

Hackathon Lab Sustainability On The Utrecht Science Park

UTRECHT
SCIENCE
WEEK

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Hackathon Lab Sustainability On The Utrecht Science Park

What would happen if laboratories at the Utrecht Science Park united and collaborated to devise ingenious solutions to significantly cut down their environmental footprint? It's rather paradoxical to think that a lab, which primarily focuses on fostering a healthy and sustainable society, might be a leading contributor to its very threats.

Thanks to an initiative by the Utrecht Science Park Foundation, the Utrecht Science Week hosted a pivotal hackathon on Monday, October 2nd, aptly titled "Lab Sustainability On The Utrecht Science Park". This event aimed not only to generate tangible proposals for enhancing lab sustainability but also to spark deeper synergies among the various labs at the Utrecht Science Park.

Phase 3 minutes from the 5 participating groups are included in this report. As are the minutes of the pitch presentations. Dive into this report for a detailed look at the breakthroughs from this hackathon.

Minutes team 1

Mapping out the issues in sustainability

Purchase

Issues:

- Lack of urgency in the area of sustainability.
- Insufficient Information on Sustainability.
- Excessive Innovation.
- Abundance of Protocols.
- Adherence to Old Habits.

Stakeholders:

- Lab Managers.
- Division Heads.
- Assortment Coordinator or regional team for sustainability and procurement.

Action points:

- Awareness campaign to emphasize the urgency and benefits of sustainability.
- Use of exact figures for clarity and motivation.
- Consultation with the Board of Directors on savings and green initiatives.
- Optimization of internal marketplace for equipment.

Usage:

Issues:

- Lack of Communication.
- Adherence to Old Habits.

Stakeholders:

- Lab Managers.
- Staff Members.
- Waste Expert/Waste Processor.
- Analysts.
- Facility Services.

Action points:

- Improve internal communication channels.
- Integrate sustainability in innovation processes.
- Rationalize protocols and procedures.
- Develop awareness programs to break old habits.
- Promote use of powers for maintenance and repair.

Disposal:

Issues:

- Poor Reuse of Medical Equipment.

Stakeholders:

- Lab Managers.
- Staff Members.
- Waste Expert/Waste Processor.
- Facility Services.

Action points:

- Research improved reuse of medical equipment.
- Collaboration and communication between faculties for more recycling and sustainability at the Uithof level.
- Improve communication between experts from different faculties.

This provides an overview of the problems, stakeholders, and action points related to the purchase, use, and disposal of devices in laboratories regarding sustainability. Clearly mapping out problems, stakeholders, and action points related to the sustainability of laboratories is a crucial step towards a greener and more sustainable future at the Science Park Utrecht. However, it has become clear that a significant "gap" exists between the needs of the labs and the required expertise and coordination to realize sustainable solutions. To bridge this "gap" and ensure sustainability initiatives are effectively implemented, the proposal is to establish a "UU Science Park Green Office". This office would serve as a central hub for sustainability efforts at Science Park Utrecht, focusing on:

Coordination: The Green Office would facilitate coordination between different faculties and labs, making expertise and resources more effectively deployed.

Advice and Expertise: The office would act as a source of expertise in the area of sustainability in laboratories and provide advice to stakeholders at all stages of the equipment lifecycle.

Awareness and Education: The Green Office could organize awareness campaigns to emphasize the urgency of sustainability and offer training to make staff and students aware of sustainable practices.

Networking: It would provide a platform for sharing best practices and building networks between labs, experts, and suppliers.

Policy Influence: The Green Office could advocate for sustainable purchasing policies with the Board of Directors and draft policy guidelines to weigh heavily on sustainability in procurement. Establishing a UU Science Park Green Office could be a crucial step to address the problems identified during this hackathon. It would serve as a driving force behind sustainability initiatives and as a bridge between labs, experts, and facility services, allowing Science Park Utrecht to flourish as a leader in sustainable laboratory practices.

Setting up a problem definition:

"How can we ensure, promote, and effectively coordinate sustainable use of basic equipment in their three life cycles (purchase, use, and disposal) to safeguard the sustainability of laboratories at Science Park Utrecht?"

"How can we establish and utilize the UU Science Park Green Office to promote this coordination, expertise, and awareness?"

Generating and categorizing ideas:

During our hackathon on the sustainability of laboratories, we gathered numerous ideas and insights to improve the sustainability of equipment in labs. These ideas are grouped into various categories, each focusing on specific aspects of sustainability and coordination between faculties.

Ideas for Sustainability Improvement:

1. **USP Repair Service:** Establish a repair service to extend the lifespan of lab equipment and reduce waste.
2. **Marketplace for Devices:** Create a central marketplace where labs can offer and obtain equipment, promoting reuse and reducing the need for new purchases.
3. **Centralization of Recycling:** Centralize recycling efforts for various devices to enhance efficiency.

Ideas for Setting Up a UU Green Office:

1. **Hire Experts:** Attract experts in sustainability to support the coordination and implementation of sustainability initiatives.
2. **Engage Board Management:** Engage university management to promote sustainability and allocate resources.
3. **Information Database:** Establish a database with information on energy-efficient equipment and sustainable practices.
4. **Inter-faculty Collaboration:** Encourage collaboration and information exchange between faculties to promote shared sustainability goals.

Quantitative Measurements and Analysis:

1. **Sustainability Analysis:** Develop analyses to measure sustainability improvements over the years.
2. **Financial Analysis:** Create financial summaries to demonstrate the cost savings resulting from sustainability measures.
3. **Rewards for CO2 Reduction:** Consider reward programs to encourage CO2 reduction.

Purchasing and Legislation:

1. **Bid Requirements:** Require bids with sustainability information when purchasing equipment.
2. **Commercial Partnerships:** Partner with sustainable suppliers to procure eco-friendly equipment.
3. **National Laws and Standards:** Lobby for national standards for sustainable equipment.

Main Idea: Establishment of a Joint Green Office & RE-USP

The main idea that emerged from this discussion is the establishment of a joint "UU Science Park Green Office." This Green Office would act as a coordination center for sustainability efforts at Science Park Utrecht, focusing on policy-making, hiring experts, managing information, and facilitating collaboration between faculties. The Green Office would also be responsible for the establishment of a central marketplace (RE-USP) to promote equipment reuse. This combined initiative will contribute to ensuring and stimulating the sustainable use of basic equipment throughout their lifecycles, including heat blocks, refrigerators, freezers, and fume cupboards. It will play a crucial role in coordinating efforts, providing expertise, and raising awareness about sustainability at Science Park Utrecht.

Pitch for UU Science Park Green Office & RE-USP

"In the world of science and research, we face a critical challenge: making our laboratories sustainable at Science Park Utrecht. During our hackathon, we mapped out the problems, stakeholders, and action points comprehensively, and we've arrived at a powerful main idea that can bring about positive change: the establishment of the 'UU Science Park Green Office' and the launch of 'RE-USP,' a central marketplace for laboratory equipment. Our challenge starts with purchasing equipment. Often there's a lack of urgency, sustainability information, and effective communication. We want to initiate an awareness campaign to emphasize the importance of sustainability and use exact numbers to show how much we can save. We will also engage the Board of Directors to support green initiatives and demand quotes with sustainability information.

But our efforts go beyond just purchasing. We need to improve the use of equipment too. This means breaking old habits, improving internal communication, and integrating sustainability into innovation processes. That's why it's essential to establish a 'UU Science Park Green Office.' This office will act as a coordination center for sustainability efforts in our park, with experts assisting us at every step.

But our main idea doesn't stop here. We introduce 'RE-USP,' an innovative marketplace for laboratory equipment. Here, labs can offer and obtain equipment, promoting reuse and reducing the need for new purchases. This will not only save money but also enhance sustainability.

This is our ambitious plan to make Science Park Utrecht greener and more sustainable. We aim for a joint effort, involving everyone, from lab managers to analysts, from the Board of

Directors to facility services. Together, we can ensure the sustainability of laboratories and shape the future of our park.

So, let's collaborate, let's transform our laboratories, and let's lead Science Park Utrecht in sustainable practices. Together, we're building a greener future for science."

Minutes team 2

Phase 1:

categories:

- for whom, by whom, and with whom?
- causes
- regulations
- financial
- environmental impact
- economic impact

complexity and knowledge

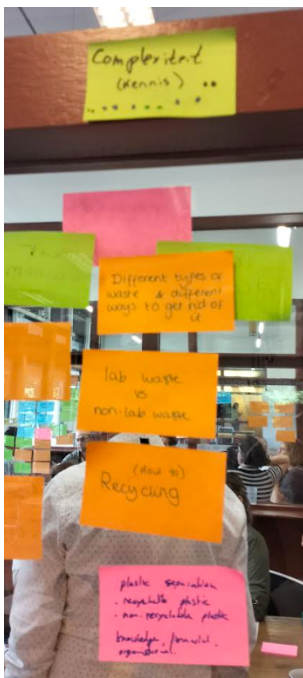
Why waste? complexity, short/long term visions, focus on the short term, awareness, facilitating of.... (= solution). Vote/what to work on: complexity

Stakeholders:

- waste processing individuals
- Users such as labs/nurses
- environmental experts
- law/regulation
- waste transport/logistics
- marketing/communication (company and department scale)
- facility services
- producers/suppliers
- technician
- Trainers about waste processing: training for new employees about waste processing = HR
- policy staff/sustainability officer
- Supervisor (so you get time to work on sustainability)
- green team (complements LEAF in specifics)
- government
- inspection
- certifier (LEAF)
- Board of Directors/management (for policy, direction, and vision)
- cleaner

User Goal: more knowledge among these people (making lab employees more aware of separation), Who do we need directly to do this?

Stakeholders map:



Define phase:

How do we communicate the correct waste separation to lab employees?

How can we increase the knowledge about the correct waste separation of the employee?

How do we ensure that the lab worker separates waste correctly?

How can you ensure that all lab employees separate waste in the correct manner according to current guidelines?

How do you increase immediate knowledge about waste separation among lab employees?

How do we ensure that the lab worker has enough immediate knowledge to separate waste as sustainably as possible?

Phase 3: The ideas

Wow:

- QR codes on trash bins
- Build a website → maybe not feasible today, sustainable digital platform
- App about waste
- Introduction video
- Checklist
- Introduction course
- Encourage good behavior through rewards
- Visualize the effect
- Meetings with green teams USP
- Annual information moment from waste processing people
- SOP (Standard Operating Procedure)

Decision tree

How:

- AI recognition
- Delegate role models at the grassroots level
- Celebrity setting a good example
- Point of contact in the department
- Higher status green teams
- Periodically scan waste per building + feedback
- Theme song
- Role play
- Create a video/visualization, made by the employees themselves
- Create dioramas
- Build in LEGO
- Memory palace

Now:

- Have defined waste bins
- Poster
- Good information in the right place
- Stickers (for frequently used products)
- Color/light play
- Weekly discussion
- Mnemonic devices

Voting:

Wow → More instruction or more knowledge → website

Current information provision:

In the UMC: only zenya as a platform

UU: information provision is now being created; a kind of website where knowledge can be exchanged and found.

We want:

Something very easy and right under the nose for all lab employees, it is easy to implement.

Main idea = website (has videos, information, etc.), QR codes as an addition

- It could be university-wide because there are many similarities in waste streams between the university and the hospital.
- Decision tree on the website: do I have hard or soft plastic? → 2 different waste bins? → one or another waste bin
- Make sustainability training mandatory because it is safety for people and the environment
- Mandatory training is important because you need that initial awareness before people start looking for the website, but some think it's not necessary
- To stimulate people to find this/the website important, it should focus on safety and responsibility of the employee. You should be able to find and address each other on these themes.
- Some things work because they are made fun, so you can also make a requirement fun.
- The target audience must be as large as possible. Include in the induction process.

Final Idea: Periodic training (every 1-2 years) at the start of your work process where the website is made known so that people can always find it later.

What is currently being done: instruction from someone in the lab/general safety instruction/e-modules about waste.

- Challenge: the platform must be available for the entire university, but there are small groups everywhere already working on this → collaborate more in this, for example with greenlabsnl. The problem here is that people have to (learn to) know greenlabsnl.
- On the USP, everything goes quite evenly → website aimed at the USP

What is the added value of the website? - it doesn't exist yet and contains all the information concretely and clearly for different lab employees! Create a format on greenlabs (government-subsidized) that can be printed out in the labs and put up as a poster.

The awareness must be more concrete; you also want to connect people.

What does the platform entail/what can you find there? What is the function? What will the platform mean for the lab worker?

- It's too difficult now; this website provides guidance.

Information is available from various sources, but it is incomplete and not clear.

A website can be consulted in advance (before your experiment) and has a decision tree. (can, for example, be displayed on a poster in the lab).

Make it concrete/specific for each type of employee by adding filter options to the website. E.g., are you an ML-1/2/3 lab?

Decision tree on the website:

- Click at the beginning on what kind of lab you are, so you can skip steps in the tree.

Idea:

Website where you can be helped in your waste separation

Reference work and tools found on the website must be accessible/visually clear for everyone to follow

Include this website in the introduction to the lab, so you always have a reference work

Presentation: explanation about induction and the website

Website content:

- Findable by catchy name
- (Interactive) Decision tree first thing you see (visual), with introduction video
- Reference work on waste streams
- Sticker downloads for different types of waste bins
- Forum/community: a moderator needed to check that everything remains relevant.
- Poster download so people can place it in the lab themselves
- FAQ
- Latest news
- Tips/tricks: in a funny/catchy way
- Scenario training
 - Trashmaster certificate when training is completed

Onboarding:

- Quality and safety training for new employees in the lab
- Students must learn from employees and interns fall under employees
- Checklist with instructions on sustainability/dealing with waste streams and referring to sustainability website → really show the website
- E-training: Scenario training (available on the website)

Website and training are being pitched:

Action plan:

Who do we need: website builder, content expert, creative content creator, web hosting (maybe a student), the institutes (HR/communication),

What is needed for it to be applied:

- Trashmaster certificate
- Try to go along with an existing program
- Integrate waste separation
Mail/put in the learning environment that they must follow training (education center department)

Vote on URL name: Labtrashmaster.nl

For the scenario training:

- Focused on the most common/important mistakes
- Chosen for new employees (interns and students)
- Checklist for waste streams
- Refer to the website
- Scenario training → multiple choice
- Developed scenario: Dispose of an empty ethanol barrel sustainably: A cap on and with residual waste, B..., C evaporate with the fume hood

Feedback on the question, and then immediately provide the correct answer

The intention is to present and pitch this within the institute and try to get it off the ground.

Making the pitch:

- First, outline the problem: lack of knowledge (Very brief)
- Solution: start with training and then a website
- Briefly mention the added value
- And the business case → what is needed for realization
- How sustainability is improved, people often go for the safe option now, which is the most polluting
- On a flip chart, mention the name and certificate

What to put on the flip chart:

- Problem: Where do I dispose of my waste?
- Cause: Insufficient immediate knowledge
- Consequence: Safe = not sustainable

Our solution: Labtrashmaster.com with trashmaster certificate

- Decision tree
- Introduction video
- Scenario training
- Waste stream reference work
- Download poster + stickers
- Forum
- FAQ
- Latest news
- Tips and tricks + funny videos

Part of the solution:

- Quality and safety training
- New lab employees
- Checklist: sustainability instructions and refer to labtrashmaster.com
- Scenario training → most common mistakes
- Make it mandatory through HR

Scenario Example:

Robin works in a chemical lab. He wants to dispose of an empty ethanol barrel in a sustainable way. How?

A: Put the cap on and dispose with general waste

B: Evaporate and dispose with plastic waste

C: Evaporate and dispose with general waste

Minutes team 3

Preliminary discussion

General/brainstorm Ideas:

Climate disaster
Ecosystem disruption
Pollution
Limited resources
plants
oceans
microplastics (global waste problems)
Chemical waste in water
Landfill
single use plastic and production with less regard for the environment

Linear economy in terms of waste
CO2
Circular economy
coffee production
worldwide shipping
over ordering products
single use plastic
supply chain
over packaging
group effect
regulation/government
dutch policy on not recycling certain kinds of plastics

immediate effect of their actions not felt by consumers/pollutants
energy waste
What exactly is recyclable? how to make that more clear

WHO is the problem for:

humans as contaminants
animals
problem with ownership

worldwide/general/global/materials:

behaviour:

people:

regulation:

make the categorisation based on urgency and immediate impact:

goal: is to get into circular economies as opposed to linear (buy. use. throw)

responsibility between consumers vs. suppliers

the waste system is not connected to those who are buying for example: consumer

What generates the most waste?

Strategy: four Rs: (refuse) reduce, reuse, recycle; recover

PBS

awareness; regulation and the technical environment

difference between academia and other stakeholders; third party logistic providers

problem chosen:

designer/developer who is making the waste needs to be conscious and also the regulatory bodies

NOTES AFTER LUNCH

PROBLEM: Physical waste

(reduce or refuse)

Overarchingly: circular economy

solution is the different ways to reduce it

circular economy is the overarching theme

Stakeholder map framework was used to conceptualize and further understand the problem.

- *system actors*: individuals who use the product and service
 - consumers
 - lab workers
- *system experts*: professionals; developers; academia (student vs. experts); specific expertise in that area
 - policy people
 - developers/start-ups
 - academia
 - cleaning staff
 - sustainability people
- *system decision makers*: procurement and policy example: managers responsible for making the policy
 - govt.
 - **facility managers** (provide local waste information)
- *system influencers* (have the least impact in this structure): students + associations
 - consumers too
 - suppliers (data sheets) and is this data available and how?
 - energy providers
 - waste collectors
 - logistics (transport and storage)
 - lobbyists (to the other three categories)
 - invest in research and development

Plan, do, check, act!!

Utrecht Science Park Foundation

- regional collaboration (where can we influence)?
-

Defining Phase: Defining the problem

tackle the problem of single use material/plastic

chemical

disposable materials: eg., pipette tips

or

packaging materials

benefit + advantage of looking at this is that everyone can see what is going on/awareness

no take back program from suppliers

HOW COULD/CAN WE? (refuse; reduce; reuse; recycle)

- relocate the waste after use
 - design a new product that is not disposable/ alternative product
 - higher level: make the right strategy involving all stakeholders
 - reduce using unnecessary disposable material
 - lab safety procedures
 - lab safety equipment eg; gloves etc
 - individual time and effort constraints
 - research reproducibility
 - reuse/reduce of the boxes where the pipette tips come in
 - educate and bring awareness to the masses/students etc?
 - develop a more efficient chemical system?
 - better communication between labs and departments for the same
 - create an environment or area where leftover materials can be exchanged and supplied.
-
- System change
 - make it better in terms of sustainable
 - more specific and then make a procedure to bring it back
 - quality of research

Question: *How could we safely refuse/ reduce or reuse single use disposable in a centralized manner at the Utrecht University?*

Phase 3:

Ideas for solutions to our question problem that were discussed and presented around the table.

- Statiegeld for the disposables have a deposit
 - creating financial incentives for suppliers and users
 - promotion of position as incentive
 - policy work update
 - have a taskforce for this
 - pilot small scale activities
 - **have a sharing platform where 1. data and 2. materials other things can be coordinated **wow****
 - **shared marktplaats for lab equipment **wow****
 - perks for the department that does the best work
 - getting support from your upper management; show them the benefits to get them on board
 - make it a project to gather data on a local or even national level
 - visit suppliers to learn more about the products and build better relationships
 - returning scheme/take back program
 - thus, positive reinforcement
 - incentives for all involved stakeholders!
 - having a collective team structure where heads of different sustainability programs etc can align and meet; these can then also be the implementers of these programs
 - community of practice; where you bring people working on lab sustainability to the field and this already exists and/or build activities together
 - how can you involve academia and experts in these topics
 - give specific examples of cases and how this will work.
 - connect departments; with one supplier listening to their problem and who is responsible for communication with everyone.
 - Utrecht life sciences department
 - Sustainable tenders: contracts and updated information about the sustainability of the products.
 - CSRD implementation: non-financial reporting
-
- USP platform; digital one; to share data on sustainability
 - items; extra and used ones that can be reused somewhere

- the data gathering should be gathered within the individual institutions
- eg: which are the top 10 reusable materials we are using? and to check if all departments are using the materials and what overlaps etc.
- Have a **taskforce** to maintain the platform; look also at governance.
- data will be: equipment and consumables, energy and gas (?)
- need governance to see which data can be shared etc especially with sensitive data.
- **Phase 0:** awareness; presenting the problem; what is the problem and should it be part of this platform or not; and then get people to join into this effort as a result of having created awareness.
- to implement this we could have an awareness campaign across the USP with different themes. eg; food, air etc
- make categories of what all the USP can share in terms of materials.
 - Reuse
 - Leftovers/excess
 - sell equipment to another lab for cheaper if you have it anyway; and this is instead of it going to waste.
 - recycle
 - what can we recover
- this platform would collect data about what we can reuse and recycle
- PROMOTION, AWARENESS; don't have a platform yet; so what do we promote?
- A few years ago an exchange platform was created; which is running for aluminum material or something (1 year up and running); shows that there is something like this running so shows precedence. Gem?? they miss this and would love to have it and this is something we miss at UU; there is a lot of knowledge but systems are not connected.
- So connection for scientists and lab
- Pilot the platform for disposables and then move on to doing things together; sustainable coffee, gardening and all things related to this.
- connecting the green office with these other labs.
- Having this platform will give us more space for ideas to develop and share.
- need someone to create **accountability** within the UU and give advice and provide information.
- Does our awareness make an impact on the behavioral level?
- The USP foundation sponsors this? **How?**
- also look for other sponsorship. Have data on how many goods are being used by companies to then be able to make projections for the future.
- make a percentage based on how big the company is; so 1 person per 100 people
- **Disposables:**
- What is the **benefit** of this?
 - financial benefits in the long term; eventually but not now.
 - Being proactive with benefits is part of the solution instead of waiting for the government = prestige.
 - new collaborative avenues
 - We follow the 4Rs with this project = sustainability at its core
 - shared impact and sustainability goals; which then promotes it mutually.
 - R&D

- Trend analysis: where people don't have to spend money on it but just have to participate; rather than looking at the market, look at the trend and then a supplier gets a good idea; which can help understanding increase in revenue and supplies.
- there are so many materials you cannot sell; bc of a certain time end; but the user should be able to decide; their discretion to use it or not.
- potential is that this could eventually be rescaled and made more large scale and spread to other sectors.
- They made a whatsapp group chat to further work on this.
- Start it at the science park; actors, suppliers and influencers participate. where every department gives 2 people for compulsory participation and then optional subsequently.
- Accessibility? Can you yourself put material on the platform or will there be a designated person to do this? = accessible to all from the USP.
- **Q:** Why would they do it? and how can we ensure they do this?
- **Q:** I think not anyone should access it but certain designated heads of departments should be in charge; to control the flow
- Can be a platform where you can mention what you need and can give; can be called the ask and give section.

Organization: implementation

- **Q:** What do you do about decision making?
 - management: who should be the people in there?
 - technical support
 - experts
- Have a 'super' admin; people who are gatekeepers of the system
- then have normal admin who adds the main data
- Have viewers and buyers etc
- How to make sure the data is correct and authentic?
- ownership? Who is responsible for putting the right data in the right place?
- A reason to promote it can also be that it could lead to lower work pressure maybe.

The pitch will be in terms of storytelling:

- Each of the organizations realized that there is a similar issue of nearly expired or expired materials; too good to go for disposable materials. Think of a cool name.
- Topic is waste; logically; the first thing you think of with waste is that something is over and needs to be thrown but we would like to highlight another aspect/perspective of waste.
- How do we communicate this information with each other? about materials that can be used or needed? This is why we have created an app; a platform for this sort of exchange.
- With the food industry, more is being done to handle waste but also what about the labs at UU?
- Waste > lab disposals > USP: **all the knowledge is in house**, the problem is connecting the dots between people and resources.
- We want to suggest the creation of a platform.

- trying to solve some kind of societal issue by collaborating with the campus; promoting a circular economy.
- The name of the project is ex-change. not letting lab waste get wasted easily.
- The problem is that we do not question the status quo; labs are much more waste inclined than other normal offices.
- Labs are as energy efficient as the automotive industry. 5.5 billion kilograms of plastic per year.
- Stakeholders: key stakeholders; suppliers, different operations people; logistical people consumers (all of us at the lab) and the panel of directors who will approve this project or not
- “Are you aware that a lot of the problems in your lab are perfectly usable beyond their expiration dates? What if there was an accessible way to avoid producing so much waste and save money while utilizing our vast knowledge and collaborating with other parties within the USP. Thus, sharing knowledge to help reduce waste and on specific products and their availability and how to use these products and why etc.’
- Names: Relab source; Lab Lend; Lab Reshare; Lab Shareables
- addressing waste management within the USP; collaboration between institutes
- The idea is to use an existing platform and to get stakeholders to learn about this and use it.
- they made the decision to choose between a very general and more specific idea
- Marktplaats for labs; with a future scope to become bigger later.
- costs: based on a previous working model of similar nature, around 25-35k
- a company like Genmab and other companies must have a sustainability budget which could help towards funding this.
- Want to use the suture material as an example.
- imp. make an inventory of the supplies and make a match between supply and demand. this is more than just saving costs; it's about collaboration and shared problems of sustainability

Minutes team 4

Introductions round (9:30-9:45):

- Crises highlight the other possibilities or ways around an issue (e.g. covid crisis with lack of/supply issues with pipetting)
- Some potential to use this as a motivator for behaviour change?

Empathize Phase (10:00-11:30)

What are the challenges?

1. HABITS:

- people automatically revert to how they've always done things (e.g. 80 degrees freezer issue: people not used to this technology, old habits cause over-icing issues).
- Also encompasses stubbornness and culture.
- People find changes scary.
- Where do we start?

2. TIME:

- "I'm busy with other issues"
- People who are driving it forward need to invest more time
- Important to focus on long-term horizons - where do we want to be by 2040, 2050?

3. PRIORITY/URGENCY

- making money or ensuring sustainability? - which is more important?
- Some are invested in environmental issues, others focused on efficiency, progress

4. AUTHORITY

- Bureaucracy issues slow progress with sustainability down
- Those in authority who make the decisions are separated from actual lab proceedings

5. COMMUNICATION

- Cross-department
- Misinformation: sustainable option more expensive, type of equipment "not possible"
- Assumptions
- Make it less complex by informing people properly
- Awareness
- Education and Knowledge

6. INVOLVEMENT

7. COMPLEXITY

8. FINANCING

- Sustainability costs money
 - But: misperception about how expensive it is, in the long term there is far more saving
 - Yes there is an upfront cost, but in long term you save money due to energy saving, etc.
 - We must educate people about this long-term financial saving
- We realised that many of these topics come back to awareness, information, education, knowledge, behaviour change/habits

Final topic of **KNOWLEDGE** chosen

Stakeholders?

- CEO and CFO
- Green Teams
- Suppliers
- Safety, Health, and Environment
- Lab Managers
- Researchers
- Technicians
- Principal Investigators/Group Leaders
- External Services (Cleaners, Catering, Security)
- Finance
- Funders
- Government
- University Council
 - Faculty, Council of University Management, etc.
- Subject matter experts
- Department and Project Managers
- Students (involved in both working labs and councils)
- European Union - policies
- Manufacturers

Who makes the decision about equipment/knowledge?

- “Top” people make the decision (CEO/CFO): We are going green, we want to be sustainable
- It trickles down to people working in the labs/facility

How SHOULD decisions be made?

- all recommendations made by people working in labs
- Actual final decision made by CEO/CFO
- Validation of green options is KEY - you must convince people that it is possible to choose greener option, back up with tests/research
- We want to change the way the information is shared - no longer top to bottom, should be a flowing movement between stakeholders or with a new office.
- People from the “top” should consult the lab workers about practical implications.
- Feedback between each other.
- “All about collecting knowledge and sharing information”

Define phase (11:30- 12:15)

Define the question:

- we must focus not on the tool but the PEOPLE
- How could we combine and share knowledge?
 - Green Teams could be a contributor to gain knowledge and share knowledge
- How to connect the different layers of work (hierarchy of companies and universities)?
- How could we get consensus on how important sustainability is from the top and bottom?
- How could we decide on responsibility?
- Should there be a dedicated person or department to organise and coordinate sustainability efforts in labs? - this could be a solution to how do we communicate?

FINAL QUESTION:

How can we create a sustainable solution to implement and embed sustainable science on campus?

Ideation phase (13:15-15:00)

Main idea = **a central office that is focused on researching, informing, and educating lab and research sustainability at Utrecht Science Park.** It would serve as a **knowledge hub to answer questions** about lab sustainability and **organise workshops, challenges, symposiums, and communication** focused on lab sustainability.

Why?

- We need to bring all faculties, companies, departments together in one space. This office would fulfill that need.
- Current sustainability teams at university are not focusing on labs (more so facilities, education, transport etc.). This office would fill in this gap.

What is the name of the new office?

- Department for Sustainable Science at USP

What is the role of the office?

- Mainly a knowledge hub
- It would require some funding for organising events (festivals, symposium, etc.)
- Can help people find and apply to funding, but it does not provide funding directly

What is the responsibilities/tasks of the office?

<p><u>1. Knowledge sharing</u></p> <ul style="list-style-type: none">● meetings● communication● congress/festivals● training/workshops
<p><u>2. USP Policy/Commitment</u></p> <ul style="list-style-type: none">● statements (institutes)● monitoring, reporting, and measuring commitments and outcomes● Define short-term and long-term goals
<p><u>3. External Stakeholder Contact point</u></p>
<p><u>4. Gaining Knowledge</u></p> <ul style="list-style-type: none">● Experts● Existing knowledge banks● USP specific initiatives
<p><u>5. Engaging and Motivating</u></p>

- Through challenges, prizes
- Newsletters with reports about improvements etc.
- Small project funding
- Recognition of companies improving sustainability in newsletters, communication

Mission: Implement, incentivize & embed sustainable science policies at USP.

Slogan: "Our mission is no emissions! "

Goals:

1. To become the most sustainable research campus in Europe by 2035
2. Reduce plastic waste by 50% by 2030
3. Reduce CO2 emissions (including scope 3) by 90% by 2040
4. Create USP central supply centre

Minutes team 5

Empathize phase

Awareness, Knowledge (Education, Data, Ideas),
Lots of talk about education and knowledge and the importance of science in this.

Concerns about level of implementation of initiatives. Support from management.
On one side the frameworks (facilities, money) and on the other side motivation & education.
After voting; **awareness, knowledge, employer motivation, management support.**
Stakeholders for awareness and knowledge lagged behind employer motivation and management because there was a perception that the two were more in people themselves.

Focusing on how management can be encouraged to motivate employers etc. Management is seen as a concrete stakeholder to address employer motivation, using knowledge and awareness. Breathe more life into the stakeholder (think of a concrete person) to see how they can be influenced / what they are up against, etc.

Influence from above or from below? Greatest impact important for stakeholder choice.
Focus on who needs to be influenced.

Initial ideas for a playful way for awareness or to expand facilities for those (the 60-80%) who do want to do something.

Stakeholder; **Robin**, m/f/x, lab analyst, wants change but doesn't know how, concerned with sustainable solutions in his private life.

How do we keep Robin motivated to become sustainable and thereby also motivate colleagues.

Ideation phase

Group sharing

Team immediately starts with a lot of energy and uses post-it to collect them into categories and place them in the now-wow boxes.

Now solutions are by far the biggest category.
Bottlenecks for the wow category seem to be practical implementation, money.

Fun ideas that come up in conversation;

- excursions to waste disposal
- a confession booth for environmental sins (more of a comic idea).
- Knowledge base; ideas already being made up, fishing up to avoid duplication of effort.
- Reproducibility of data and research can help here.
- Tip from supervisor to focus on ideas that can be implemented.

Conversation;

- Monthly meeting time; get everyone involved.
- Give **ownership** to team; include sustainability in annual plan and let teams plan and evaluate for this.
- Give autonomy to team
- Freezer challenge; game element to spur motivation.
- Free up budget
- USP audit; certify lab in a community creates group feeling. Still being put in the How now.

Team is looking for **greater impact**; collaborate with larger stakeholders or organisations working on this.

Introduce sustainability in application; difficult to think of a way in which people do not give a socially desirable answer.

Wish from team to make it **more lab-specific**. Thinking back to Robin, the stakeholder previously thought of as a fictional lab analyst. He wants to become sustainable but doesn't know how, so team focuses on things that are currently holding Robin back at knowledge level.

Topics of conversation;

- Making sure Robin is not alone.
- Waste separation for GFT and plastic could be like wow idea, but not focused enough on Robin.
- On re-reading problem statement, it becomes clear that the aim is to keep Robin motivated to become more sustainable and that he wants to include colleagues in this.

Team goes to vote on solutions they want to move forward with; votes are cast on

- Knowledge base
- Reward system for green choices
- Getting hours for sustainability
- USP checking each other on sustainability.

After & refresher training and events is seen as something already done and not very innovative.

Team wants to find something specific for the lab and also with **enough wow factor**. For this, they could combine ideas.

Discussion on whether **rewards** are important, or whether **fun** and having fun is important. Team thinks **celebrating successes** is more important than rewards, to make it fun. Setting goals in doing so can help for focus. Communication is seen as an important part of this.

Rankings with rewards, game element, challenges. But think this is not very wow. Team wants the solution not to impose something on Robin, but to ensure that the person can use the solution as a tool. The question remains; **how does it help Robin** (or the stakeholder who would like some change).

Giving tools to Robin.

Knowledge -> motivation -> knowledge; Try to create positive feedback loop.

Idea that 'out of sight, out of mind' can be addressed by making effect of unsustainable action **visible and palpable**.

- indicate on USP how much water, waste, energy etc is consumed per building.
- make it visible to everyone, not just the people on the green team.
- Criticised that this does not ensure that the problem is actually solved. Need to make **responsible** and property about the problem.

Education comes back to the table, to integrate this into the education system.

Going back to Robin, a **team-building** activity is important, but people may not be waiting for this and is not a wow factor.

Games that you can do in a team are being considered. Criticism is that it is a one-off, not a culture or process intervention.

Start of design plan

Competition element, such as competition between labs for sustainability, has elements of audit (someone looking over the shoulder), team feeling and game.

This idea gets high praise from the team.

- Bottlenecks; Lab capacity makes competition unfair, management system transparent.
- Good points; Creates network between labs.
- Practical; LEAF audit could be used as it is already motivating. Audit does need to be made fun to participate in and not feel like pointing fingers.

Question whether this is already being done, it is in a few elements.

Idea to add to competition also the element of **self-determination** of the lab with its own goals.

Gamification. Risk is that people miss the mark by only wanting to score points.

Looking at what you have done or looking at your goals and desires

Tip from facilitator to start with people who want to participate and not pull on those who don't.

Critique that it is a fun idea, but the little effort is often too much, so it needs to be made very **fun and easy** for people.

Gamification to make something fun or to make something look fun from the outside. Celebrate milestones, remove barriers, give people who are enthusiastic a stage. Important question remains; how can we? Especially when barriers are seen.

Make concrete for Stakeholder (Robin) and for parties participating.

Remains doubt in team; **how to make something permanently impactful and not a one-off?**

- Distinguish knowledge transfer and knowledge transfer.
- Make mandatory or make fun.
- Culture in the labs
- What time period is involved.

Tip from supervisors; start with a decision and expand from there. Divide team into subteams.

Elaborate plan

Conversation around the table to think out this concept;

1. What to expect from each other; goals and self-determination.
2. Look in each other's kitchen; share knowledge and evaluate.
3. The way you look into each other's kitchens; game elements.

Ideas on how to make this fun and how to compare between labs (that have different facilities).

- Lab goal-list -> achieving goals creates rewards. **Celebrate successes.**
- Through festive event during sustainability week.
- **Important to make goals** within the team.
- Already done with LEAF; awarding Bronze in public space.
- What is new about this is that it takes place between labs + **team feeling via USP** (Robin is not alone).
- Exchange platform needed. Greenlabs is already there.
- **Making pairs** between labs ensures responsibility to each other and fun interaction. New pairings per year.
- Annual event to report.
- Still use **LEAF** for ranking, but USP wide. Every team participates in LEAF as a result.
 - Also creates competition between managers, who might therefore make more available for sustainability.
 - Idea to announce only the **top 3**, so that being at the bottom does not demotivate.

Question whether participation can be **made compulsory**. Can be done with safety, so should also be possible with sustainability. If not, start with labs that do want to participate.

Robin is looked up as a bird on google. Idea to be Robin's nest / breeding period.

In conclusion / concrete

The solution; They want teams in the lab to work on sustainability with each other and be able to share knowledge with other labs.

- Why ; In teams because then people are not alone. Auditioning each other to create community and even less alone, sharing knowledge. To create and maintain motivation. To create team ownership.
 - Not lab-specific, good to mention.
 - But between labs so they have recognition with each other.
- What?
 - **autonomy**; setting goals within team.
 - **bonding** ; USP wide, community building.
 - **knowledge**; audit, exchange
- How?
 - Making team goals
 - USP wide agreements between institutes that labs are certified. Use
 - LEAF; bring together people already using this between all organisations.
 - Labs auditing each other
 - Platform not popular as a solution.
 - How to ensure that audit?
 - How do we make game element?
 - Not clear yet, team wants to divide itself to think about this.

Further elaboration of the How

- Labs to be linked together
 - Labs already working on LEAF.
 - In **Science week of sustainability** celebration meeting.

Make pitch

- Problem; motivate and engage colleagues.
 - Robin wants to, but stands alone.
 - Analogy; create breeding season.
- Three key points; 1) visit each other -> share knowledge, 2) make goals with LEAF -> autonomy with team, 3) ranking and festival -> celebrate victories.
- Money; festival already exists (week of sustainability), so cost is only price for highest ranking labs.

Pitch presentations

Team 1

- Hubert uni freezer breaks down what do u do? find someone to repair it? there is no communication in USP on this issue??
- Procurement, use and recycle
- set up a green office that is USP wide; essentially connecting all employees
- Re-USP
- need employees; IT capacity (initially have 1-2 people moderating the process)

Questions panel

Q: What is the equipment needed? = basic lab resources that can be exchanged between departments.

Q: who all contact this office and be in touch? = in the future it should be a general contact point for anyone who wants to know anything about sustainability.

Q: Who pays for this? = a collective pool of all USP institutes; materials such as instruction videos can be handy.

Q: Did you have any procurement people in your team?

Q: How do you want to start? big or small? = start as small as possible. For now for equipment and can later be expanded.

Q: Do you know what happens to equipment now, at the end of its life cycle? = disposed.

Team 2

Problem: What do I do with my trash? recycling is very difficult and even at home people have a problem deciding what waste goes where. Part of the problem is there is a lack of knowledge which means things go to the general waste.

rid trash master.com; the website will have a decision tree to help people understand where to throw trash. videos about waste and the different waste categories, download posters and stickers and have a forum to communicate if you have something u don't know where to throw.

- FAQs
- news updates related to trash
- tips and tricks and maybe funny videos.
- Name?? website did not catch it

Questions Panel

Q: how will u get people to go to this website = need HR + scenario training and making people realize what is missing and where it is accessible.

Q: How will you seduce people to go to the website? = incentive is to care about the environment and altruistic motivation.

Q: what happens when people go to the website? put posters and stickers on the most common disposables of the lab so people know.

Q: Is this for students/everyone or just lab technicians? = nope mostly focused on USP and labs (could be nice to make it a broader project for all)

Q: who will make sure if the information is updated and correct?
money comes from the management of all institutes for the science park (so maybe they need to create a fund for this).

Q: What do you do with people who do not have the opportunity to access this knowledge and act on it?

They have the same waste handelaar which is why most of their decisions are the same.

Team 3

- Lab waste is responsible for 4-5 more than conventional office spaces.
- Lab re-Shareables.
- Want to use an existing platform with the ambition to bring together departments and institutions; stakeholders; decision makers and knowledge that is all around us.
- Later can include other things eventually but for now will focus on lab disposables.
- cost: spend on coordinating and gathering some data.
- The end goal here is to try to use the expertise we have in house and meet our sustainability goals.

Questions Panel

Q: difference between yours and the 1st project? = using an existing platform will make the effort more simple; starting small and slowly expanding; visible benefits such as saving money.

Lab tips: can be used in other places or in education.

Q: Have you thought about chemicals? = yes! think of alternatives and sharing what we have and distributing it more smartly.

Q: Did you discuss data? and how do you get that data? CSRD (european directives) that can eventually help.

But if we start now; then small steps can help set an enabling environment to eventually collect data.

Q: Did you think of the quality of the chemicals etc? Did you think of the difference in demands etc? = unused materials that have not been touched but maybe cannot be used in a particular lab.

A bigger issue in the uni is that academia and operation is so detached !! bridging the gap between these groups.

Team 4

- our mission is no emission
- goals: most sustainable department in europe by 2035
- Another goal by 2040: get to 90% by then with our goals. Make a sustainable solution; with realistic and transparent goals.
- create USP; central supply center
- 5 mains domains of focusing:
 - knowledge sharing
 - creating festivals about sustainability
 - organizing training and workshops
 - policy and commitment talk to board and directives to get to these goals
 - defining the goal
 - first point of contact for stakeholders
 - continue engagement and motivation by creating challenges and prizes by funding projects

Questions panel

Q: What is the first step to be taken? = department to be funded and created and also sk the govt, and organizations

Q: what is the most important part once you are funded = creating the policy defining an outline and the kind of commitment needed.

Q: Is this more of an admin department or research? = they do not need to collect research but they can help with collaboration and spreading knowledge. incentive it is a little bit. Main goal is to make it a hub for all of this to come together.

Q: who would make up the team: 5-6 different employees; with HR and policy and different skills.

Q: Give us one topic with which we can make the biggest impact or the lowest hanging fruit? ??? turning all the freezers to minus 70 degrees. You can do it for the majority of all your freezers but certainly not all.

Someone from the audience said this is all not doable.

Team 5

- Robins come together to meet.
- A person robin who could be an analyst within a lab; who is willing to do something about sustainability.
- How do we keep Robin motivated?
- Create a breeding season for Robins.
- create team responsibility
- Set goals as a team; community of labs at the USP
- yearly event in either science or sustainability where labs are coupled for a year; evaluate each other, share ideas and discuss goals.
- Importance of celebrating successes (through the yearly event). work together to become even better.

Questions Panel

Q: feels a bit broad; do you have specific goals? = the LEAF can be used and that teams can set their own goals so that learning is stimulated by each other.

Q: what is your main goal; you start small which is doable but then what? = every lab team works towards making their lab sustainable but also empowering themselves and others.

Q: how will you see the visible effect? she said; depends on how it is monitored. eg.; could see how much plastic or boxes you ordered within a year and whether these trends are changing.

Q: Who will be the host of this community? Shoutout for a next hackathon

Q: How is this going to be? across labs/departments/institutes? = institutes.

Q: Do you offer the teams any support during the year if they need it? She said she likes that idea. Happy with the idea of coupling the labs.

Panel points:

Main takeaway: great ideas; what their role and how they can contribute

Work local!!! think big but local goals 😊

- Marktplaats idea was really great!
- Saw on three levels; sharing ideas and knowledge; start a community and sharing facilities
- Their goal is that in the next few years all the departments can come together and share all this. They will support this community and be happy to be there to participate. = commitment.
- did not want to rank; the institutes that they represent have the willingness to motivate people to get together either every year or half a year. = working together as a goal with some representatives of people from the groups.
- exchange of ideas is to what they want to be promoted.
- Q: Who can people contact first from the panel?
- Q: Do you have a shared goal for us?
 - CO2 reduction
 - whatever is doable
 - make it happen within uni
 - green team hubrecht institute; there is not yet an existing shared goal but in the future this can come up. First we have to learn from each other so the main goal is to connect! = community