endless growth on a finite planet.

Like all punk, **solarpunk** goes against the current ruling philosophy and requires a full system change. It lets care be the guide instead of greed. Solarpunk sees humans as part of the natural ecology, not apart from it as our current industrialized society does. There is great emphasis on getting your hands in the dirt following bio-dynamic permaculture and regenerative principles, to tend to your environment and grow your own food. Care of each other, care of ourselves and care of our environment are all intertwined. Solarpunk holds technology in its heart as a way to support this equal, care-driven, non-polluting meaningful life. It focuses on hyper-local, small, self-governing networks while also making the best of being connected global citizens. Without the capitalist push for the biggest economic benefit but with the eco-socialist spread of resources and benefit for all. Life would maybe have a slightly slower pace, but there would be much more to enjoy along the way.
— *By Priscilla Haring-Kuipers*

Consensus includes "the Voices who spoke for the Four Sacred Things: Deer, Hawk, Salmon, Coyote"
— *Starhawk: The Fifth Sacred Thing*

"… humanity (must) give up some of its core beliefs, from the fantasy that we can control the planet, to the notion that we are 'above' other beings."
— *Timothy Morton: HumanKInd*

DANGER

No Internet on a dead planet

www.UnCiv.NL

WARNING

Stop doing ECOCIDE!

www.UnCiv.NL

DANGER

Global Warming

Internet on Fire

www.UnCiv.NL

DANGER

No water for data-centres!

www.UnCiv.NL

NOTICE

Healthy Internet In a Healthy Society

www.UnCiv.NL


WARNING
Stop
doing
ECOCIDE!
www.UnCiv.NL


CAUTION
No Internet
on a burning planet
www.UnCiv.NL


NOTICE
Internet
of
Squirrels
www.UnCiv.NL

"We Can't Fix It All"

"Okay, But What If We Try?"

What can HCI learn from the source-pathway-receptor framework?

Alice Ashcroft
Lancaster University

Zoe Detko
Ardea Eco-innovation

Pollution linkages are the connections between sources of pollution, pathways through which pollutants travel, and receptors that are impacted by pollution. These linkages are often broken down into three stages in environmentalism in to the source, pathway and receptor (SPR) framework.

This zine will share how, with an understanding of this framework, HCI researchers can ensure equitability in their developments both in terms of the environment but the users and those in marginalised groups.

source

The origin or point of emission of pollutants into the environment.

pathway

The route the pollutants travel from the source to the receptor.

receptor

The entity that is exposed and potentially affected by the pollutant.

Okay... SPR. How does this apply to tech though?

Recognise the interaction.

Recognising the interaction between digital technology and environmental impact sheds light on how, in reducing negative environmental impacts, the positive social impact can be increased.

Emissions affecting the lives of people isn't a thing of the past.

An example of this can be seen with the creation of website that produce fewer greenhouse gas (GHG) emissions, also aiding individuals with slow internet connections or limited data plans.

A single visit to a 30 MB homepage would use both an entire day's worth of data for someone for someone on a 1GB monthly plan, and emit 12g of CO_2e (Lowe, 2021).

So we need to design websites with reduced emissions!

Reducing image sizes, avoiding auto-playing videos (Lowe, 2021), minimising automatic chatbot usage, and not integrating live social media feeds, are (great/good/another adjective of your choice) strategies for reducing GHG emissions; contributing to environmental sustainability as well as enhancing website accessibility from a data and design standpoint.

Images are the biggest source of GHG emissions on websites (Greenwood, 2021). However, only by optimizing them from JPEG, PNG or GIF to WebP formats, emissions can be reduced significantly (Hiskey, 2022), and less data is needed to access the website.

This is just one example.

Knock On Effects

They knock marginalised groups even harder.

The River Parallel

Cloud Computing is often seen as a cheaper alternative, but what is rarely considered is the environmental impact of this. Do we have to send data across the world and back?

That's a lot of energy!

If you have a limited water source, you'll have no choice but to drink the water. You might not have the data, but you still have to log on to pay your bills. Choice is a right, but still a privilege.

When you eat plants grown near a factory, do you know what you're eating? When you consume content online, do you know the quality of that too?

so many parallels!

Bioaccumulation

when contaminants build up in organisms, becoming more concentrated than in their surrounding environment

Biomagnification

when the concentration of a chemical in an organism is higher than in its food, mainly because the organism gets exposed through its diet

"intersectionality"

linguistically means the overlapping of more than one characteristic

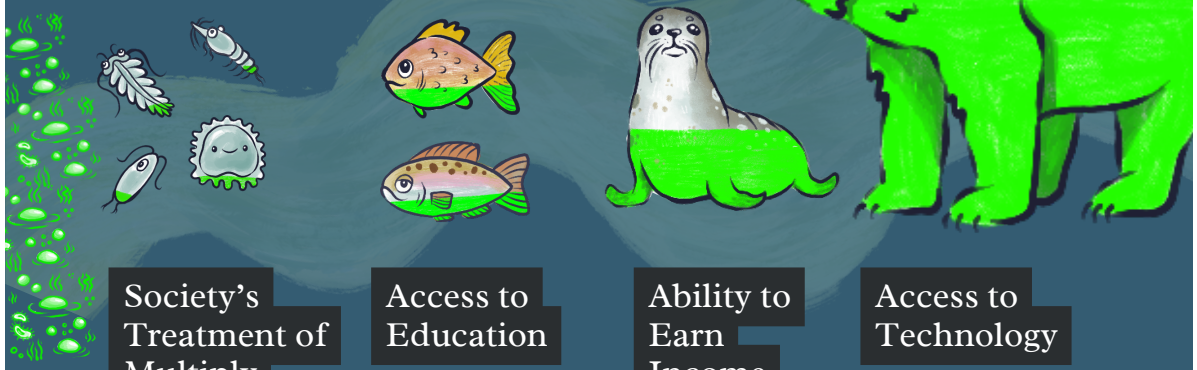
Intersectionality

theoretically means how each overlapping characteristic has affected each lived experience in the person's life, often disproportionately

the effect is magnified! sound familiar? (*cough cough* biomagnification *cough cough* intersectionality)

TLDR: things are not always proportional...

The Polar Bear Parallel



Society's Treatment of Multiply Marginalised Groups

Access to Education

Ability to Earn Income

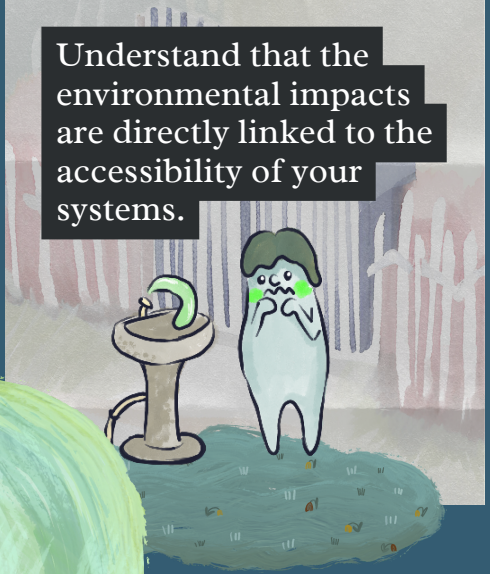
Access to Technology

and there are so many more examples of this!

What can we learn from The Parallels?

Consider the environmental impact of each stage of your developments.

Understand that the environmental impacts are directly linked to the accessibility of your systems.



Physical accessibility should always be considered. But how is social access considered in your work?

All references can be found at: aliceashcroft.com/s/ict4s-zine-refs.pdf

With thanks to *Alla Varta* for their wonderful illustrations.

Dear Garden
Dear Earth

Rodrigo dos Santos

2024

Dear Garden

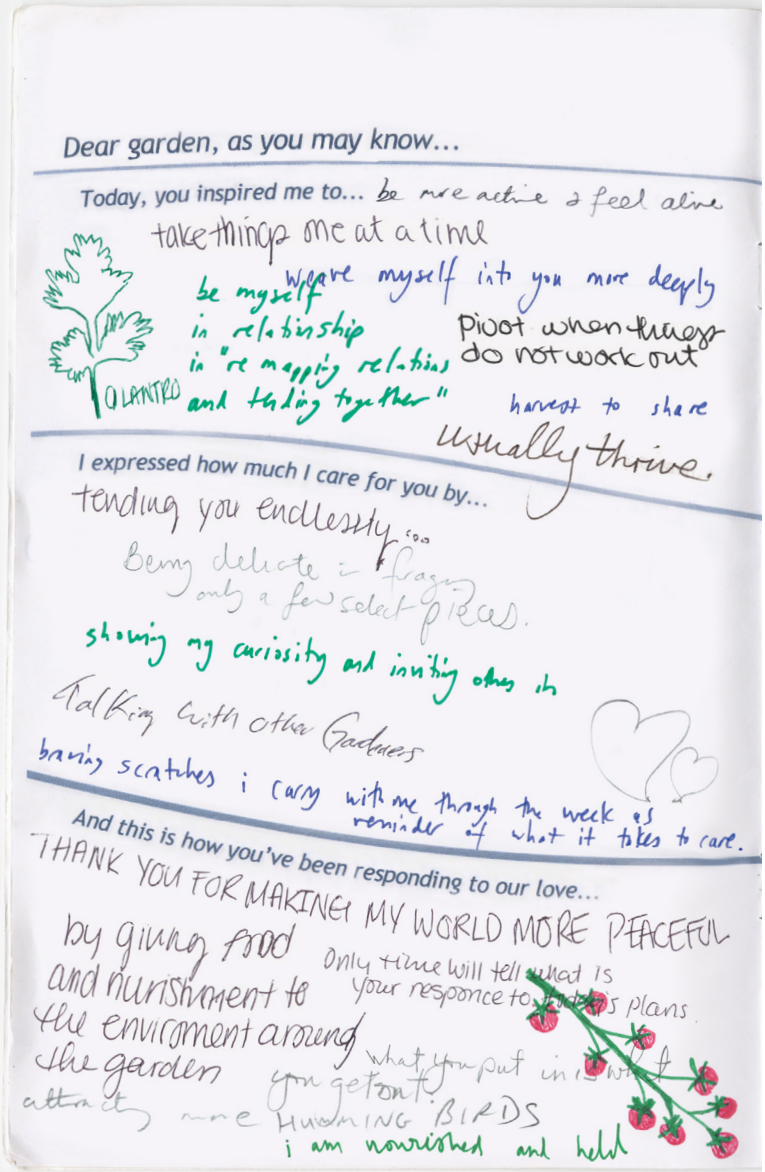
is a journal booklet created to inspire urban community gardeners to witness the relational stories that happen in garden spaces.

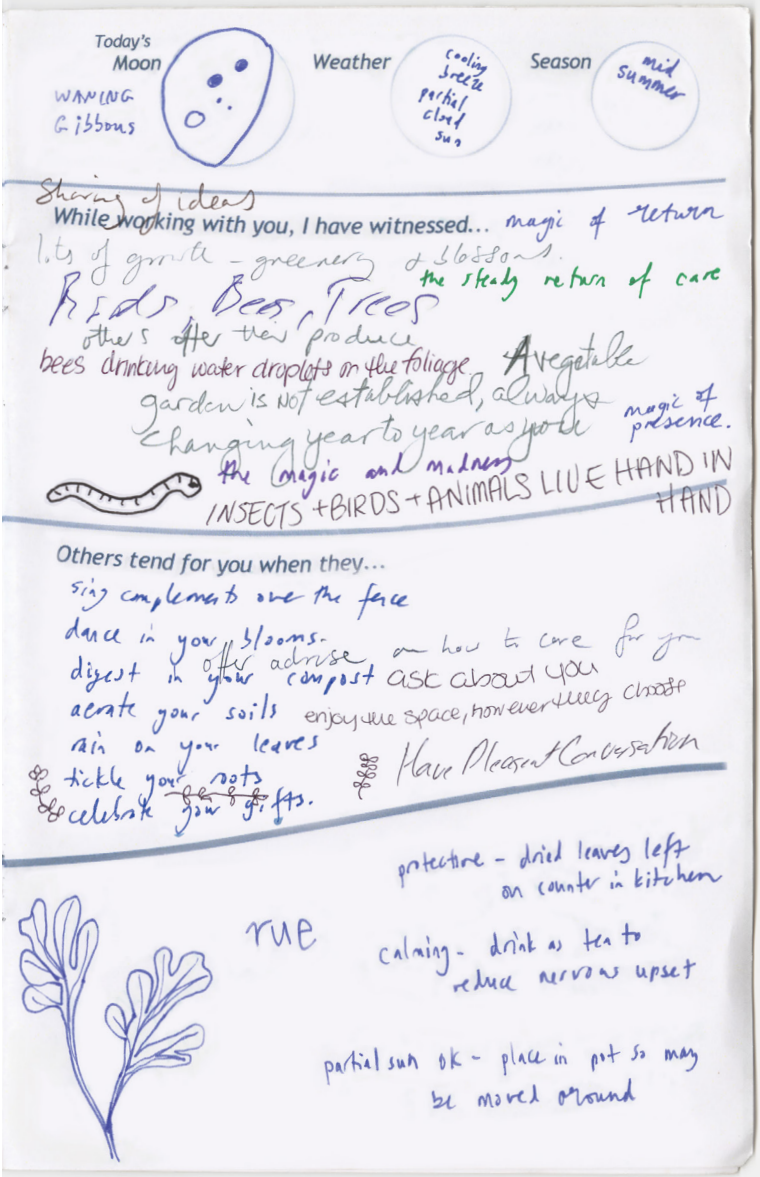
These are stories of interdependencies and collaborations among more-than-human entities such as

~ heat ~
~ water
~ soil ~
~ plants ~
~ critters ~
~ people ~
~ tools ~

that permeate their garden selves.

The journal is part of a speculative, yet participatory design research that takes non-anthropocentric perspectives into consideration through:
~ the myriad forms urban community garden[er]s can express themselves;
~ the interactions they engage with;
~ their learnings and responses to each others' stories.





Collage with some of the contributions to the Dear Garden journal.

stories of unity
reminding
we are entangled
not apart

stories that bring upon
our imaginative capacities
speculative why not?

one truth is that people
often struggle envisioning
as you might
or even pretend to

then we hear whispers
it's you shouting to all
we are one
and many more
~
interdependent
stories

Dear Earth

is inspired by the Dear Garden journal, and invites you to reflect on some of the relational stories you share with the Earth.

While contemplating these stories, you may consider how your design practice—or your Information and Communication Technology-related work—is entangled with the social and ecological perspectives that
~ you nurture and/or
~ nurture you.

—~..—.≈

*Any responsible form of expression to engage with **Dear Earth** is welcome.*

Dear Earth,
There is so much care around ourselves

You know you have my attention when I…

But I confess that sometimes it is hard to have you in mind, especially when…

This may incite you to…

In order to embrace your whispers and shouts, I might...

Dear Garden journal evokes ways of building responsible and reciprocal relations with the land—practices that are shared in many places, and by many communities in their own ways.

It was created as part of my dissertation research project. The research happened in the Summer of 2023 in two urban community gardens in Vancouver, Canada—the traditional, ancestral, and unceded territory of the Səl̓ilwətaɬ (Tsleil-Waututh) *twnation.ca*, Skwxwú7mesh (Squamish) *squamish.net*, and xʷməθkwəy̓əm (Musqueam) *musqueam.bc.ca* peoples.

The relational stories that arise from the interactions that urban community garden[er]s witness and engage with can broaden understandings on the importance of assessing and/or envisioning perspectives —..—~~˚— that are often unacknowledged by social, economic and political systems that support dominant
~ technocentric
~ solution-based
interaction design practice.

***Dear Earth** is a nascent initiative built on learnings from the Dear Garden journal and on calls to address the social and ecological climate crisis we are immersed in...*
≈ raising sea levels
≈ melting glaciers
≈ draughts
≈ floods
≈ hunger
≈ et al.

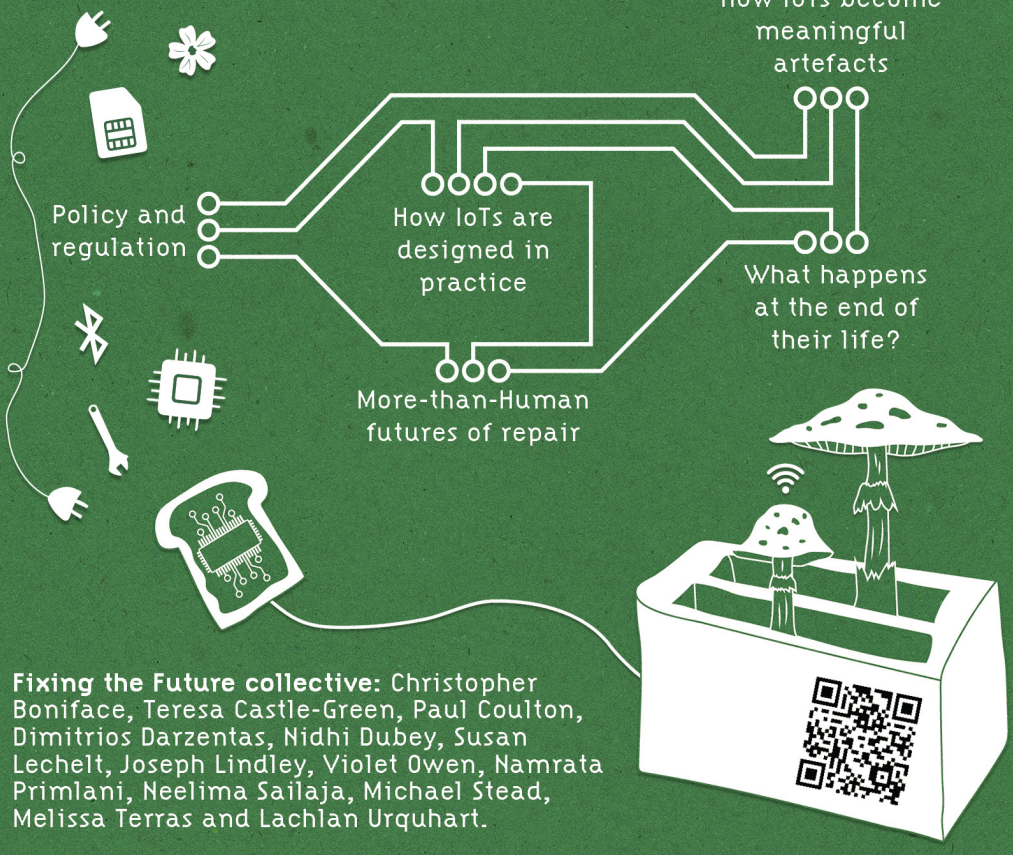
—from bees
weeds
worms
soils
apples
tomatoes
potatoes
peas
fireweeds
peoples
places
ants
house
plants
of varied
colours
and shapes
mushrooms
above and
underground
rue
rhizomes
compost
stones
that reflect
different
moments
~~—*˚≈—

Rodrigo dos Santos
UBC School of Information

If you would like to start an informal conversation, or share your ***Dear Earth*** reflections, please email rodrigo.dossantos@ubc.ca

What might a more Sustainable Internet of Things look like?

The redundancy and lack of repairability of IoT devices has led them to become major contributors to the electronic waste crisis.



Fixing the Future collective: Christopher Boniface, Teresa Castle-Green, Paul Coulton, Dimitrios Darzentas, Nidhi Dubey, Susan Lechelt, Joseph Lindley, Violet Owen, Namrata Primlani, Neelima Sailaja, Michael Stead, Melissa Terras and Lachlan Urquhart.

EU and UK Laws are targeting different stages of the IoT lifecycle to improve sustainability.

2021 No. XXX

ENERGY CONSERVATION

The Ecodesign for Energy-Related Products and Energy Information Regulations 2021

Right-to-Repair

Made ***

Coming into force - - ***

hardware

data

software

IoT

"How fixable is this? You're going to get judged!"

L'INDICE DE RÉPARABILITÉ — Plateforme d'information sur l'indice de réparabilité

Indice de réparabilité

Provides IoT device fixability ratings to consumers

design/before sale

reuse

EUROPEAN COMMISSION

EU RIGHT TO REPAIR

How can IoT manufacturers support access to spare parts and repair services?

Proposal for a Directive of the European Parliament and Council **on common rules promoting the repair of goods and amending Regulation (EU) 2017/2394, Directives (EU) 2019/771 and (EU) 2020/1828**

"make sure there is better access to spare parts"

"Easier to dismantle, easier to recycle"

European Commission

Energy, Climate change, Environment

Waste from Electrical and Electronic Equipment (WEEE)

How to ensure IoT eWaste does not go to landfill?

recycled/reimagined

end of life

EN **EU EcoDesign Law: Regulation (EU) 2023/1670**

How can IoT have more resilient components and screens?

"Harder to break, easier to replace, parts galore"

sale/in use

"stop selling insecure devices, make them and keep them secure"

European Parliament

2019-2024

Cyber Resilience Act

How can IoT be kept secure across its lifespan?

end of life

Functional device, to meaningful artefact

Design dictates devotion,
Aesthetics alter attitudes,
Shoddy style, swift scrap,
Beauty begets bonding,
Tacky tech, throwaway toy,
Sleek and serviceable, sustained and saved,
Alluring and accessible, admired and attended,
Form and function forge the future.

Perceived as repairable

Repairable Aesthetics

Non-Repairable Aesthetics

Perceived as not worth repairing

Write the words above - decide where they fit

"Utilitarian" "Functional" "Industrial" "Clinical" "Practical" "Replaceable"
"Get while it lasts" "One-use" "Disposable" "Cheap" "Rubbish" "Waste"
"Modular" "Fixable" "Customised" "Keepsake" "Buy for life" "Mine"
"Beautiful" "Seamless" "Expensive" "Warranty" "Closed" "Waste"

cut me out and place me on the chart where I belong





What are the drivers that will stop or discourage use of a particular product or service?

Why was My Friend Cayla banned?

Why does no one use Dash buttons?

Why did Sonos stop supporting older models?

Why did Violet not make its service open source?

Banned artefacts, surfaces, processes

Changes to business models

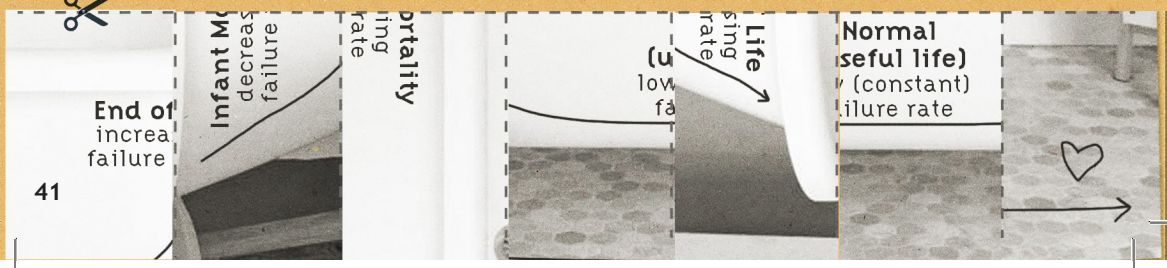
Abandoned artefacts

System erosion

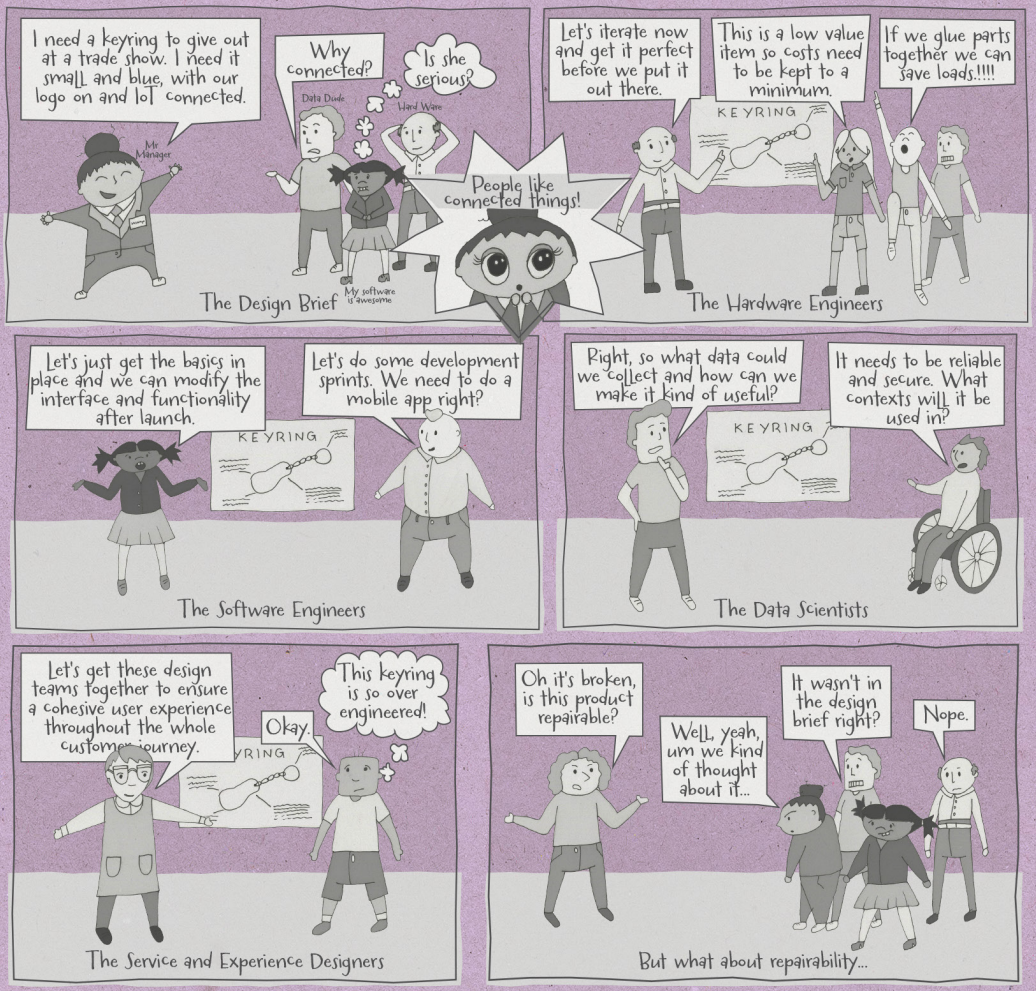
Strategic Motivation

Scope of Analysis

Whilst physical hardware failure was largely driven by its electronics it is now driven by the business choice (or failure) as to whether to continue software support.



How IoTs are designed in practice



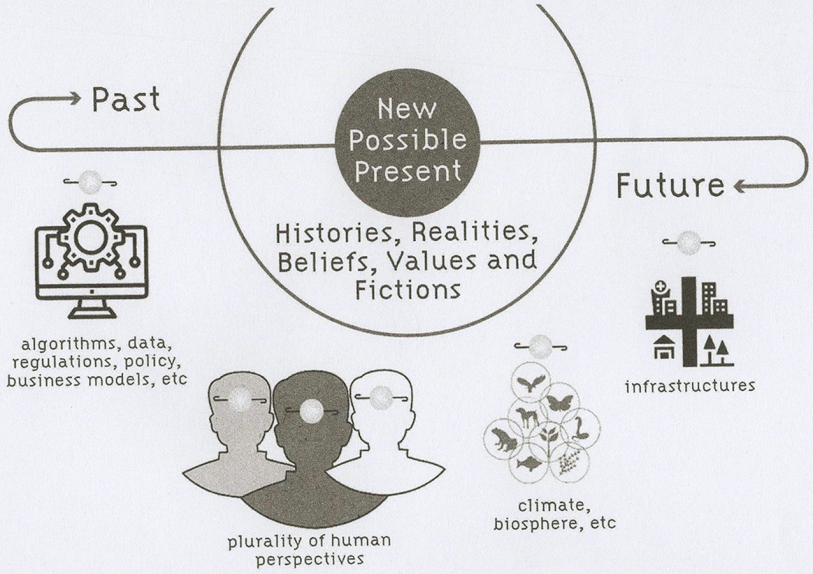
Designing for Repair

When designing for repair as a use case, particular attention should be paid to:

REPAIRERS	CONTEXT
DATA	SUPPORT
PRIVACY	DIAGNOSIS
REPAIR	MODULAR

Z	E	S	U	P	P	O	R	T	A
F	M	C	X	H	I	B	E	D	T
C	P	O	K	U	L	T	P	I	S
U	R	N	D	A	T	A	A	A	Y
R	I	T	E	U	N	S	I	G	L
I	V	E	M	O	L	R	R	N	I
A	A	X	S	Y	I	A	E	O	G
P	C	T	A	R	Y	O	R	S	X
E	Y	F	M	D	A	V	S	I	L
R	E	T	N	I	I	T	L	S	M

More-than Human Futures of Repair



The things in the Internet of Things are not simply the physical products but include algorithms, business models, regulations, resources etc to form a network of human and non-human things.

Engineering and Physical Sciences Research Council

https://ftf.wp.horizon.ac.uk/

PEERING

TIM COWLISHAW

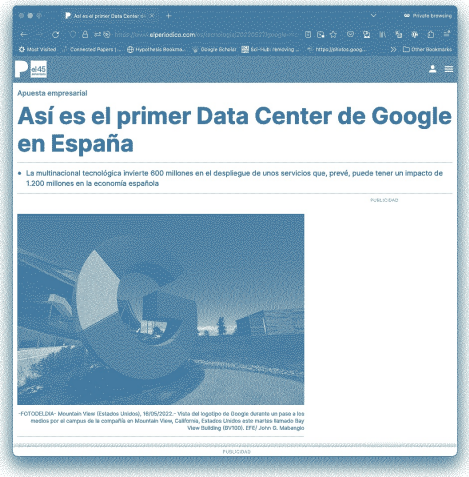
A face peers down at me, tinted blue by a bright sun which bleaches the sky behind a hazy featureless white. The face wears an expression of concern, or perhaps of puzzlement in the eyes. It's a familiar face, although not one I've seen from this angle. Below it, a question: *"Do you remember this moment?"*. I don't - but it must have happened - there's photographic evidence after all.

It's a photo of me, revealed by the "memory reel" notification that Google Photos occasionally sends me, without my asking. But it's a strange type of memory, one that diverges so entirely from what I thought that I recalled. I'm peering into the lens, perhaps caught by surprise, perhaps attempting to diagnose some problem, but the overall impression is of someone peering into the mechanism, trying to see what's on the other side.

This hidden mechanism is on my mind now - receiving this notification was a moment of *Infrastructural uncanniness*[1] - a sudden, jarring reminder, that my phone, familiar, and personal, is one tendril of a much larger digital infrastructure, through which other agencies apart from my own operate. If I didn't knowingly take this photo, then who, or what did?

1. Geoghegan, B.D. (2016) 'Mind the Gap: Spiritualism and the Infrastructural Uncanny', Critical Inquiry, 42(4), pp. 899–922. Available at: https://doi.org/10.1086/686945.

Perhaps if I understood where this photo is now, then I might better understand how I'm entangled in this infrastructure. In my work investigating the material footprint of discarded data, one thing still eludes me: how the footprint of my own digital waste contributes to it. This photo offers an interesting glimpse of that involvement precisely because it offers no easy answers: it's "my data", but I never chose to store it, and wasn't aware of its existence until just now.

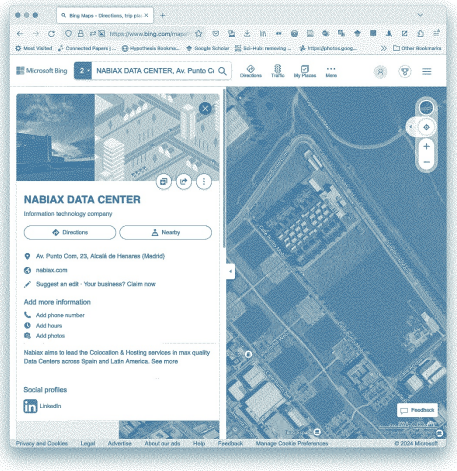


My phone gives me few clues: the photo was taken on the 29th of December 2020, at a point on the map I know: my home. The moment I don't remember lasted 1/100 of a second, a click of a shutter. But Google's interface tells me nothing about the photo now - not even a file size.

Recalling Anne Pasek's methods for *getting into fights with data centres*[2], I open Google Photos on my laptop, and locate the photo. From the photo, a URL, from the URL, a domain, from the domain, an IP address, and from the IP, a location: Madrid.

This all seems too simple, too definite, each inference bringing more uncertainty. The domain of the image might point to one IP, or several, it might be a proxy, a CDN. Now, looking at a point on the map in the centre of the Puerta del Sol, I realise it offers a comforting illusion of specificity. There is definitely no Google data centre here.

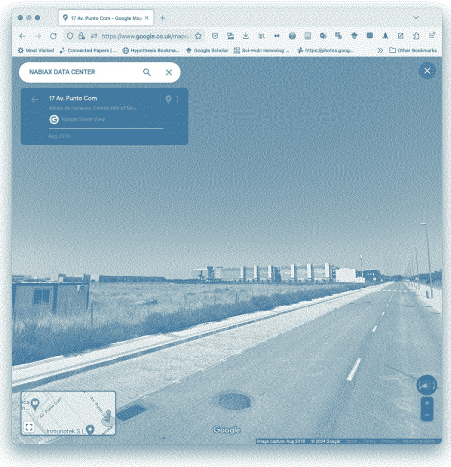
Still: it makes sense for *my particular photos* to be stored in the country where I live: these are not public images, distributed around the world for access from anywhere. In the face of uncertainty, an abductive leap: It is *probable* that my photo is in a Google facility in Spain. So, if not in the Puerta del Sol, where?



2. Pasek, A. (2023) 'Getting Into Fights With Data Centers: Or, a Modest Proposal for Reframing the Climate Politics of ICT.', White Paper. Experimental Methods and Media Lab, Trent University, Peterborough, Ontario. Available at: https://tinyurl.com/PeeringPasek.

Google does have a data centre in Madrid: it was announced to great fanfare in the press[3] when it opened in 2022. The article mentions a partnership with Telefónica, and I soon locate another article[4] which places it in a Telfónica facility in Alcalá de Henares.

A map search for “data centre Alcalá”: squat grey buildings on the outskirts of town, with unfamiliar names. No sign of Telefónica or Google, but a search for “Telefónica Alcalá” yields an elegant brochure[5], describing a state of the art facility with distinctive turret-like structures along the edge. I notice that one of the grey outlines on the map, named “Nabiax”, has a similar crenellated profile, switch to Street View: It's the same building.



I try to imagine its enormity: 15 square kilometres of usable space, and 100 MW of installed electrical capacity. 22 tonnes of CO_2[6] (five passenger flights from Madrid to Santiago de Chile, or 44 square metres of lost arctic ice) per hour.

More searches, more documents: Everything that helps keep my photo online 24/7. The frustrations of the technicians working there[7], the layout of the control room and the enormous diesel tank for backup power[8], the local council’s generous offer of a new dedicated power line and substation, now open for tender[9]. These installations are built *to scale*[10], their footprint and power supplies expanding continuously.

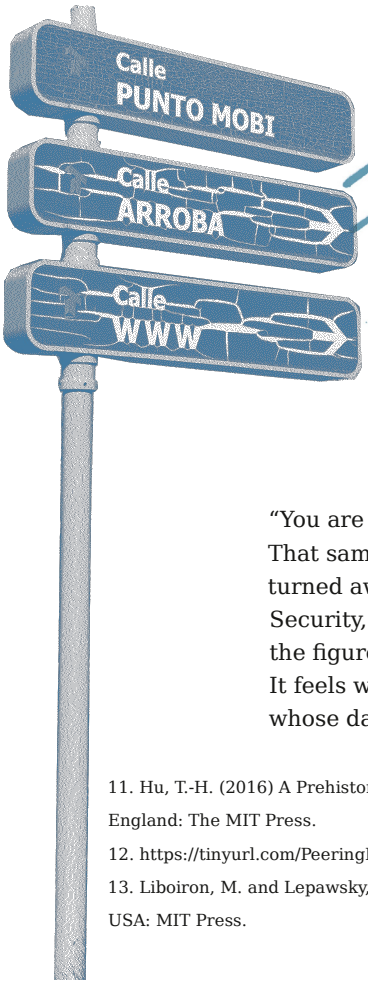
Trying to comprehend everything keeping this giant machine running is dizzying, as is knowing that I am, every time the shutter on my phone clicks, implicating myself in it further. But seen framed by the laptop screen, zoomable with a pinch of the fingers, I can’t comprehend the scale of the place, nor the extent of my own involvement. To really get a sense of this, I reason, I have to go there, to stand alongside it.

3. https://tinyurl.com/PeeringElPeriodico
4. https://tinyurl.com/PeeringEuropa
5. https://tinyurl.com/PeeringBrochure
6. https://tinyurl.com/PeeringPower
7. https://tinyurl.com/NabiaxMapsReviews
8. https://tinyurl.com/PeeringPlan
9. https://tinyurl.com/PeeringTender
10. Tsing, A.L. (2012) ‘On Nonscalability’, Common Knowledge, 18(3), pp. 505–524. Available at: https://doi.org/10.1215/0961754X-1630424

So, a few weeks later, I take a train to Madrid: It tickles me that i'm likely following the same path along which my image had passed, from fibre optic to fibre optic, peer to peer. Tung-Hui Hu[11] describes how the railway and the fibre optic network are often intertwined, and this is the case here: overlaying a map of fibre infrastructure[12] on to the railway network, and tracing the thread of a backbone link following the AVE line beneath me.

On the second leg of my journey, I approach Alcalá de Henares Universidad. An outskirt of an outskirt: Alcalá is a suburb of Madrid, and the Universidad station is in an outskirt of Alcalá: bordered on one side by warehouses, and on the other by the university campus and a large expanse of green scrubland.

Looking out of the window, I'm struck by the number of *trasteros* (self-storage units) I see. They and the data centre make good neighbours: Both need large amounts of cheap space, proximity to transport infrastructure (or the fibre under it), and they're both peripharal places, in the terminology of Discard Studies[13]: the *"away"* where unwanted things can be sent, out of sight and out of mind.



I trace an L-shaped movement along the edge of the wasteland (I could cut across, but i feel like an interloper, and don't want to draw attention to myself). As I walk, a low hum, barely there at first, but growing in intensity to the identifiable major-third drone of industrial air-conditioning. I turn a corner and see a weathered billboard welcoming me to "Tecnoalcalá Technological and Scientific Park". Below it, a sun-bleached street sign pointing to "WWW street", "Arroba (@) street", and ".mobi Avenue", already familiar from the map. I'm on ".com Avenue", the street where at number 23, the Google Cloud region which I'm pretty certain holds my photo resides.

"You are entering a private complex - respect the instructions". That same feeling of being an interloper again: I'm not being turned away, but I'm definitely not being welcomed in either. Security, and secrecy: the "bunker mentality" of the cloud[11], needs the figure of an outside threat from which we're being protected. It feels weird to inhabit both roles at once: I'm one of the people whose data is in there, but I'm also the interloper.

11. Hu, T.-H. (2016) A Prehistory of the Cloud. Illustrated edition. Cambridge, Massachusetts London, England: The MIT Press.

12. https://tinyurl.com/PeeringFibre

13. Liboiron, M. and Lepawsky, J. (2022) Discard Studies: Wasting, Systems, and Power. Cambridge, MA, USA: MIT Press.

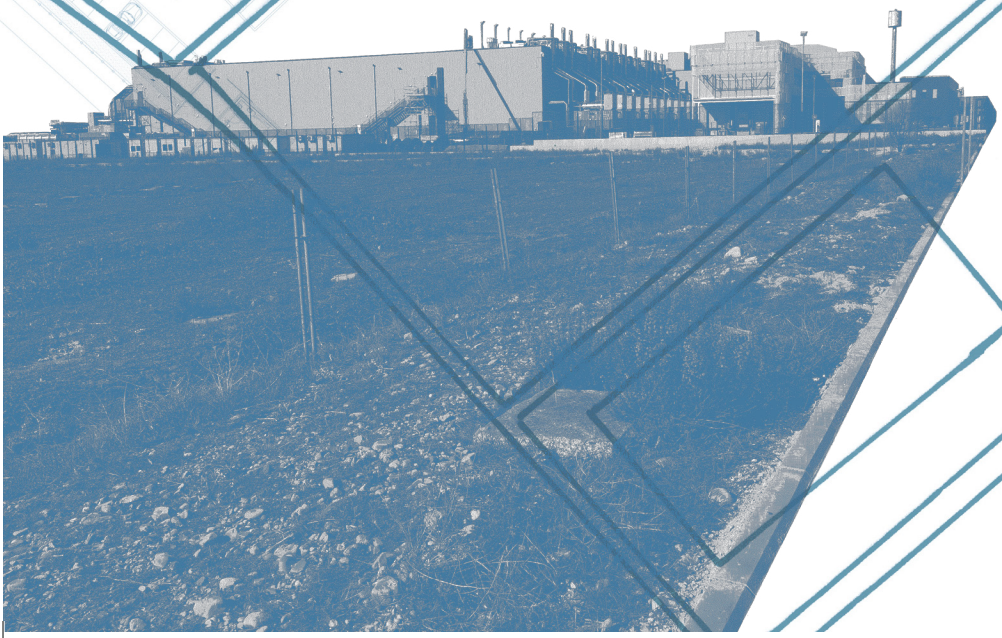
The weathered, sunbleached quality of the road signs can be seen on everything, and I can feel its cause in a very bodily way - even on an early February morning, it is uncomfortably hot, and I can feel the back of my neck burning. Curiously though, the road verges are more verdant than the surrounding scrubland. A closer look reveals the black serpentine tangle of an automatic watering system under these green borders: the clean, sustainable imaginary of the cloud must be maintained where it meets the material reality.

Rounding a corner, I see the now-familiar crenellated profile of Nabiax, and am struck by its scale. Not just the sheer size of it, but also the way in which I could see it *scaling* - one end of the building still under construction, and an expanse of unbroken but fenced off ground to its south reserved and waiting.

I arrive at the front entrance: a man-sized gate under the building's address in large metal signage, and a smaller, more temporary sign, reading "Nabiax" ("Google" and "Telefónica" conspicuous by their absence). This gateway is the only human-sized thing about this building: there are no windows, nor any clues of human habitation: Of the 10,000 jobs which this installation supposedly enabled[14], few of them appear to be in this building.

Beyond the entrance, I see a row of pylons, stretching from the data centre across the field behind me, off in the direction of the substation. There's also a curious empty space, maybe the size of half a football pitch, fenced off, within the perimeter of the data centre, but, meticulously lawned, and empty, right above where the plan told me the diesel tanks reside.

14. https://tinyurl.com/PeeringVanguardia

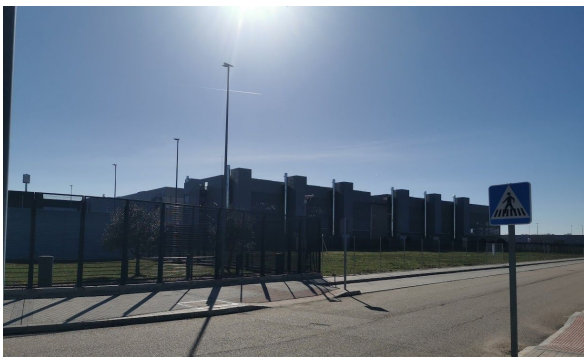


Standing on the corner on the other side of the patch of grass, I try to take in the entire installation: not just the building, but the construction sites surrounding it, the fibre network snaking under the roads and train lines, the electrical grid behind me and the backup generators below. I'm very aware of all I don't know, and can't see: most notably what's inside the building: the high fences and security cameras mean this is as close as I can get.

However, incomplete knowledge is still knowledge, and knowledge can be put into action. I may not understand the totality of this rhizomatic infrastructure, and I may never understand fully how my own digital traces are tied up with it, but I do now know two things.

The first, that *scale*, manifested in the impermeability, expandability and anonymity of these infrastructures, might prevent us from knowing them directly, but it also suggests other ways we might come to know and understand them. I might never know for sure that my photo is in this data centre, but I know that it's in one like it, and this logic of *scalability*[15] suggests that that other data centre will be much like this one: What I have learned and experienced here can still teach me something about the site my photo inhabits, even if I never know exactly where that is.

The second, is that this knowledge, does not need to be complete to be useful: Partial knowledge can still give us reasons to act, to decide. And so, on finishing this text, pasting in the image below, and hitting save, I return to my Google Photos account, navigate to the 29th of December 2020, select the blue and white smudge with the traces of a face, and I hit *delete*.



Thanks to Anne Pasek, for the methodological techniques outlined in *Getting into Fights with Data Centres*, for inspiration, and in general for tonnes of prior work I hope in some small sense I'm building on. Thanks also to Justin Pickard, for emergency ethnographic training and mentoring, extremely generative conversations, general moral support and *commitment to the bit*.

15. Hanna, A. and Park, T.M. (2020) 'Against Scale: Provocations and Resistances to Scale Thinking'. arXiv. Available at: http://arxiv.org/abs/2010.08850.

SYSTEMS THINKING WORKBOOK

Laetitia Bornes, Marcia Smith, Oliver Bates

Dear reader,

We invite you to fill in the "Systems Thinking Workbook" as part of your professional journey as a leader in ICT and sustainability. This workbook introduces six indicators for systems thinking and a series of activities for reflecting on ICT4S 2024 conference and your own practice.

This workbook is born out a series of conversations in liminal spaces at conferences and in other tech spaces about the focus of much tech research on technosolutions that lack any accompanying engagement in complex systems that encapsulate ICT and digital technology.

Use this workbook with academic papers, technologies, interventions and prototypes! Our hopes are that you use this this workbook in a non adversarial manner to capture a more complete snapshot of whether the whole conference (and your own work) embraces a systemic perspective.

This workbook is for those of you who are interested in critically engaging with systems thinking for sustainability in both your own practice and the practice of the communities you are part of. It's both a form of feedback for conference organisers, and self-reflection on our own practices and perspectives. We hope to trigger in-depth and possibly provocative reflections that nudge our collective research to more radical and systems oriented perspectives.

Thanks for reading!

Oliver, Laetitia, Marcia

Suggested indicators

Scale of intervention

What is the scope of the intervention? Does this paper study or act on devices (e.g. smartphone)? Does it deal with services (e.g. internet service provider)? Is it interested in the infrastructure behind it? or is it looking at the whole socio-technical system?

Scale of effects

What effects are being considered? Direct effects (energy, materials and resources for production, operation and disposal)? Enabling effects (substitution, optimization)? Direct rebound effects (more intensive use due to gain in time or money)? Indirect rebound effects (other additional footprints enabled by these savings)? What about economy-wide rebound and systemic change (changes in production and consumption patterns at the societal level)?

Beings considered

Is the research user centric? Does it think about other humans, non-users? What about other beings? and the environment?

Environmental impacts considered

What environmental impacts does the research consider? Does it only consider CO2 or Green House Gas (GHG) as proxies for broader environmental impacts? or does it consider other environmental impacts such as water usage, pollution, land use change, resources depletion, etc.

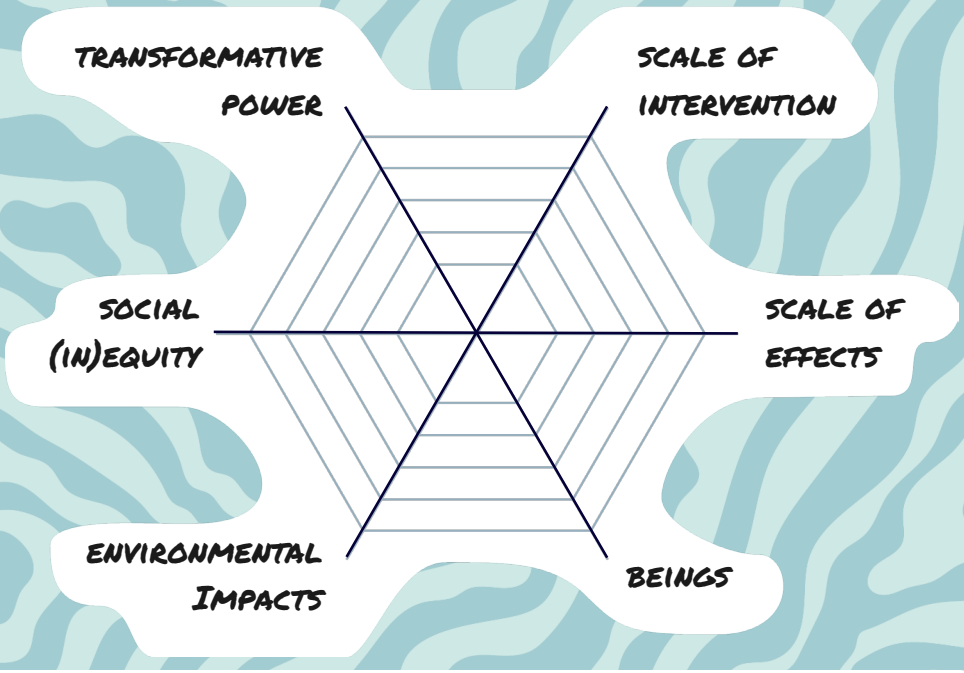
social (in)equity

Does this research reflect on notions of equality and equity? If so, is it positioned more in an equality or equity paradigm? For example, a fuel tax may be seen as egalitarian but not equitable, since it will be felt most by the poorest households, and in particular those who are car-dependent (in the countryside).

transformative power

Is the aim of this research to bring about incremental change in the direction of transition, which can be implemented in the short term? Or does this research support a radical and profound change, probably planned for the longer term?

Fill your thoughts on the papers



scale of intervention

product — service — network — sociotechnical system

scale of effects

direct — enablements — rebound effects — systemic

beings considered

users — humans — more-than-human — ecosystems

Environmental impacts

only GHG — 5 and more

social (in)equity

unequal — equality but no equity — equity

transformative power

incremental change — paradigm shift

Conference feedback

Why are you here? What did you expect to find?

.....

.....

.....

Is the conference diverse?
Did you see any patterns?

.....

.....

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.....

.....

What is missing?
What is left unsaid?

.....

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.....

How could the conference be improved?

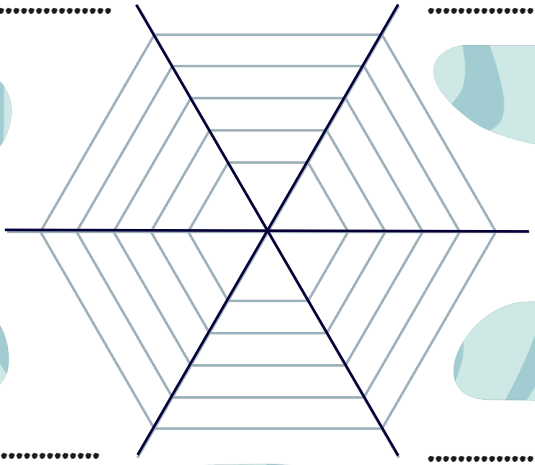
.....

.....

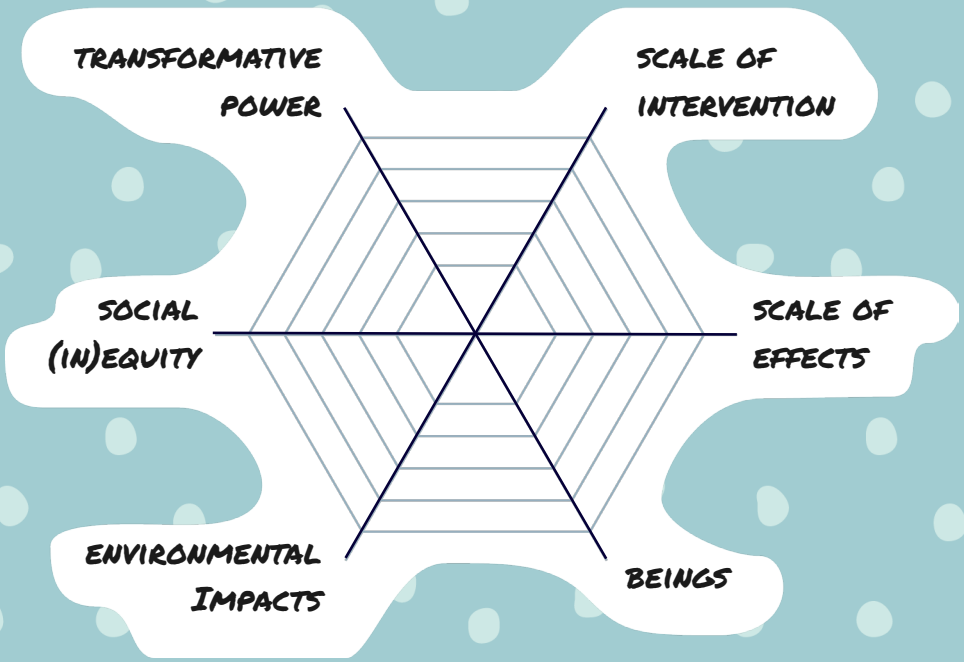
.....

.....

Design your own radar chart



Thoughts on your own research



Should/could you navigate on those axes? Which one(s)?

.....

.....

.....

.....

How could you do so?

.....

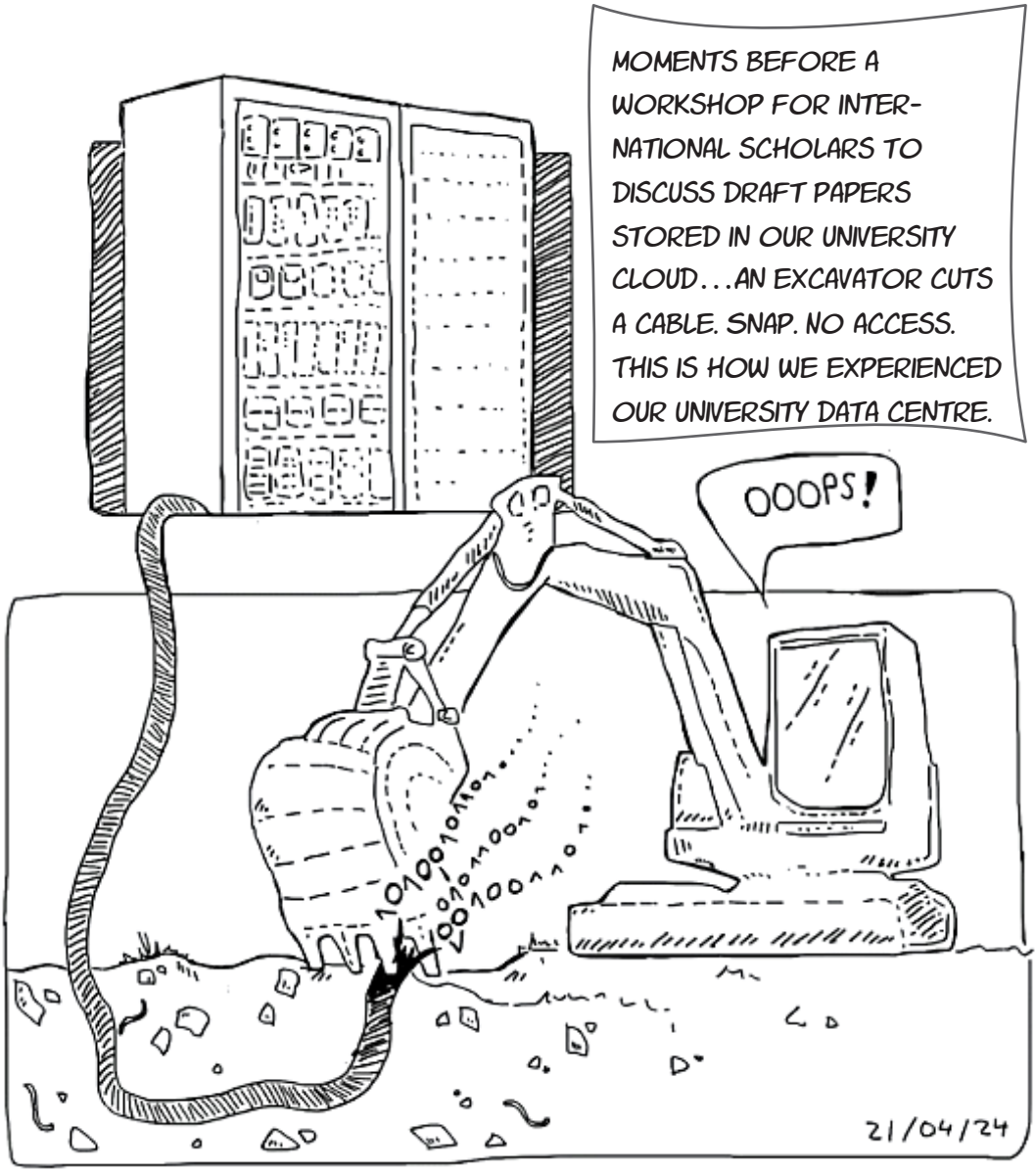
.....

.....

.....

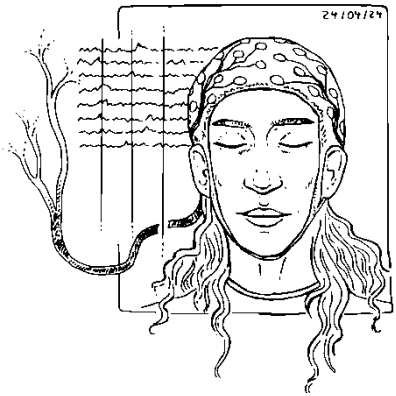
.....

A GOOD ENOUGH DATA CENTRE?



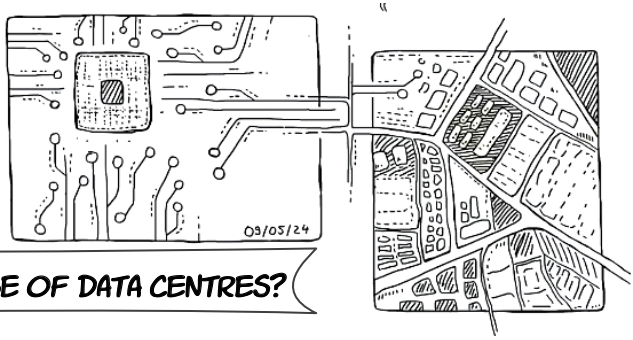
BY SANDRA ABELS, LEMAN ÇELIK, STEFAN LASER, ESTRID SØRENSEN. ARTWORK BY LYNN WERNER.

EXPERIENCES



DATA INFRASTRUCTURES ARE INDISPENSABLE FOR SCIENCE AND RESEARCH.

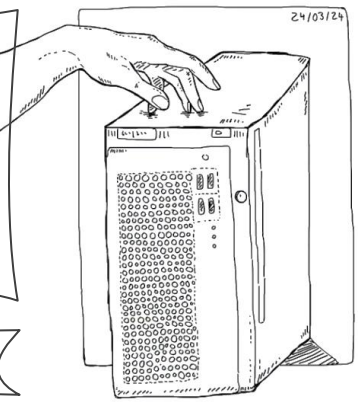
DATA CENTRES CHALLENGE SUSTAINABLE DEVELOPMENT.



HOW TO MAKE SENSE OF DATA CENTRES?

HOW ARE DATA CENTRES EXPERIENCED?

WE ASKED ACTORS AROUND A GERMAN UNIVERSITY DATA CENTRE.



THREE EXAMPLE GROUPS HELP US RETHINK.

SCIENCE

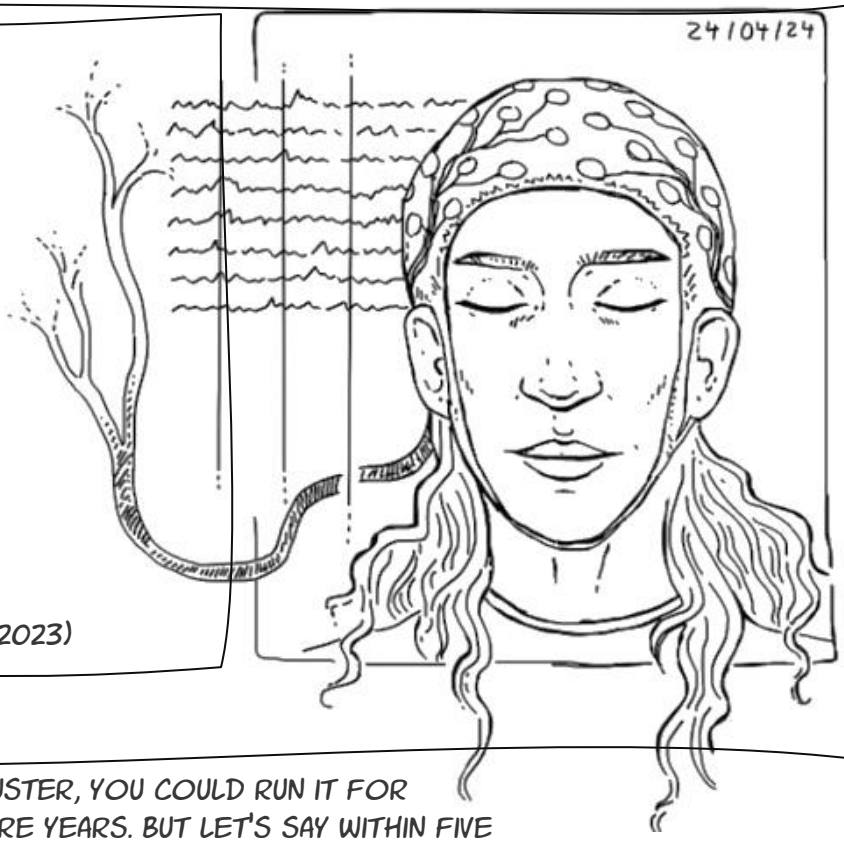
"SOME OF OUR SIMULATIONS RUN FOR DAYS, SOMETIMES EVEN WEEKS. AND OF COURSE THEN IF YOU SHUT DOWN THE SERVER, THEN YOU CAN'T RUN IT, BUT OFTEN YOU CAN'T EVEN STORE THE STATE OF THE SIMULATION."

(COMPUTATIONAL NEUROSCIENTIST, 2023)

"IF YOU SWITCH OFF THE SERVERS

THAT IS THE END OF WORK"

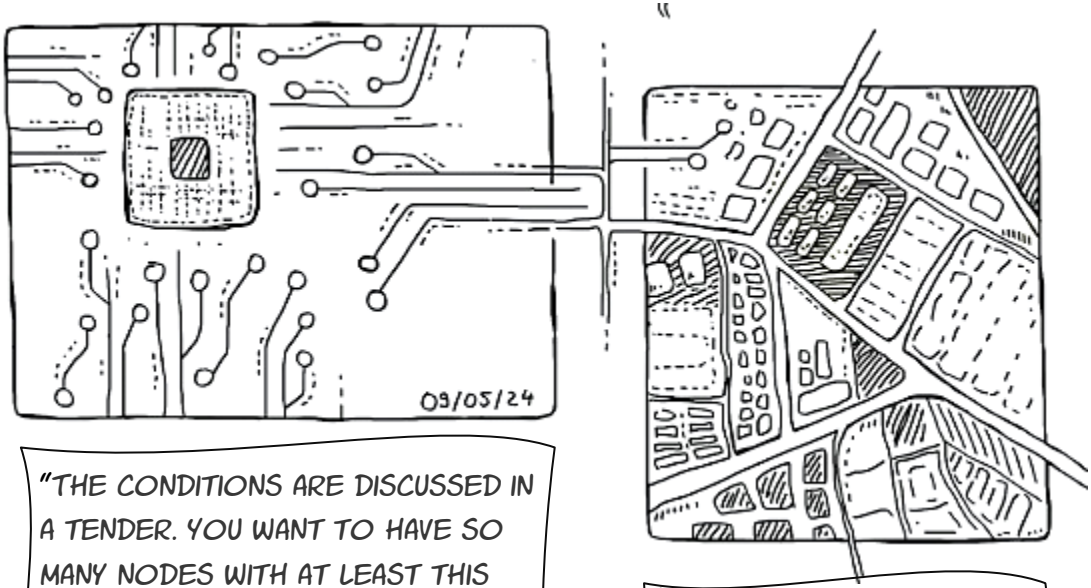
(CHEMIST, 2023)



"A HPC CLUSTER, YOU COULD RUN IT FOR A FEW MORE YEARS. BUT LET'S SAY WITHIN FIVE YEARS THE HARDWARE IS GETTING OUTDATED. SO IF YOU DON'T RUN IT CONTINUOUSLY . . . YOU ALSO HAVE TO THINK ABOUT THAT ASPECT, RIGHT? MAYBE YOU SAVE ELECTRICITY BY SHUTTING IT OFF, BUT THEN YOU'RE NOT USING THE HARDWARE TO ITS FULLEST EXTENT. AND IT TAKES ENERGY TO MAKE THE HARDWARE, RIGHT?"

(COMPUTATIONAL NEUROSCIENTIST, 2023)

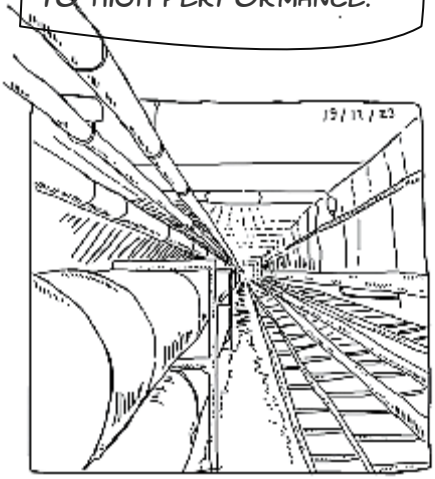
PROCUREMENT



"THE CONDITIONS ARE DISCUSSED IN A TENDER. YOU WANT TO HAVE SO MANY NODES WITH AT LEAST THIS AND THIS CPU PERFORMANCE, SO MUCH MEMORY, THEN SO MANY NODES WITH GRAPHICS CARDS, WHICH ARE THEN SPECIFIED, AND SO MUCH STORAGE AND WHAT YOU NEED THERE..."
(UNIVERSITY DC OPERATOR 2022)

"...NATURALLY, IT'S DIFFICULT TO SAY IN THIS CONTEXT THAT WE WANT TO HAVE ENERGY-EFFICIENT COMPUTERS. IT'S A BIT CONTRADICTORY TO HIGH PERFORMANCE."

"WE BASICALLY HANDED OVER THE BUILDING WITH IT RACKS, WITH POWER ON THE RIGHT/LEFT AND NETWORK AT THE TOP.
THAT WAS OUR SERVICE, NOT THE COMPUTERS." (DATA CENTRE BUILDERS, A CONTRACTOR, 2023)



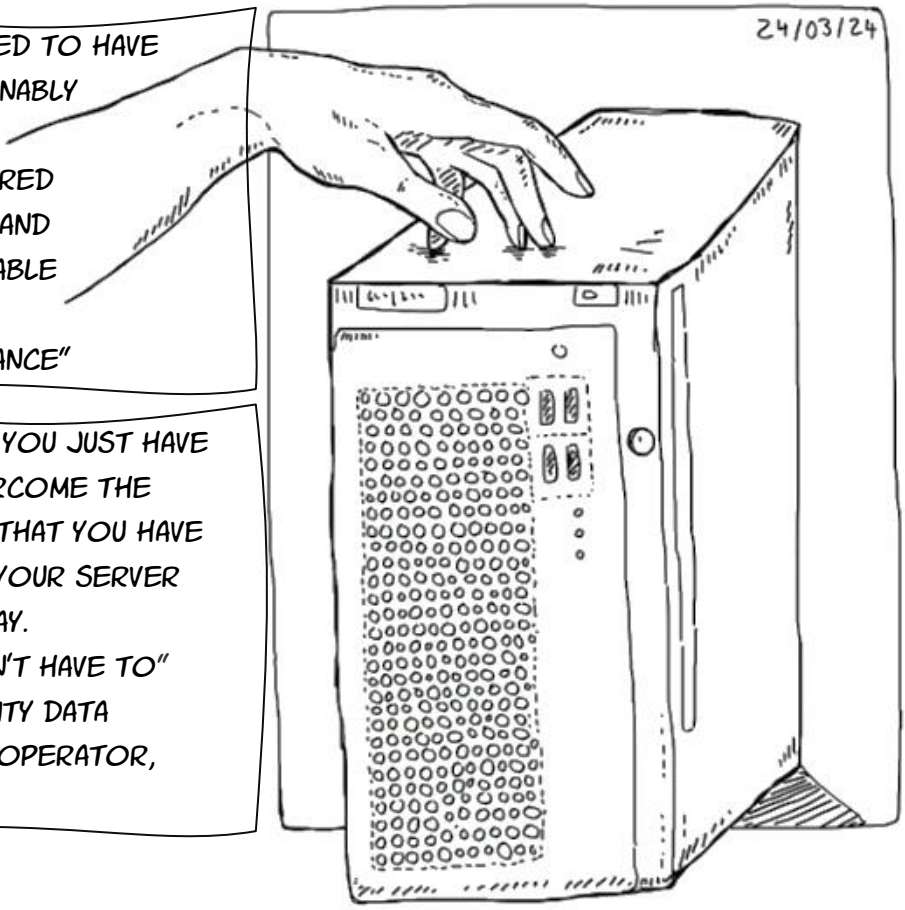
DATA CENTRE OPERATORS

"BUT SOME SCEPSIS PREVAILS: 'I CAN'T GET IN THERE ON MY OWN IF I HAVE TO.' WELL, I THINK THAT'S AN UNFOUNDED FEAR, BECAUSE: WHEN DO YOU EVER HAVE TO ACCESS A SERVER?"

(UNIVERSITY DATA CENTRE OPERATOR 2022)

"YOU NEED TO HAVE A REASONABLY CONFIGURED SERVER AND REASONABLE REMOTE MAINTENANCE"

"I THINK YOU JUST HAVE TO OVERCOME THE ANXIETY THAT YOU HAVE TO PET YOUR SERVER EVERY DAY. YOU DON'T HAVE TO" (UNIVERSITY DATA CENTRE OPERATOR, 2022)



TOWARDS GOOD ENOUGH

MORE AND MORE DATA. ACCESS.
FUTILE EFFICIENCY GAINS. CONNECTIONS
BETWEEN ACTORS THAT ARE MADE INVISIBLE.
WHERE DO WE GO FROM HERE?

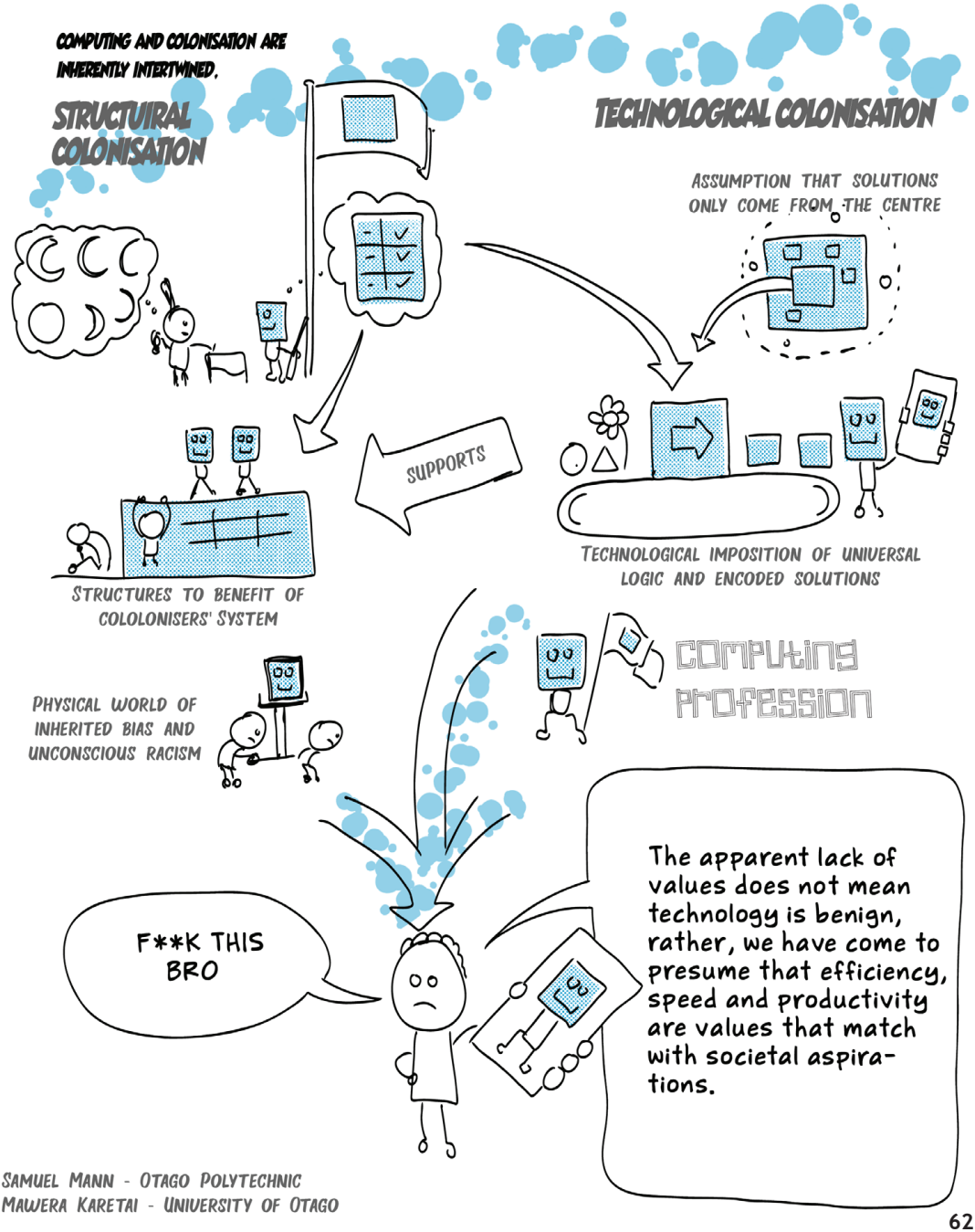
HOW DID YOU EXPERIENCE A DATA CENTRE TODAY?
WHAT IS A GOOD ENOUGH DATA CENTRE FOR YOU?

WRITE ABOUT YOUR DATA CENTRE
EXPERIENCES IN THE **CRYPTPAD**
ONLINE FORM AND READ THE RESPONSES
OF OTHER PARTICIPANTS.
YOU CAN ALSO SCRIBBLE NOTES FOR
YOURSELF DOWN BELOW.

https://cryptpad.fr/form/#/2/form/view/f6xCq-6oxrShodCey79HKTpTEZUIHDzwa-GnHdeufg/

BY SANDRA ABELS, LEMAN ÇELIK, STEFAN LASER, ESTRID SØRENSEN. ARTWORK BY LYNN WERNER.

RE INDIGENSISE GENERATE COMPUTING



SAMUEL MANN - OTAGO POLYTECHNIC
MAWERA KARETAI - UNIVERSITY OF OTAGO

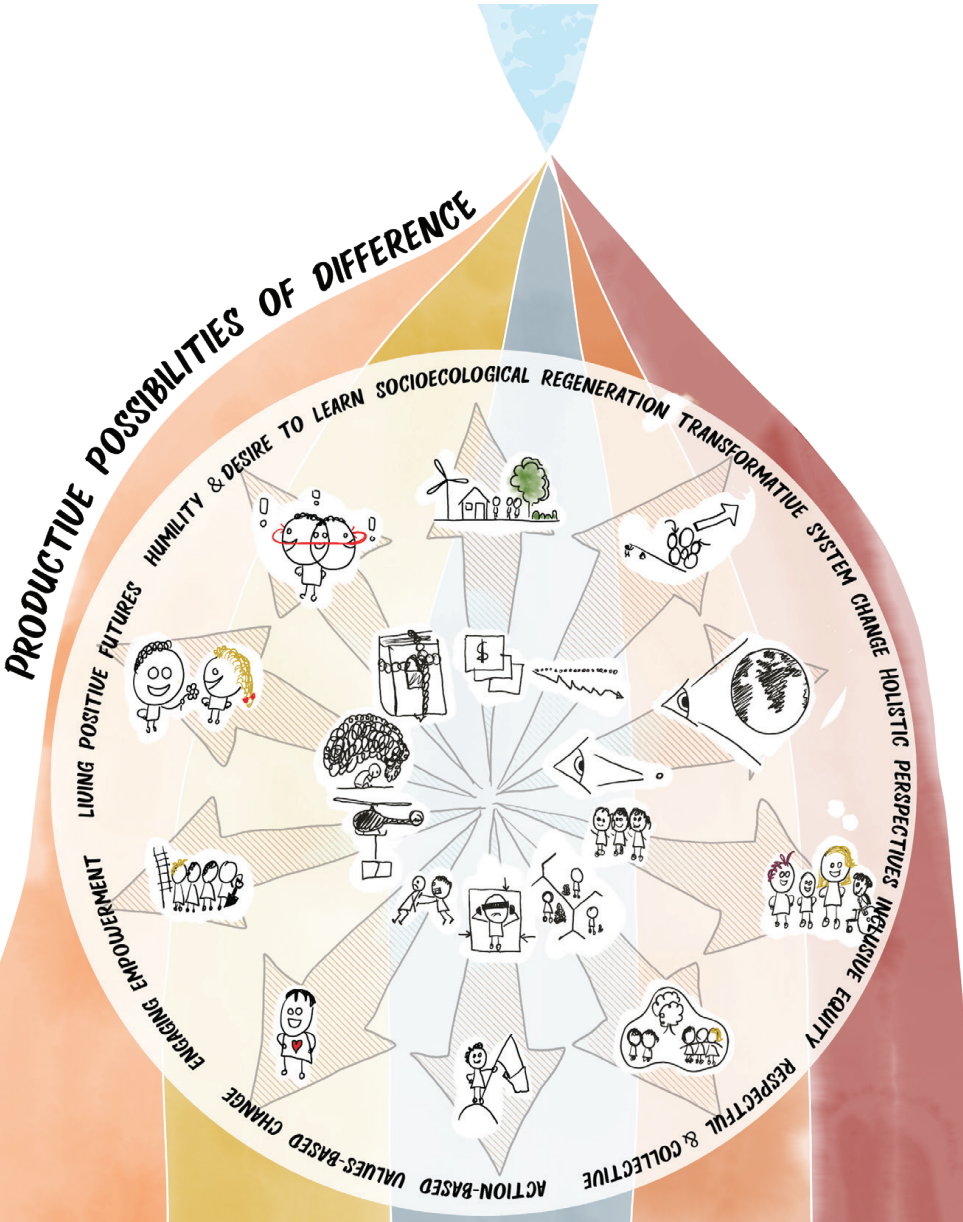
RE-TELL INDIGENOUS EVERYDAY STORIES AS COMPUTING STORIES

2. WRITE A COMPUTING PERSON INTO THE STORY TO CHANGE THE OUTCOME FOR POSITIVE. DO THIS SEVERAL TIMES FOR DIFFERENT ACTORS, DIFFERENT PLACES IN THE STORY, AND ADDRESSING DIFFERENT LOCI OF IMPACT

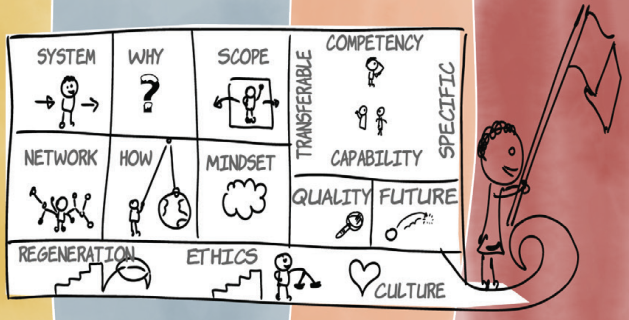
If rivers and mountains are people, what possibilities are opened up for AI by a non-western view of sentience?

– KARAITIANA TAIURU

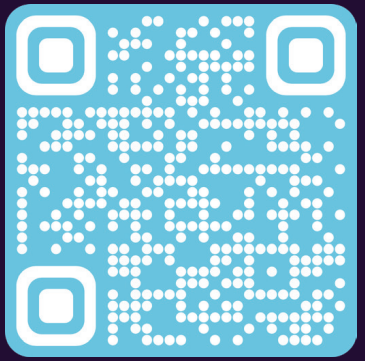
ATAMAI IAHIKO



Capture these positive skills, behaviours and mindsets to describe a new framework of practice for regenerative, re-indigenised computing.



There's No Tomorrow



The Climate Change Playbook:

22 Systems Thinking Games for More Effective Communication About Climate Change

THE MONSTER FOOTPRINT OF DIGITAL TECHNOLOGIES

Stuart McMillen presents

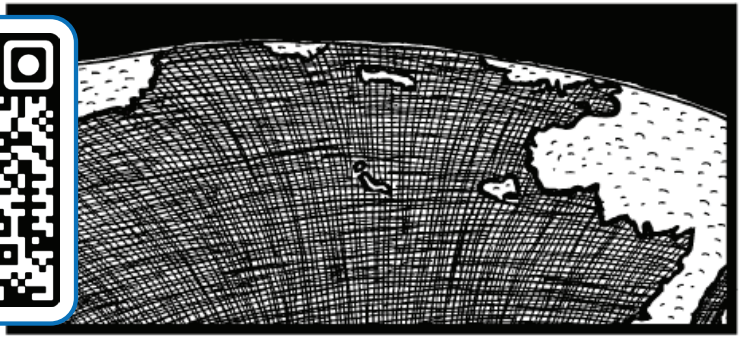
February 2011

ST MATTHEW ISLAND

St Matthew Island. A remote outcrop in the Bering Sea 300km from mainland Alaska.

The island's untapped natural resources became the reindeer's source of prosperity, and also the seeds of their demise.

The island was only so big, its resources only so many.



How big is our island?

www.stuartmcmillen.com

1.5 Degrees of Separation: Computer Science Education in the Age of the Anthropocene

Climate Catastrophe, A Resource Guide for Computer Science.

Computer Science provides tools for greater understanding of climate science but also must act in reducing the environmental costs of computing.

In an era of AI expansion and an arms race that has set off an escalation of energy expenditure and resource extraction to support computation. Therefore, we must understand what the future of sustainable computing looks like.

Drawn from our publication **"1.5 Degrees of Separation,"**
these multimedia resources provide some food for thought and action.

Zine Designed by
Patrice Reynolds, CSU East Bay
Jon Crescenzo, CSU East Bay

How we put together a zine (and timeline)

If you're thinking about compiling your own zine, here's an overview of how we put together the zine and the rough timeline, from call to conference.

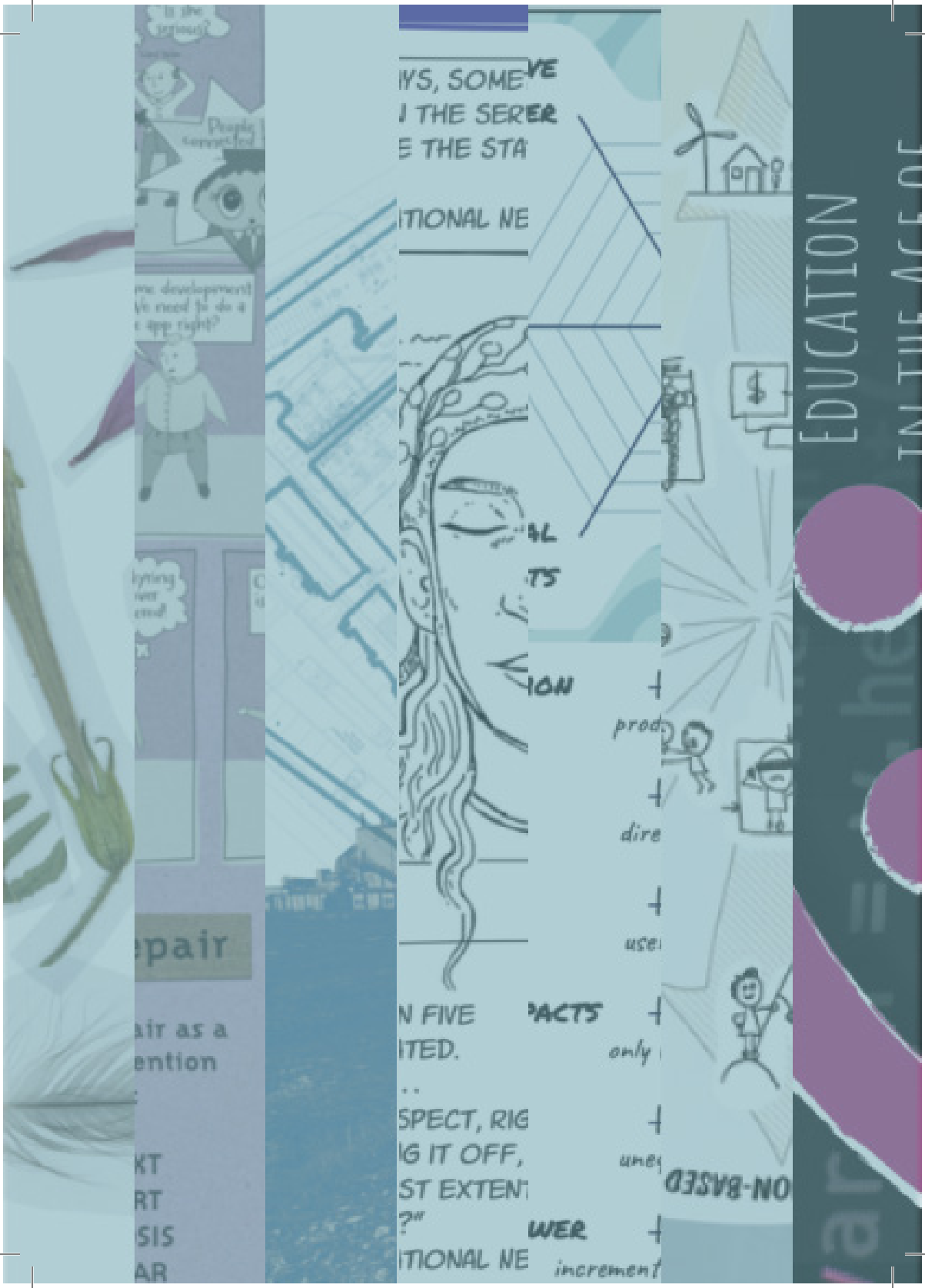
- *[23 weeks from the conference]* Organize, scheme and make plans for the process
- *[20 weeks from conference]* Put out a call for contributions, asking for short pitches from contributors, with a title and short abstract (500 words max)
- *[16 weeks from conference]* Deadline for submitting pitches
  - We had a rolling submission and acceptance window, looking at and accepting/rejecting pitches as they came in
- *[15 weeks from conference]* Do a final review of all remaining pitches and send out notification emails, inviting authors to craft their submission
- *[10–8 weeks from conference]* Got together in three zine circles
  - Opportunity for peer feedback and to share ideas and information about the zine and how it was developing
- *[7 weeks from conference]* Find a friendly printer, or decide to print it yourself
- *[5 weeks from conference]* Final deadline for Zine contributions
- *[4–2 weeks from conference]* Compile contributions for printing (we used InDesign)
  - We offered 6 pages for each contribution, we think we would offer fewer pages in the future, 10 of 14 contributors used all pages
- *[2 weeks from conference]* Print the proofs
- *[1 week from conference]* Final Printing Run
- *[Post-conference]* Upload digital version of zine + plain text version to a stable, free online repository

Printing details:

- Stapled binding with a squared back
- Paper for cover -> 160g multicopy, matte
- Paper inside -> 100g multicopy
- Printed in colour

Our values when curating the zine:

- Include contributors at every decision that impacts the look and feel of their contribution
- Keep it simple, Do it yourself.
- Send contributors a copy
- Share it widely and freely


EDUCATION