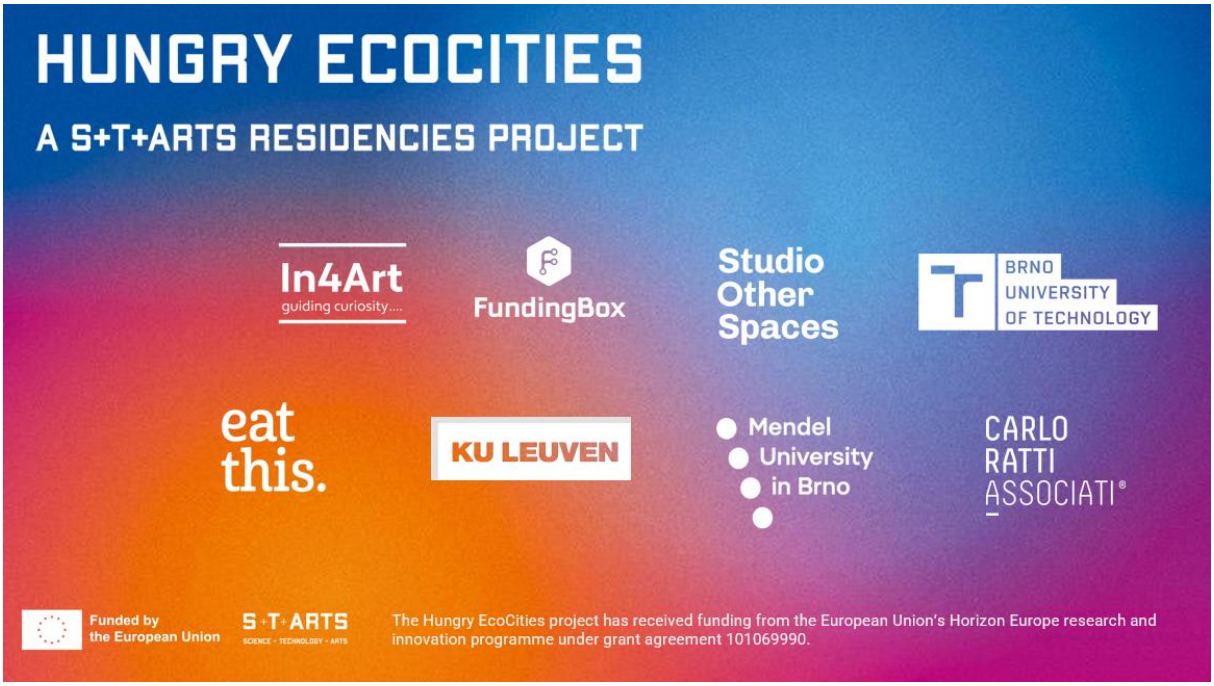

Deliverable 3.7 Matchmaking for PPEs

Grant Agreement Number	101069990
Project title	Hungry EcoCities
Start date of the project	Sep 1st 2022
Duration of the project	42 months
Date of submission of the report	Nov 26th 2024
Workpackage No.	3

Project coordinator: Brno University of Technology (BUoT)
WP leader: FundingBox Accelerator
Lead author: Lija Groenewoud van Vliet (In4Art)
Reviewers: Anca Marin (FundingBox)

Objective of the deliverable

This deliverable provides an overview of the matchmaking process, set-up to prepare for the Hungry EcoCities residency experiments: the **Paths to Progress Experiments** (PPE). These experiments are conducted by SME + artist duos, in collaboration with a team from the consortium and their network, potentially including one or several artists from the Humanizing Technology Experiments. It builds on top of Deliverable D3.2, which reflects on the matchmaking that was conducted for the Humanizing Technology Experiments. Furthermore, it overlaps with D1.4, where the matchmaking process was reported. It also overlaps with D3.8 and D3.9 which elaborate on the open call procedures, where the matchmaking is an integral part of.

Because we do not wish to repeat ourselves in the deliverables to much, this deliverable will focus on describing the matchmaking processes, outcomes and learnings, from the perspective of the SMEs, or end-users, we have contracted for the PPEs. We describe the ideas and processes behind the PPE matchmaking from the perspectives of our SMEs, since we position them at the centre of our project for this phase.

History of changes

Date	Version	Author	Comment
20.06.24	0.1	Klara Kaluzikova	Setup of deliverable
22.10.24	0.6	Lija Groenewoud van Vliet	First draft
20.11.24	0.7	Rodolfo Groenewoud van Vliet	Input + review
22.11.24	0.8	Lija Groenewoud van Vliet	First full draft
25.11.24	0.9	Anca Marin	Full review
25.11.24	1	Lija Groenewoud van Vliet	Final

Table of Content

Abstract

The Path to Progress Experiments mark the third phase of the Hungry EcoCities project. The first phase was the internal research and exploration (WP1), leading to the development of the three studio visions and the identification of the research support capabilities: matchmaking on skills and available networks. The second phase were the Humanizing Technology Experiments, 9 experimental art-driven innovation projects where we worked with 9 individual artists on developing 9 food system-related, AI-enabled, prototypes: matchmaking between the artists and the consortium. Now we have entered the third phase, where we started with finding and selecting 10 food system SMEs as our innovation test beds: a new period for matchmaking. The 10 SMEs joined in September 2024 and will be with us until October 2025, 13 months in total.

After selecting the 10 SMEs, but even before the official start, the PPE matching started with the consortium doing a deep-dive into the SME during the consortium meeting held in July 2024 in Amsterdam. The matching in the PPE is aimed at building strong core teams around the SMEs, capable of delivering prototype art-driven innovations on the challenges identified for each SME. As mentioned in the 'objective of this deliverable' section above, we will refrain from repeating too much what has already been reported on the matchmaking process in other deliverables. Most notably: D1.4, D3.2, D3.8 and D3.9.

In this deliverable, we will describe the ideas and processes behind the PPE matchmaking from the perspectives of our SMEs, whom we position at the center of our project for this phase.

In figure 1, a schematic overview of the matchmaking parts and their chronological order is presented. This deliverable will touch upon each of these parts of our matchmaking, highlighting how we designed it, how it was executed and what we experienced so far, given that this report was written in M27, November 2024, when the PPE SMEs were 2 months in the project and we just closed the first phase of matchmaking with the artists through the HEClab.

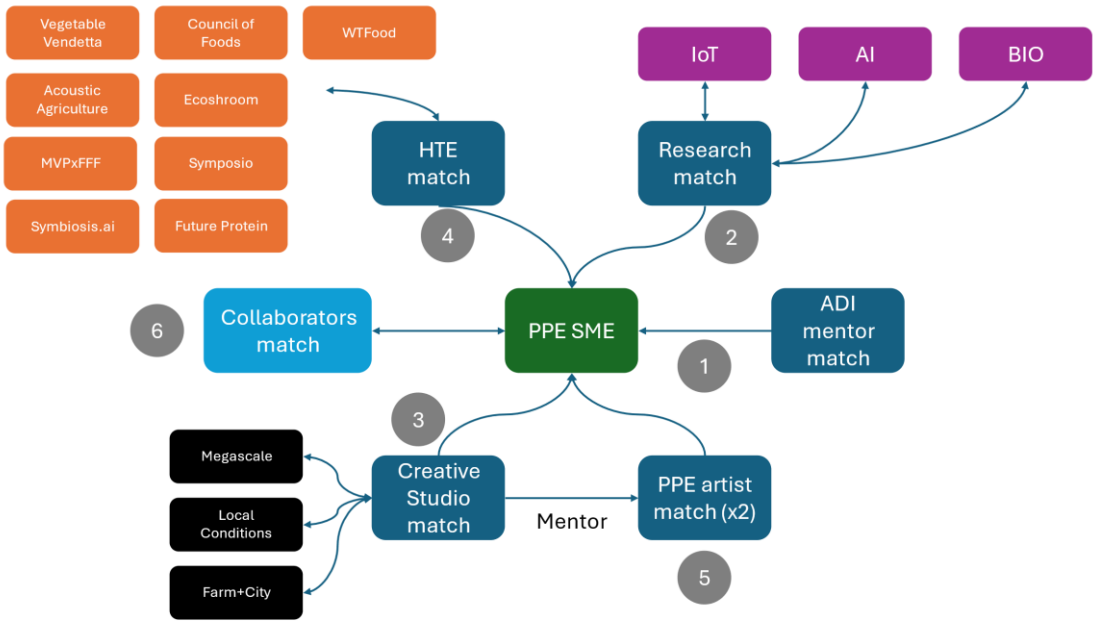

Figure 1: matchmaking process overview for Path to Progress Experiments

1. ADI mentor match

The SMEs went through a regular open call process managed by our partner FundingBox and in close collaboration with In4Art. After the consensus meeting, we selected 10 SMEs as candidate beneficiaries, pending an online meeting with the art-driven innovation mentor (In4Art). During the consortium meeting held in Amsterdam, all partners critically reflected on the selected SMEs and brought forward questions and attention points for collaboration that the art-driven innovation mentor took into account.

The online meeting with the SME candidate beneficiary had the purpose of confirming the interest, availability, the understanding and the testing environments of each of the candidates since the application by design was kept relatively simple to make it as accessible as possible for an SME to apply. After this meeting, one of the candidate beneficiaries was replaced by the first candidate from the reserve list. The reason for replacement was that the candidate beneficiary turned out to be a larger company, incompatible with the SME status eligibility criterion.

The online meeting also had the purpose to explore the potential research matches and creative studio matches for the first time and finding already available timeslots for the physical kick-offs.

The extensive notes of these online meetings served as the initial brief for all of the HEC partners to familiarize themselves with the SMEs and to all scope the challenge for the second phase of the open call towards artists.

After these meetings, the SMEs were offered the sub-grant agreement contract and signed the agreement for the first phase of the support program within Hungry EcoCities.

The first action was to have physical[1], on-site meetings with all SMEs in the first weeks of the project, prepared by the ADI mentor, in collaboration with CRA as WP leader of the WP 4 residencies (see Annex 1). Between the end of August and mid-September, these 1 to 2 day on-site meetings were held. From the consortium, the ADI mentor attended all of the meetings, joined by the coordinator at most meetings and various other partners for different meetings. The physical kick-off meetings were aimed at building a relationship with the SME, building understanding on the SME and its context, and making a full brief of the SME in the PPE context as the official starting point of the project and the further matchmaking. These full briefs include the background, context, situational analysis, systems mapping, challenges assessment, solution directions and knowledge requests for each SME. Based on these full briefs, often 5+ pages in length, the next steps in the matchmaking process could start, starting with identifying the research match, followed by the creative studio match and the HTE match.

[1] For images and refence of winners, first analysis and kick-off images, see our article: Paths to Progress Experiments: Introducing the 10 SMEs – Winners of Hungry EcoCities' 2nd Open Call – S+T+ARTS

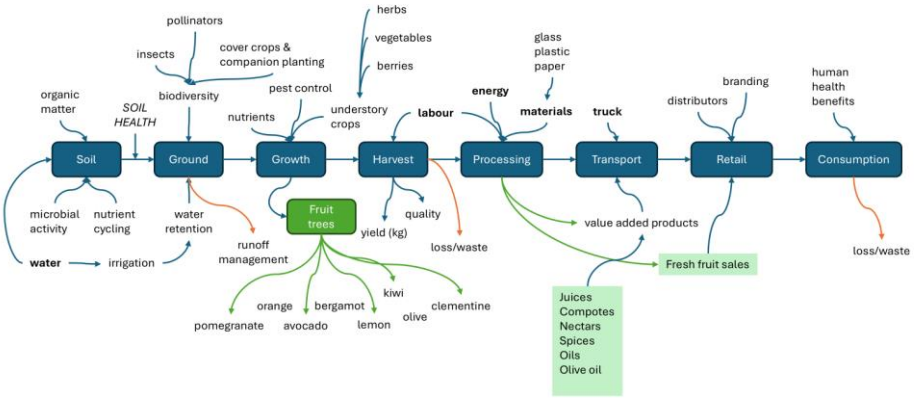

Figure 2: Example of one of the SME system maps

2. Researchers match

The second step in the PPE matchmaking process was to identify the researchers matches in an early stage, allowing for maximum time to exchange and prepare for educational embedment, field or laboratory testing during the PPE projects. Based on the full briefs, meetings were organized between the SMEs and, depending on their ideas, needs and requests, between one and three university partners. The goals of these meetings were to identify concrete objectives on which the researchers and the SMEs could align, and to develop a detailed project brief along with KPIs to guide their collaboration.

This step led to a long list of potential matches, which are currently (November) in the process of being chased. Below is the list of identified researchers matches between SMEs and our researchers:

SME	**Research match**
AXIA	KUL on developing a multi modal conversational agent tool
BeeSage	MNDL on in-hive sound post processing from high sensitivity microphones
	BUOT on in-hive queen-related issues detection through computer vision
Capanna	BUOT on warehouse traceability through RFID
Instagreen	KUL on last mile logistics for urban vertical farms
	BUOT on machine learning applied to small scale urban microgreen farming
Terre di Zoe	MNDL on optimizing natural resources in orchard farming through acoustics and mycorrhizae
Logiqs	BUOT on ventilation hardware and module optimization specifications
	MNDL on air dynamics and sound on growth effects in the module
Protiberia	MNDL on sound related pheromone measurements for insects
	BUOT on developing sensor systems to monitor behavior of insects
Sprout	MNDL on sound based sprouting growth control possibilities
	BUOT on sprout readiness research through image recognition
Staramaki	BUOT and MNDL combined on smart agri mapping experiment
	KUL on AI powered stem recognition systems
TasteLab	KUL on environmental factor influences on consumer experiences

Table 1: overview of SME – Scientific Match in PPE trajectory

In total 16 SME- researchers matches were identified in the matchmaking process. All of these matches are being further explored and turned into actionable tasks in the respective PPE projects. In some cases, this goes through the inclusion of a student, in others, it comes down to expert advice and guidance.

Mendel University of Agrisciences: 6 matches
Brno University of Technology: 7 matches
KU Leuven / Leuven.AI: 4 matches

With this outcome, the second step of the PPE matchmaking process has been concluded and work is laid out for SMEs and researchers to develop innovative results in the coming year.

3. Creative studios match

The third step was to identify the creative studios that best aligned with the context, needs and wants of the SMEs. The core role of the creative studios in this stage of the project, the PPE experiments, is to [1] mentor the artists and [2] advise the SMEs on the basis of their food system visions.

Since the first role will start when the 20 finalist artists are selected and have their kick-off (December 2nd, 2024), nothing can be reported about this at the moment. In the final deliverables of the project, we will report on the creative studio–artist collaborations in detail.

What we did do in the first part of the SME PPE projects was to identify the best matches between the visions of the studios and the SMEs in the project. Based on this, an initial allocation of SMEs per creative studio was made by the consortium, and meetings between Creative Studios and SMEs were held to explore the potential of these matches. These efforts led to the following matches between creative studios and SMEs on the basis of their visions:

SME	**Creative studio match**
AXIA	EatThis
BeeSage	EatThis
Capanna	EatThis
Instagreen	CRA + EatThis
Terre di Zoe	SOS
Logiqs	CRA
Protiberia	SOS
Sprout	CRA
Staramaki	CRA + SOS
TasteLab	SOS

All creative studios are matched with 4 of the SMEs, in some cases we identified more than one match per SME, based on the different challenges the SME is facing and their relevance in light of the studio visions.

With this outcome, the third step of the PPE matchmaking process has been concluded and work is laid out for the creative studios to inspire the SMEs, guide the SMEs and mentor the artists connected to the SMEs. Since the Studios were involved in the kick-off and also had pre-meeting with the SMEs, they are well informed on the SMEs challenges and possibilities, to give the 20 finalists the best support to come to meaningful and realistic testing proposals for the further PPE trajectory.

4. Humanizing Technology Experiments Prototyping match

The fourth step was to identify the HTEs prototypes that match the challenges and the needs of the SMEs. One of the main aims of Hungry EcoCities is to test the usability of art-driven digital prototypes in the context of individual companies in the field. Another ambition of HEC is to support the art-driven innovation prototypes to develop further, through testing and validation in a real environment, in an SME environment.

To support these goals, we gave every SME the assignment to scout through the 9 HTEs prototypes, supported by the identified matches on the HEClab and kick-off meetings, and try to translate their functionalities to their own situation. All SMEs did this, first by themselves, then, during meetings with the art-driven innovation mentor, together. It became evident that many SMEs were struggling with looking beyond the first layer, meaning that they found it hard to imagine how these prototypes could be valuable to them in any other way than what they specifically saw in the documentation on the HEClab prototype-card and in the videos. An example: the Council of Foods currently does not have the foods produced by many of our SMEs. It needed explicit explanation from the mentor to make them realize that any food could be integrated into the tool, that the current set of foods and their prompts are not fixed and that new discussion themes can be elaborated. We have had many similar cases.

SME	**HTEs prototyping match**
AXIA	Vegetable Vendetta
	Council of Foods
	MVPxFFF
BeeSage	Council of Foods
	Future Protein
	MVPxFFF
Capanna	Ecoshroom
	WTFood
	Council of Foods
Instagreen	Future Protein
	Ecoshroom
	WTFood
Terre di Zoe	Ecoshroom
	Acoustic Agriculture
	MVPxFFF
Logiqs	Vegetable Vendetta
	Council of Foods
	Acoustic Agriculture
	MVPxFFF
Protiberia	Council of Foods
	MVPxFFF
	Acoustic Agriculture
Sprout	MVPxFFF
	Vegetable Vendetta
	Acoustic Agriculture
Staramaki	Ecoshroom
TasteLab	MVPxFFF
	Symposio
	Council of Foods

After going through the prototypes jointly, most SMEs could identify between 1 and 3 prototypes they became excited about. In the left table, we listed the SME- HTEs prototype matches.

All SMEs have identified at least one suitable HTEs prototype for testing in the PPE, this is a good result, especially since 9 SMEs identified more than one, and up to four even.

Out of the 9 HTEs prototypes, in total 8 found a match with at least one SME, and 7 found a match with at least two SMEs. This is considered a promising intermediate result of this matching.

Vegetable Vendetta	3
Council of Foods	6
MVPxFFF	7
Future Protein	2
Ecoshroom	4
WTFood	2
Acoustic Agriculture	4
Symposio	1
Symbiosis.ai	0

Currently, we are exploring all potential matches with the SMEs and the artists behind the prototypes, with the intent to incorporate at least 1 per SME for testing during the PPE.

5. PPE artists match

Now that all SMEs have been matched to the art-driven innovation mentor, the researchers, the creative studios and the humanizing technology experiment prototypes, the fifth stage of the matchmaking in the PPEs concerns the matching with the artist. In other deliverables, we describe the process we followed in the open call, leading up to the point where all preselected artists were matched to SMEs through the HEClab. Based on these matches, and the individual SME webinars, the artists were invited to confirm their matches by writing a collaboration motivation for up to 2 SMEs. From our side, and through a process of internal and external evaluation, the final 2 artists per SME have been selected on November 25th. Since this deliverable has been submitted that same week, we cannot report on the outcome of the first stage of the artist-SME collaborations, leading to the final selection of 1 artist per SME by the beginning of February 2025. This will be reported in pending deliverables in 2025 (D3.8 and D3.9).

An important part of this matching concerned the testing of the matching system of the HEClab. This led to the following results:

Out of 46 candidate artist prototypes in the matching pool, 45 had at least one proposed match of more than 25% matching potential with an SME. From these 45:

# of candidates	# of SME matches
5	1
5	2
11	3
7	4
5	5
7	6
1	7
3	8
0	9
0	10

The artists received these proposed matches through their personal dashboards on HEClab, after which they familiarize themselves with the SMEs on their list and attended the webinar meetings with the SMEs. Based on this, they were asked to submit collaboration motivations for a maximum of 2 SMEs. This meant that many artists had to choose from their proposed matches.

SME	# of motivations for collaboration
Axia	3
Beesage	2
Capanna	3
Instagreen	9
Terre di Zoe	5
Logiqs	2
Protiberia	6
Sprout	2
Staramaki	3
Tastelab	7

From the motivations for collaboration, we have selected the 2 finalists per SME. The finalists will receive a mini-grant to immerse themselves in the challenges posed by the SME, conduct research and exploration work, engage with the SME and the connected mentors, and come with a prototyping proposal for the jury day. The 10 selected artists will then join the SMEs in executing their projects between March 2025 and October 2025.

6. Collaboration /matching assessment

The final step of the matchmaking process is one which is a continuous process: assessing whether additional collaborators and experts are required to successfully conclude the projects. This can require expertise, skills, space or materials, which are not available within the core teams so carefully brought together through the previous 5 steps.

At the moment, and due to the early stages of the PPEs, only 4 out of 10 SMEs have identified the need for a collaborator in the project. Based on the chosen experiment and prototype testing with the artists, we expect this overview to grow in 2025. The table below shows which ones these are, and which collaborator match they have found or are seeking:

SME	**External collaborators**
AXIA	PEAX data
Beesage	Tomatoworld
Capanna	Sirmium ERP
Instagreen	-
Terre di Zoe	-
Logiqs	-
Protiberia	Expert on Tenebrio Molitor
Sprout	-
Staramaki	-
TasteLab	-

It is expected that the need for external collaborators will increase as the projects progress, therefore it is interesting to look at how this evolved when the PPEs have come to a close. From the HTE experiments, we learned that also the artists themselves bring in a range of collaborators and experts, varying from scientific insight, developers and coding skills to culinary experts.

Reflections and conclusions

The Path to Progress Experiments (PPE) matchmaking process built upon learnings from the Humanizing Technology Experiments (HTE) to create stronger connections between SMEs, artists, and the consortium. The process included physical kick-off meetings with all 10 SMEs, detailed challenge briefs, and systematic matching across six key dimensions: art-driven innovation mentorship, research expertise, creative studio vision alignment, HTE prototype integration, artist collaboration and required external collaboration expertise. The HEClab platform facilitated objective artist-SME matching, with 45 out of 46 artist candidates finding potential SME matches above 25% compatibility.

The first proof of effectiveness of using the HEClab to support the matching system is evidenced by the quality of connections made, as demonstrated in this artist's motivation for selecting their SME partner:
"The motivation for selecting 'La terre di Zoe' lies not only in the fact that it is the option with which I obtained the highest match percentage, but also because the pillars on which its company and my current research project are based are the same: soil as a resource for production, research and sacred respect." The coincidences in terms of the intention to work on the regeneration of the soil, looking for creative solutions applicable on a larger scale to encourage this resulted in a match and consequently an application.

The intermediary ‘on-boarding’ meeting and physical kick-off and enabled deep understanding of SME contexts and testing environments, leading to well-informed matches across all dimensions and valuable input fort further support and collaboration in the Paths-to-Progress Experiments.

Building on the HTE matchmaking experience documented in D3.2, the PPE process incorporated several key improvements. Where the HTE matchmaking process focused on connecting artists with consortium partners through virtual meetings, the PPE approach expanded to include physical kick-off meetings and comprehensive SME engagement in the matchmaking phase. The addition of detailed challenge briefs, typically exceeding 5 pages, provided deeper context than the initial HTE application reviews. The HEClab platform was newly introduced to enabling data-driven artist-SME connections. In general, within the PPE Matchmaking, the matching dimensions expanded significantly - while HTE focused primarily on studio + art-driven innovation and technology alignment, PPE integrated art-driven innovation mentorship, research expertise, creative studio vision, HTE prototype potential, and artist collaboration.

Furthermore, where HTE matchmaking occurred simultaneously across dimensions, PPE implemented a sequential process that allowed each match to inform subsequent connections. The integration of existing HTE prototypes as an additional innovation layer demonstrates our project's commitment to building upon previous successes and creating interconnected innovation pathways by offering space for this type of matches to occur.

Overall, we think that this methodical expansion of the matchmaking framework resulted in more robust and well-informed partnerships across all dimensions and hope to see the benefits of it in the actual collaboration within the residencies.

With this, we believe we successfully met Task 3.3 requirements by connecting artist-SME duos per studio, utilizing the HEClab for transparent selection, and creating matches across consortium expertise. The 45/46 artist match rate and distribution of SME collaboration motivations (ranging from 2-9 per SME) demonstrate effective implementation of the matchmaking methodology.

Annex 1 – Discovery Session SME kick-off

As mentioned in the section on 'ADI mentors match', we had extensive and structured kick-off meetings, in person, with all SMEs. This annex presents the general structure and the topics we went through during these meetings in order to be able to generate a full and comprehensive brief per SME.

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The general agenda of the kick-off sessions was as follows:
Suggested program for the day:

- welcome, agenda and brief introductions
- Discovery Session: goals, ambitions, problems and solutions of the SME
- lunch at the office
- tour through the facilities / company
- Challenges and Opportunities: framing the strategic question(s) for the SME
- Wrap up and next steps: going through planning, program and next steps + starting with the HEClab card
- group picture and closure
- joint drinks / dinner

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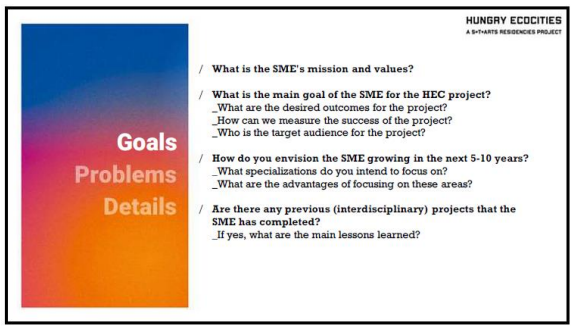
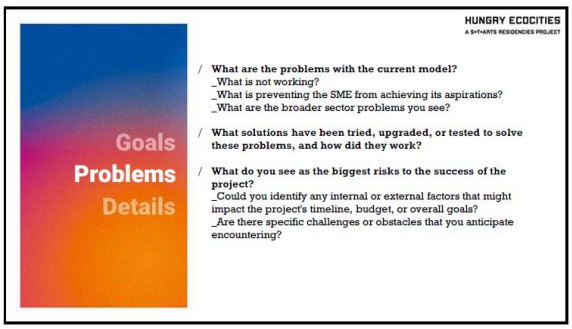
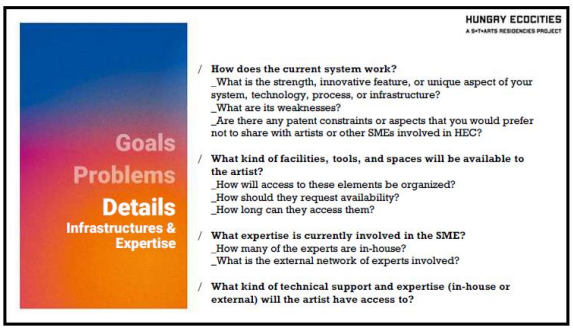
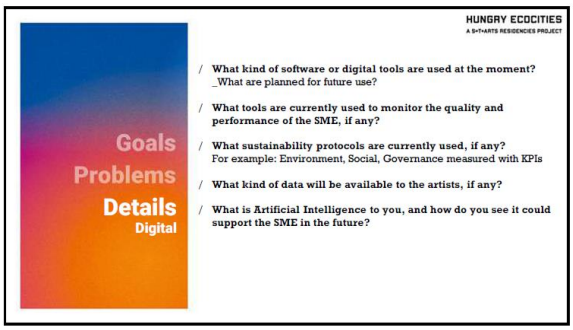
To support the kick-off and start of the Paths-to-Progress experiments, the following presentation was used as structure and support for the conversation:









HUNGRY ECOCITIES

Challenges & Opportunities

Framing the strategic question(s) for the SME

*SME will present its challenge(s) to the artists at the beginning of October

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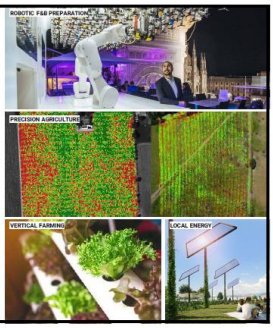
Challenges & Opportunities

1/ Define the Challenge

1.1/ Identify the problems you're facing
Try to answer these questions:
- *What is the central problem or opportunity?*
- *How does it impact SME, industry or society?*

1.2/ Frame the strategic question
Use "How might we" questions to translate problems into challenges:
- *How might we (solve problem/use opportunity)?*
- *How will the sector and its trends evolve in the next 5-10 years, and how can you get there?*



Challenges & Opportunities

2/ Generate Opportunities

2.1 / Brainstorm ideas
Generate a wide range of potential solutions, both incremental improvements or disruptive innovations.

2.2/ Explore constraints & prioritize
Select ideas based on their potential impact and feasibility – if ideas seem too ambitious, consider:
- *What could be achieved in eight months?*
- *What is the ultimate goal and how could additional funding help us achieve it?*

HUNGRY ECOCITIES

HecLab Opportunity Card

Filling out the card according to the strategic question(s)

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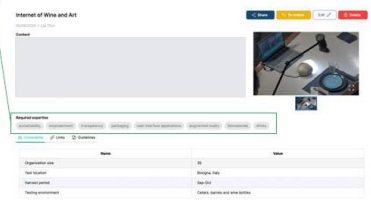
HecLab Opportunity Card structure

Content
In this section, briefly describe the SME, for example answering:
- **Who you are**
  Provide a brief introduction to your organization;
- **What are your problems or needs**
  Outline the main challenges or needs you are facing;
- **What is your Challenge**
  Specify the challenge or strategic question you want to address;
- **What are the Opportunities**
  Highlight the opportunities you see for improvement or growth.

Title
A short working title for the challenge

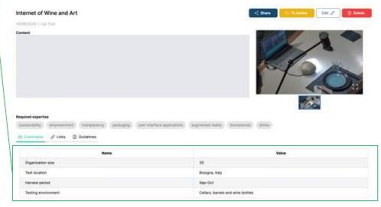
HecLab Opportunity Card structure

Required expertise
In this section, you can choose from existing tags to specify the kind of expertise you would like the artists to have.



HecLab Opportunity Card structure

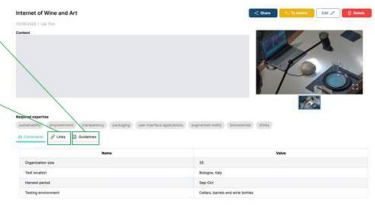
Constraints
Here, list the SME's facility and process key indications. For example:
- **Organization size:** n. employees
- **Test location:** City, Country
- **Testing environment:** Types
- **Key periods:** Months and events



HecLab Opportunity Card structure

Guidelines
Here, summarize additional information, like the type of artist you would like to collaborate with, facilities and testing environment availability, access requirements, collaboration rules and other relevant details.

Links
Here, you can add relevant links, such as the SME's webpage.



HUNGRY ECOCITIES

Wrap up & next steps

Going through planning, program, and next steps

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Project Timeline

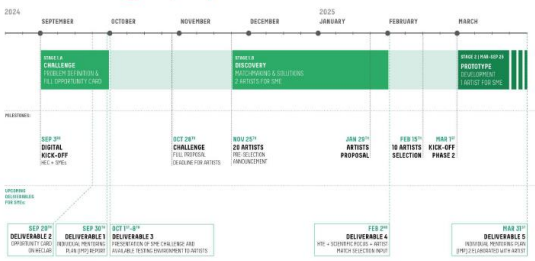
Discovery
Problem definition and solution framing, matchmaking with artists, identifying scientific input needs, selecting the HungryEcoCities digital prototype for testing, and selecting a suitable HTE to test and to collaborate with the scientists.

Prototype
Focus on collaboration with the artist to prepare the selected prototype solution for testing in the real business/ operations environment of the End-User. Testing of the Hungry EcoCities digital prototypes (minimum of 1) and scientific input integration.

Demonstrate
Prototype validation in the real business/operations environment of the End-User to verify the prototype system: existing field testing, prototype iteration and experiment validation.

HUNGRY ECOCITIES
A S+T+ARTS RESIDENCIES PROJECT

Timeline Stage 1 | Sep 2024 – Feb 2025



HUNGRY ECOCITIES
A S+T+ARTS RESIDENCIES PROJECT

S+T+ARTS

Next steps

- **The creative studio will share meeting minutes** with the key points discussed within 2-3 days from the kick-off meeting.
- **The SME will prepare a draft of the IMP and HECLab Opportunity Card** and notify the studio for comments and suggestions before the 15th of September
- **The SME will upload the Opportunity Card** on the HECLab platform **before** the 20th of September (mandatory).
- **The SME will hand in the IMP** latest the 30th of September (mandatory).

About Hungry EcoCities

Funded by the European Union

S+T+ARTS
SCIENCE + TECHNOLOGY + ARTS

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Hungry EcoCities aims to explore one of the most pressing challenges of our times: the need for a more healthy, sustainable, responsible, and affordable agri-food system for all enabled by AI. More info: starts.eu/hungryecocities.eu