D4.2 STARTS residencies programme (b)

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1.4	28.02.2025	Tatiana Efremenko (POLIMI)	Final version

Executive summary

Deliverable 4.2 describes the programme of the second MUSAE S+T+ARTS Residency, started in M25 (September, 2024) and ending in M34 (June 2025). During the residency, 11 core teams – composed of a SME and an artist and selected in the 2nd Open Call - create 11 futures-driven concepts in the area of Food as Medicine and, subsequently, turn these concepts into TRL5 prototype employing the Design Futures Art-driven (DFA) method. The document details the phases of this residency and describes the training and mentoring provided to core teams and mentors to become familiar with the three main pillars of the Residency Program: the DFA method, the Mentoring program and the Training program. Section 2 describes the format of the second residency; Section 3 introduces the Training format both methodological, thematic and technological; Section 4 describes the role of the Mentoring, and Section 5 explains the development and production of the projects. This Deliverable is instrumental in shaping the final output of the MUSAE project, which is the final Factory Model package.

The residency is supported by a comprehensive training and mentoring program, which includes:

- **DFA training:** A two-day, in-person kick-off event that took place in Milan, introducing participants to the DFA method and structured workshops for ideation and concept development.
- **Training program:** Online sessions for the core teams (SMEs and Artists) and MUSAE consortium on topics such as art-tech collaboration, futures thinking, ethical considerations in technology and nutrition, human-machine interaction, and data ethics.
- **Mentoring program:** Ongoing guidance from art, tech, and nutrition mentors, with biweekly meetings and structured individual mentoring plans to track progress.

The programme is guided by the Design Futures Art-driven (DFA) method and follows two main phases: Concept Generation, Prototyping, and a final public Exhibition in Belgrade, Serbia.

- **Concept generation phase:** Teams created 11 future-oriented concepts using the DFA method, refined through Challenge Exploration and Idea Exploration workshops and working together at the facilities of SMEs or artists'.
- **Prototyping phase:** Concepts undergo development through iterative cycles lasting two weeks each, ensuring continuous feedback and improvement.
- **Final exhibition:** In June 2025, the 11 TRL5 prototypes will be publicly showcased in Belgrade, highlighting innovative solutions aligned with the theme of "Food as Medicine.", along with the presentation of the MUSAE project and its main results.

The Second Residency has strengthened cross-disciplinary collaboration, engaging diverse stakeholders, including academic institutions, SMEs, and art-tech experts. The structured methodology ensures effective knowledge transfer and the development of robust, future-oriented solutions. The outputs of this residency will contribute to the final MUSAE Factory Model, providing methodology, tools, and insights for future use by European Digital Innovation Hubs (E-DIH) and other stakeholders.

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1. Introduction

1.1. Purpose of the document

The purpose of this document is to present the programme of the Second Residency as well as to describe the Training and Mentoring format organized and delivered within the MUSAE project. This second document "D4.2 STARTS Residencies Programme (b)" describes the format of the second part of the residencies held from September 2024 to June 2025 with a group of 11 core teams (SME + artist). See Figure 1 for the general schedule of calls and residencies to understand the timing and purpose of the first residency programme.

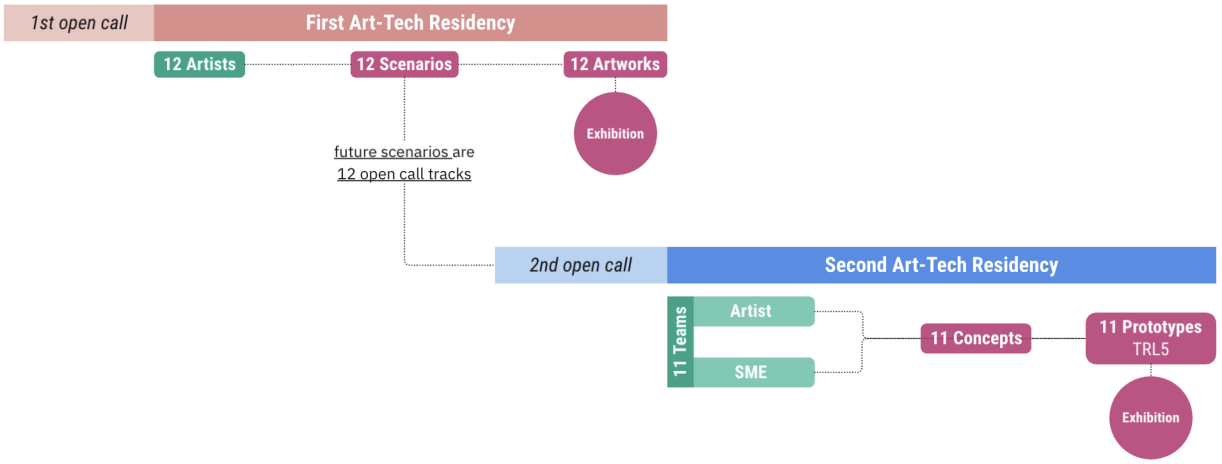


Figure 1: Overall timing of the two MUSAE open calls and related residencies programmes

The training and mentoring format, managed primarily within T2.4, runs from M8 (April 2023) to M11 (July 2023) and subsequently from Mxx (September 2024) to Mxx (May 2025), the second period of which was extended due to the postponing of the second residency. According to the DoA, T2.4 is dedicated to defining the methodological and technological training format for artists and companies in residence. Technical partners and invited quests provided courses on technologies, art-tech collaboration, nutrition and other topics that will be available in open source as part of the Final Factory Model pack. The tutorials were managed with experts from the consortium to help the artists with the aim of perfecting and executing their projects. Task T2.4 capitalized on the results of T2.1 Thematic refinement and technological exploration executed from M1 (September 2022) to M5 (January 2023), the initial activities in T2.2 Future Design Refinement of the method of innovation-driven art were run from M4 (December 2022) to M9 (May 2023) and in T2.3 Integrated Network of Experts and Artists running from M6 (February 2023). The design of the residency was developed following a highly multidisciplinary approach aimed at defining a training and mentoring format to move from the MUSAE experiments to the final MUSAE factory model to be shared with DIH for future use.

1.2. Terms and acronyms

Acronym	Description
DFA method	Design Futures Art-driven method
UB-Art	University of Barcelona (Department of Fine Arts)
Core team	SME and artist

2. Residency format

2.1. Introduction

The following sub-sections provide a detailed description of the second residency program, developed within WP4. The second residency is composed of three main phases: (1) *Concept Generation* (Fig. 2), (2) *Prototyping* and (3) *Exhibition* (Fig. 3).

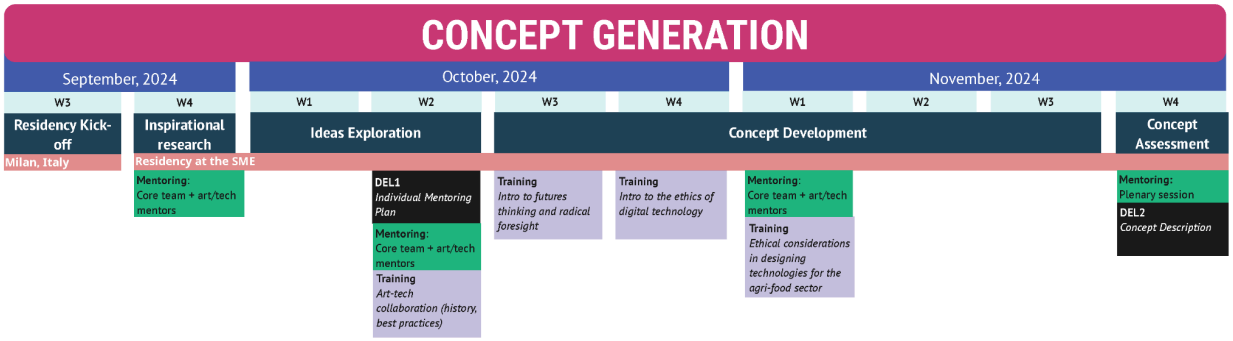


Figure 2: Concept generation phase of the second residency program

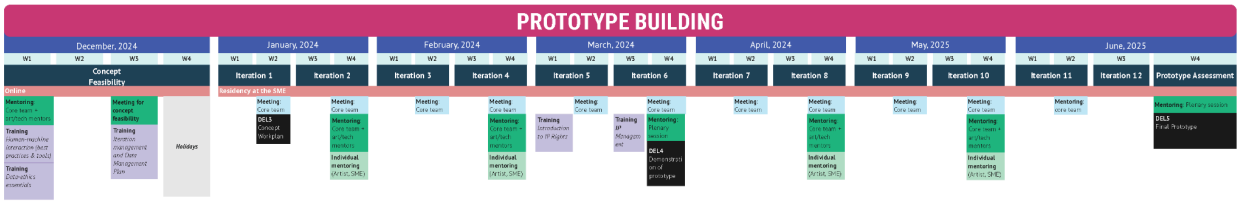


Figure 3: Prototype building phase of the second residency program

The output of the first phase - Concept Generation - consists of 11 future-driven concepts developed by the core team using the DFA method and its activities. These 11 concepts are then implemented, refined, and tested during the Prototyping phase, which enables core teams to turn them into TRL5 prototypes (the output of the Prototyping phase). Ultimately, the 11 TRL5 prototypes will be showcased at a public exhibition to be held in Belgrade, Serbia in June 2025.

The second residency encourages artists and SME to physically work together through temporary stays with the aim to ensure art-tech collaboration and integration of diverse perspectives. During the residency artists visit the respective SME, or SME visits the artist's workplace to carry out together the activities outlined by the DFA method.

At the beginning of the residency, a methodological training in the DFA method is carried out by the

project's consortium to provide core teams and MUSAE consortium partners with the necessary knowledge to navigate the DFA method, conduct its activities and use its tools successfully. Throughout the residency, technical and thematic training is provided to core teams by members of the consortium and external experts.

Moreover, throughout the residency, core teams receive support through continuous mentoring sessions provided by art, tech and nutrition mentors.

The total duration of the residency is 10 months (September 2024 - June 2025).

2.2. Residency Calendar

Residency calendar (Fig. 4) was created as a monitoring tool for the teams and their mentors to follow the progress, schedule the meeting and trainings and control the milestones of the residency.

Figure 4: An extract of the Residency calendar. See full Residency calendar in the Annex.

The calendar included the following activities:

Training: Through the training sessions organized and delivered by the project consortium, core teams learn how to ideate and develop futures-driven concepts and how to transform them into TRL5 prototypes leveraging the DFA method and receiving training from experts in various fields.

Mentoring: Throughout the residency, mentoring sessions are held every two weeks, involving both art and technical mentors working with the core teams.

Development & Production: Core teams apply the DFA method by performing its activities and using its tools to develop future-driven concepts. In the middle of the residency, an assessment meeting was organized to evaluate the quality and relevance of the future-driven concepts developed by the core teams during the second Art-Tech experiment (September to November 2024, see Deliverable 4.4). At the end of this period, each core team presented a concept based on their vision, addressing the challenge and leveraging the selected technology. These concepts will then be further developed, tested, and validated into TRL5 prototypes, the final output of the second residency in June 2025. A final assessment meeting is planned to evaluate the developed prototypes on technological, ethical, and future-readiness levels.

Exhibition: Core teams will have the opportunity to showcase their projects and TRL5 prototypes at an exhibition scheduled for June 2025.

3. Training programme

Throughout the residency, training sessions are organized by the project consortium to provide methodological, technical and thematic guidance to core teams during the Concept Generation and Prototyping phases of the residency.

Methodological training is offered as a 2-days in-presence kick-off event in Milan with the participation of all consortium members and core teams. The event is described in detail in section 3.1.

Technical and thematic training sessions are offered throughout the residency by art, tech and nutrition partners and external guest speakers. The training sessions are described in sections 3.2.

3.1. Methodological training: second residency kick-off in Milan

The residency program began with an in-presence kick-off event held in Milan in September 2024 (19th-20th). The kick-off gathered core teams and representatives of consortium partners in a 2-days event aimed at launching the second residency, welcoming participants and introducing the MUSAE project, the DFA method (specifically, the Ideating and Prototyping phases of the method shown in figure 5), its activities and tools.

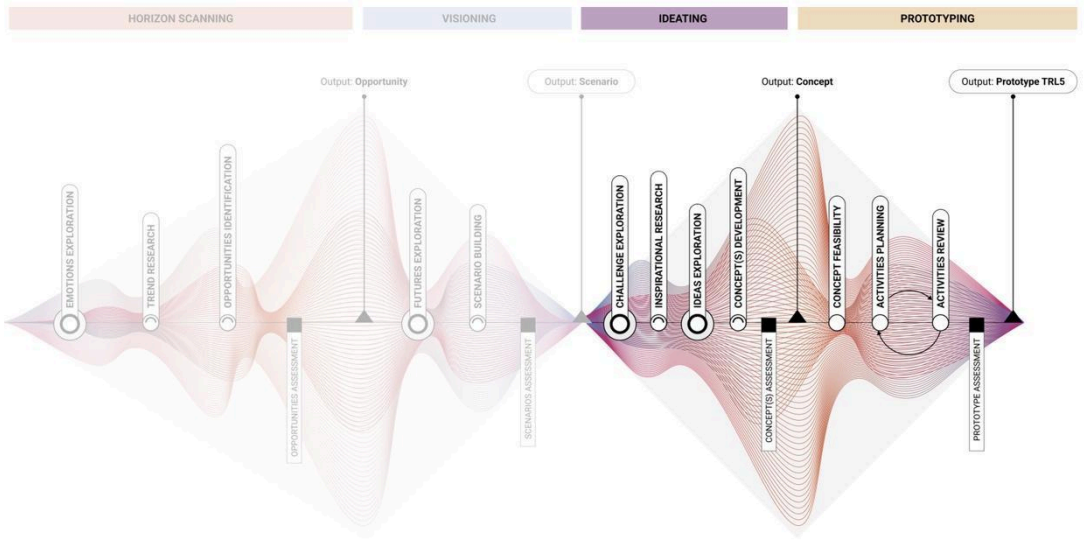
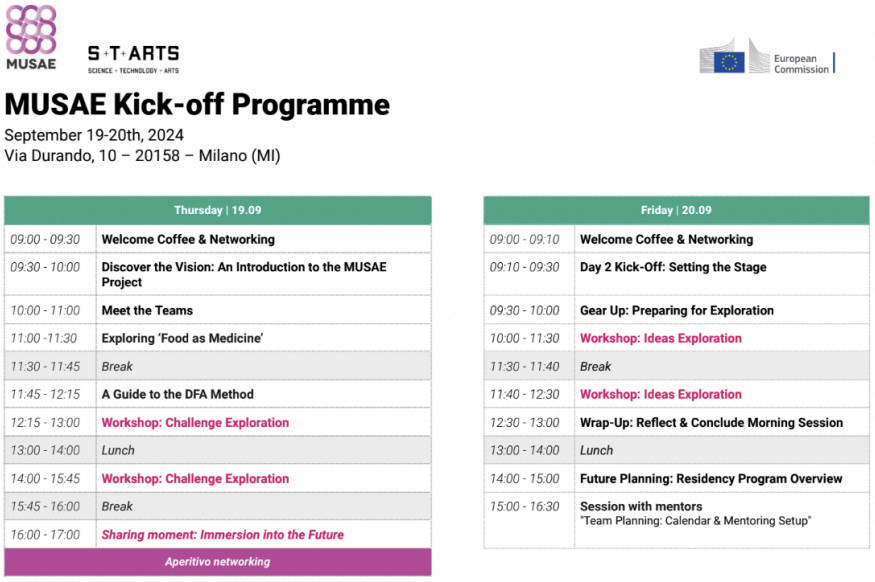


Figure 5: DFA method, focus on Ideating and Prototyping phases covered during the second residency

In particular, during the kick-off, core teams had the chance to get acquainted with the first two workshops of the DFA Ideating phase, namely Challenge Exploration workshop and Ideas Exploration workshop, while Inspirational Research was conducted by each core team independently after the kick-off. Indeed, the agenda (Fig. 6) included time for practical information about the residency, as well as time for participants to engage in these activities and work in groups.



MUSAE Kick-off Programme

September 19-20th, 2024
Via Durando, 10 – 20158 – Milano (MI)

Thursday | 19.09	
09:00 - 09:30	Welcome Coffee & Networking
09:30 - 10:00	Discover the Vision: An Introduction to the MUSAE Project
10:00 - 11:00	Meet the Teams
11:00 -11:30	Exploring 'Food as Medicine'
11:30 - 11:45	Break
11:45 - 12:15	A Guide to the DFA Method
12:15 - 13:00	Workshop: Challenge Exploration
13:00 - 14:00	Lunch
14:00 - 15:45	Workshop: Challenge Exploration
15:45 - 16:00	Break
16:00 - 17:00	*Sharing moment: Immersion into the Future*
Aperitivo networking	

Friday | 20.09	
09:00 - 09:10	Welcome Coffee & Networking
09:10 - 09:30	Day 2 Kick-Off: Setting the Stage
09:30 - 10:00	Gear Up: Preparing for Exploration
10:00 - 11:30	Workshop: Ideas Exploration
11:30 - 11:40	Break
11:40 - 12:30	Workshop: Ideas Exploration
12:30 - 13:00	Wrap-Up: Reflect & Conclude Morning Session
13:00 - 14:00	Lunch
14:00 - 15:00	Future Planning: Residency Program Overview
15:00 - 16:30	Session with mentors "Team Planning: Calendar & Mentoring Setup"

Figure 6: Kick-off 2024 agenda

The introductory session at the beginning of Day 1 allowed the members of the consortium to introduce themselves and their expertise as well as presenting the MUSAE project and its theme "Food as Medicine". As shown in figure 6, the agenda also allocated some time for core teams to present their work and their project proposal.

A hands-on approach was chosen for the methodological training, as engaging directly with the activities

would facilitate a better understanding of the steps and expected results of each activity. An online platform prototyped on Figma specifically for the residency to introduce and explain the DFA. The platform was made available to all participants for asynchronous consultation. Indeed, the platform contains all the instructions and materials to perform the activities. The platform will be described in detail in Deliverable 2.4.

Day 1 – Challenge Exploration workshop

During the first workshop of the Ideating phase, the Challenge Exploration workshop, core teams worked individually, each guided by a facilitator from the consortium partners. Each team was provided with the necessary materials for the in-person session, including printed facilitation guidelines, pens, markers, paper sheets, sticky notes, tape, glue, cardboard, and more. Each step of the workshop - such as the Futures Compass, Scene from the Future, and Challenge Statement - was carried out by the teams under the facilitator's guidance, following the facilitation guidelines and the instructions provided on the DFA platform. By the end of Day 1, each team had drafted a clear and concise Challenge Statement, setting a solid foundation for the activities on Day 2.

Day 2 – Ideas Exploration

Day 2 began directly with the planned activities. To set the stage and inspire participants, an inspirational, future-oriented video was shown. The main activity for the morning was the Ideas Exploration workshop, a collaborative, creative brainstorming session in which core teams gathered into four working groups. Figure 7 shows how the four groups were formed, each consisting of artists, SMEs (divided according to the selected technology), project partners, and a facilitator. Within each working group, one core team at a time started by presenting their Challenge Statement, setting the stage for the brainstorming process. To keep the energy high and inspire fresh ideas, facilitators periodically shared pre-prepared visual stimuli. Each creative session lasted 40 minutes, after which a new core team would introduce their challenge, starting the process over to ensure fresh perspectives and a continuous flow of ideas (Fig. 8).

	Artist	SME	Tech	Partner-participant	Facilitator
Group 1	Michael Wallinger	Iratxe Perales	AI	**Francesco (UoM) Maria (Abacus) Diego (UB-Art)**	**Ramona**
	Daniela Amandolese	Zana Bosnic and Eduardo Loreto	Robotics		
	Maciej Chmara	Pavle Mijovic	Wearables		
Group 2	Magda Mojsiejuk	Francisco Estivallet	AI	**Filip (ETF) Margherita (Abacus) Francesco/ Filippo (MADE)**	**Tanya**
	Rose Leahy	Paola Garnousset	Robotics		
	Letizia Artioli	Giovanni Didonna e Federica D'Acunto	Wearables		
Group 3	Sanja Sikoparija	Víctor Fernández and Aureli Soria-Frisch	AI	**Gizem (PAL) Elena (Abacus) Francesco/ Filippo (MADE) Aoife**	**Carmen**
	Robin Jonsson	Bella Engelson and Christoffer Johannesson	Robotics		
	Milica Jankovic	Antonio Viesti	Wearables		
Group 4	Miljan Stevanovic	Jelena Pejic and Petar Pejic	AI	**Sara (PAL) Natalia (UB-Art) Petia (UB)**	**Eva**
	Eleonora Ortolani & Malou Van Der Veldt	Lou Dillon	Robotics		

Figure 7: Ideas Exploration workshop: working groups

The morning concluded with a plenary session in which facilitators invited participants to share their experiences from both Day 1 and Day 2. Participants were asked to reflect on how the workshops helped them: (i) improve or enrich their existing ideas, and (ii) generate new, unexpected ones. The sharing moment was useful for consortium partners to gather preliminary feedback and suggestions for enhancing the method and activities. The afternoon session was dedicated to practical matters and instructions for the next steps. Core teams received guidance on how to continue their work

independently after the kick-off and were introduced to their mentors in art, technology, and nutrition for the upcoming months.

Figure 8: Ideas exploration workshop

3.2. Technical and thematic training for the teams

The training has been organised through a series of one hour online events where selected speakers offer their view on specific topics relevant to run the specific activities (Fig. 9).
Within the concept development phase, the following training events for the teams have been implemented:

- Art-tech collaboration (history, best practices): this training session was aimed at setting a common ground to facilitate the collaboration within each team
- Introduction to futures thinking and radical foresight: the training session recalled the key concepts of the method to put all the teams on the same line
- Ethical considerations in designing technologies for the agri-food sector: this event was aimed at better centering the activities around the agri-food sector. Ethical specificities of the field were analysed.
- Introduction to the ethics of digital technology: to understand the main ethical risks related to digital technologies with main focus on AI related issues.

During the prototype building phase, the activities started with concept feasibility, aimed at clarifying the best technological approach for the selected concept.

The concept feasibility phase was introduced by the training event called “Human Machine Interaction” with the aim to explain key issues to take into consideration to setup and manage the users’ interaction with the prototypes under development. The same training session explained the key elements to set up an effective work plan to manage the future prototyping activities.

- Data-ethics essentials: in this session participants are given an introduction to the

concept of data ethics and through a hands-on exercise they will be able to identify and manage ethical issues in terms of data projection.

The next prototyping phases will be started by the event called “Iteration management and Data Management Plan” aimed at the setup of the activities to be run in the shape of 15 days iterations including a planning and a reviewing phases according to Agile working principles.

The last two training activities, namely Introduction to Intellectual Property Rights and IP Management will be run in the middle of the prototyping with the aim of supplying basic information on the protection of intellectual property. This point is very relevant in the process because of the strict cooperation between the technological partner and the artist.

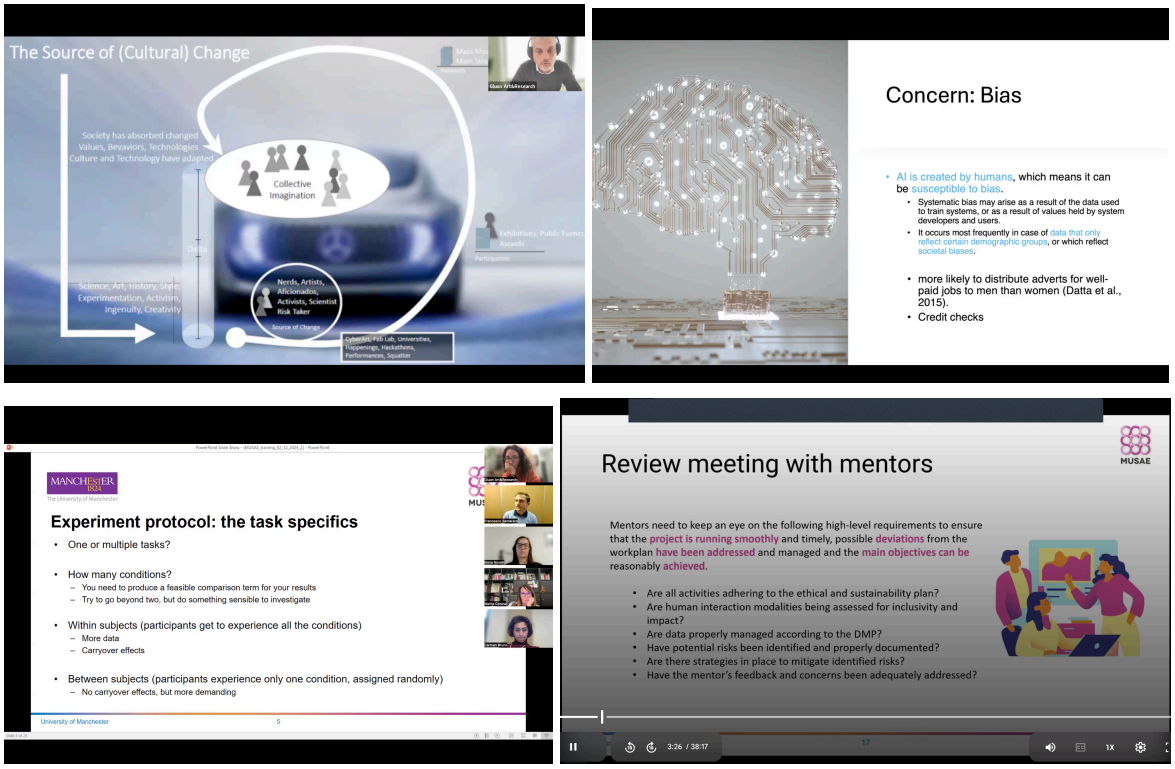


Figure 9: Training webinars for artists, SMEs and MUSAE consortium

3.3. Training for the mentors

This programme was designed to provide mentors with a background on projects based on the collaboration between art, science and technology, following the principles of the S+T+ARTS programme and, for this purpose, having professionals linked to it who could share their knowledge and experience first-hand.

It consists of three sessions, as follows:

- Introduction to the Innovation Catalyst. This session focuses on the role of the “innovation catalyst” and provides hands-on techniques and tools to support meaningful

collaborations. Innovation catalysts should not only connect the team but also challenge and foster radical creativity through speculative design and art thinking.

- Project Management. This session is dedicated to the phases of project management and the skills required in the role of the project manager. The intention is to create a critical look at the project management process implicit in the mentoring; risk management, team management, and monitoring tools, among others.

- Artist + SME best practices. To exemplify projects where SMEs and artists have successfully collaborated, participants in previous projects will share how their process came about and how they overcame obstacles to collaboration.

4. Mentoring programme

4.1 MUSAE Mentoring

Each team has been allocated an art/design mentor and a tech mentor from the consortium. The role of these mentors is to accompany the teams towards the achievement of their goals by facilitating collaboration, guiding the DFA Method and providing support tools for co-creation.

Team	Artist	SME	Tech Mentor	Nutrition Mentor	Art Mentor
Soil. AI	Michael Wallinger	Iratxe Perales	Petia Radeva (UB Tech)	UCD	Blanca Somarriba (GLUON)
BEE-SUSTAIN	Miljan Stevanovic	Jelena Pejic and Petar Pejic	Maja Trumić (ETF)	UCD	Marita Canina (POLIMI)
Sprout to Flourish	Magda Mojsiejuk	Francisco Estivallet	Priya Chandrasekar (UB Tech)	UCD	Eva Monestier (POLIMI)
NOURISH	Sanja Sikoparija	Víctor Fernández and Aureli Soria-Frisch	Priya Chandrasekar (UB Tech)	UCD	Eloi Puig (UB ART)
Growing Futures	Daniela Amandolese	Zana Bosnic and Eduardo Loreto	Sara Cooper (PAL)	UCD	Ramón Parramón (UB ART)
Remedy Pavilion	Rose Leahy	Paola Garnousset	Francesco Semeraro (UoM)	UCD	Tanya Efremenko (POLIMI)
Symphony of Solace	Robin Jonsson	Bella Engelson and Christoffer Johannesson	Sara Cooper (PAL)	UCD	Diego Marchante (UB ART)
Fermenting Traditions	Eleonora Ortolani &	Lou Dillon	Margherita La Gamba (Ab.Acus)	UCD	Blanca Somarriba (GLUON)

	Malou Van Der Veldt				
Neuro-Cooking	Anna Rosinke	Pavle Mijovic	Filip Bečanović (ETF)	UCD	Carmen Bruno (POLIMI)
S.O.I.L	Letizia Artioli	Giovanni Didonna and Giusy Zollerano	Elena Novelli (Ab.Acus)	UCD	Pilar Rosado (UB ART)
OAAK	Bernat Cuní	Center for Genomic Gastronomy	Francesco Semeraro (UoM)	UCD	Blanca Somarriba (GLUON)

During the residency, the mentoring process consists of a series of online meetings structured as follows:

- Art mentor meetings on a biweekly basis. These involve the artist(s) and the art mentor.
- Tech mentor meetings on a biweekly basis. These involved the SME and the tech mentor.
- Core team meetings, every month for SME, artist(s), tech mentor and art mentor.
- In addition, a plenary session with all the teams and mentors is held at the end of each phase to assess the progress.

At the beginning of the Residency, each team completed an Individual Mentoring Plan where they indicated their objectives and a calendar with the sessions planned for the 9 months.

4.2 MUSAE Nutrition Mentoring

The nutrition team (UCD; Prof. Lorraine Brennan and Dr Aoife O'Gorman) are responsible for mentoring all the 11 teams involved in the 2nd MUSAE open call. Each team received individual mentoring and a specific session was set-up for each team.

Prior to the online session each team were asked to submit specific questions they had with respect to the food/ nutrition elements of their projects. The teams were asked to send these questions to the nutrition team two weeks prior to the meeting. This ensured that the nutrition team had adequate time to research the diverse range of questions that were presented. It also allowed the technology/artist team time to think about key questions that they needed help with.

The format of the mentoring session was the team gave]a brief overview of their project followed by a discussion on the key questions/ aspects related to food/nutrition. In addition, following the meeting the nutrition team sent resources such as research papers and useful/reputable website links to the technology/artist team.

Each team was advised that if they had future queries or questions to contact Dr O'Gorman and a meeting would be arranged. The UCD will reach out to the teams in January 2025 to offer further mentoring.

5. Art-Tech residency phases: concept generation, prototype development, final exhibition

The second art-tech residency is based on the second part of the DFA method (Deliverable 2.4 DFA tools and guidelines (c)), which involves the development of a concept and prototype based on the future scenario (developed in the first part of the Explore phase of the DFA method). It consists of two phases: (1) *Ideating* and (2) *Prototyping*. In the Ideating phase, different types of activities have been developed for SMEs and artists to follow, such as *workshops*, *individual activities*, and *assessment meeting.* The result of this phase is a developed concept embedded in the future scenario. In the Prototyping phase, activities include *feasibility meeting, prototype iteration cycles* and *assessment meeting.* The result of this phase is the TRL 5 prototype. The combination of different types of activities and touchpoints allow artists and SMEs to collaborate in the process, exchange their expertise and knowledge, and validate advancements and make shared choices on how to proceed in the process. During the residency from September 2024 to June 2025, the teams took part in a variety of activities to develop their concept and prototypes. Among the activities were the workshops, assessment meetings, prototype iterations, and others, which are described in more detail below.

1. Workshops

Challenge exploration

The goal of the workshop was for the core teams (artists and SMEs) to define the challenge that would guide the team project by following three steps: compiling the Futures Compass, designing and enacting a Scene from the Future, and finally, outlining a Challenge Statement. The purpose of the challenge must have been clear and concise because it represents an essential prompt to ignite inspiration and brainstorm innovative and future-oriented ideas. Participants have completed this workshop in presence in Milan during the kick-off event.

Idea exploration

The goal of the workshop was to brainstorm ideas based on the challenge statement developed by the team of artists and SMEs. The workshops were suggested to be organised in presence either at the facilities of the SME or artist's. Most of the teams have invited external stakeholders to participate in their brainstorming workshops, such as experts, end-users, and others. This workshop helped to enrich an already existing concept idea, or to find new angles for the idea.

2. Activities

Concept development

Concept development was a three-weeks long activity undertaken by both SME and artist together to develop chosen concepts further. The teams have defined more in detail the context, users, concept requirements and use of technology of their concepts. In addition, the teams have used MUSAE Futures Wheel to assess the impact of their concepts on environmental, ethics, economic and technological domains.

Concept feasibility

Concept feasibility phase was a four-week long activity focusing on specific design and development aspects such as human-machine interaction, sustainability, and ethical and social implications. In this phase, the artist and SME collaborate closely to ensure that these critical factors are thoughtfully integrated into the concept from the beginning. By doing so, they lay a solid foundation that aligns creative vision with technical feasibility. During the training session on Human Interaction various tools were presented. All teams are expected to work on the concept feasibility aspects and integrate them into Deliverable 3 “Workplan”.

Additionally, a detailed work plan must be elaborated to guide future development iterations, serving as a roadmap that outlines the necessary steps to effectively realize the concept while staying true to the project's overarching objectives.

3. Assessment meetings

Concept Assessment meeting

The goal of the Concept Assessment meeting was to monitor the progress of the concepts that have been developed by the teams.

In order to prepare for the meeting, the teams received a “Track list” which explained which aspects and components of the concepts should be covered and presented to MUSAE Consortium (See Annex).

The assessment meeting of the concepts took place on November 29th at PAL Robotics in Barcelona. Each team had 20 minutes for their presentations and 10 minutes for discussion. Mentors used an “Assessment tool” to evaluate each team’s concept (See Annex). The assessment tool is subdivided into 7 sections each focusing on specific aspects, namely Maturity of the Concept, Technology, User Experience (UX), Collaboration, Ethics, Sustainability, Financial Feasibility. During the meeting, both MUSAE consortium partners and participants of other teams have provided feedback to each other.

Figure 10: Concept assessment meeting in Barcelona, Spain

After the meeting, MUSAE mentors have organised two online meetings to discuss in detail the

progress of each team and summarised feedback and comments divided into three categories: General comments, Technology, and Collaboration. The feedback was then delivered to the teams during individual mentoring sessions, during which teams were asked to integrate it into Deliverable 2 'Concept Description'.

Intermediate prototype Assessment meeting

The goal of the assessment of the intermediate prototype is to evaluate the progress of prototype development. The assessment meeting is scheduled as a plenary meeting on April 11th, 2025 for all teams to share their results, and for the mentors to provide feedback to them.

4. Prototype building: iterations

The Prototyping building is an activity where the teams of artists and SME are working in iterative cycles of development. In MUSAE residency, there are 10 iterative cycles lasting from January 2025 until June 2025. Each cycle includes its planning, running, and reviewing (Fig. 11) . To empower collaboration between the technical experts and the artists, it is suggested to run each iteration cycle on a time span of two weeks. Two weeks is a suitable period of time to complete small activities able to contribute to the overall advancement of the project while allowing an immediate verification to be put in place and, when needed, fast corrections to the work plan. Every two iterations a mentoring meeting will be organised to discuss and monitor the progress and discuss the activities done during the iterations. For this purpose, the teams are provided with a template for the activities planning and the activities review, which are included in the Annex.

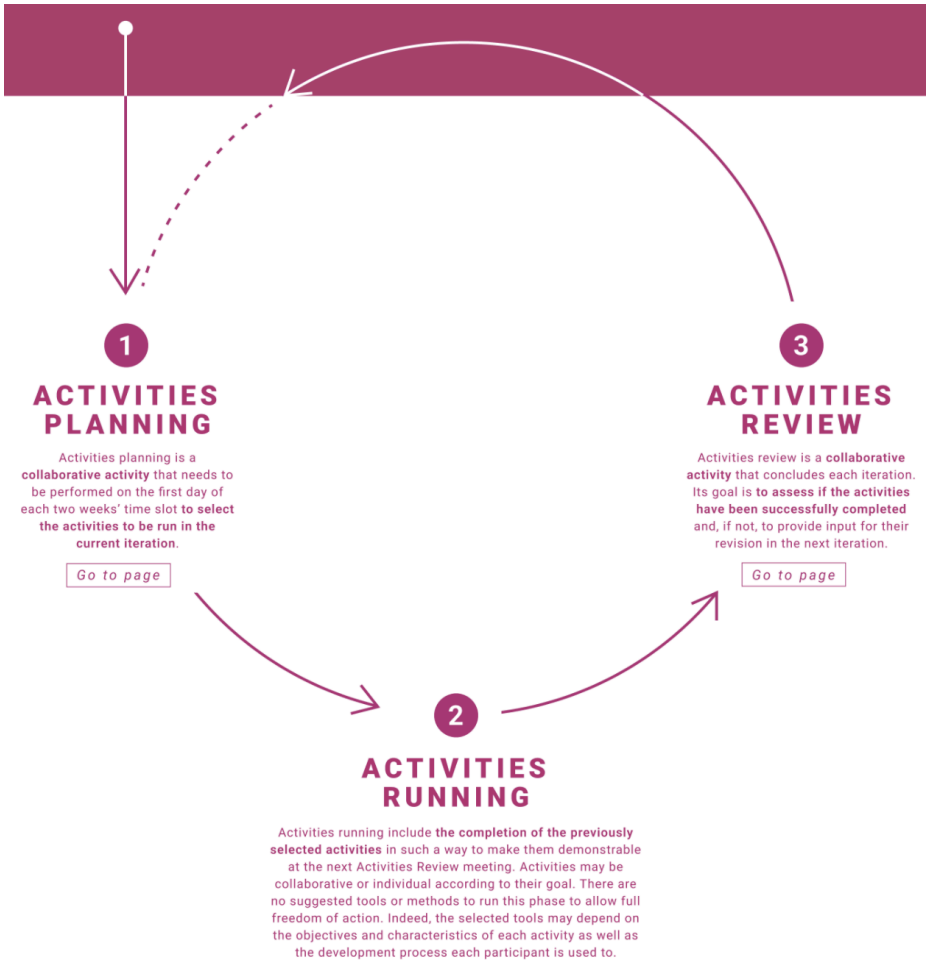


Figure 11: Iteration cycle of the prototyping phase

5. Final exhibition

The final exhibition of the project will take place in June 2025 in Belgrade, Serbia. The exhibition will showcase 11 works based on the concepts and prototypes developed by the teams during the second residency. It will also present the project and the DFA method. Some artists have followed the DFA method throughout the first and second residencies, so they constructed both future scenarios and then developed concepts and prototypes for them. These projects will be presented to guide the public through the whole MUSAE project. The location of Belgrade will highlight the importance of integration of the Widening country in the MUSAE project, and will bring the innovation and art-tech projects to the region to increase the awareness and dissemination of art-tech approaches in the region.

6. Conclusion

The second residency within the MUSAE project has been designed as an immersive and collaborative program, bringing together 11 core teams comprising artists and SMEs. This phase, running from September 2024 to June 2025, builds upon the foundations laid in previous

tasks and follows a structured and iterative approach, transitioning from concept generation to prototyping and culminating in a public exhibition in Belgrade, Serbia.

DFA method has guided teams in developing innovative, future-driven concepts and transforming them into TRL5 prototypes. The structured training and mentoring program has provided participants with valuable methodological, technical, and thematic knowledge, facilitated by leading experts from the MUSAE consortium and invited guest speakers. Through hands-on workshops, training events, and mentoring sessions, core teams have gained critical skills to navigate the intersection of art, technology, and nutrition, aligning with the overarching theme of "Food as Medicine."

The iterative prototyping approach has enabled continuous assessment and refinement, ensuring that concepts are rigorously tested and adapted based on feedback from mentors and peers. The structured residency calendar, including milestone assessments and evaluation meetings, has served as an essential tool for monitoring progress and facilitating collaboration across disciplines.

The residency has also strengthened the ecosystem of art-tech collaborations by engaging diverse stakeholders, from academic institutions to SMEs, fostering cross-disciplinary innovation. The final exhibition in June 2025 will provide an opportunity to showcase the tangible outcomes of this journey. The outputs of the second residency will contribute to the final MUSAE Factory Model, ensuring that the methodologies, tools, and insights developed during this process are made available for future use by Digital Innovation Hubs (DIH) and other stakeholders. The success of this residency underscores the importance of structured methodologies, iterative learning, and transdisciplinary collaboration in driving meaningful innovation at the intersection of art, technology, and societal impact.

7. Annex

1. MUSAE Residency Calendar
2. Track for the Concept Presentation (Concept Assessment meeting)
3. MUSAE Concept Assessment Tool
4. Prototype Planning Activities (for Prototype Iterations)
5. Prototype Development and Review checklist

Month	Week	Date	DFA Activity	Mentoring	Training	Time	Location	Deliverables		Payment
CONCEPT DEVELOPMENT										
Month 1 Septem	Week 3	19/09/2024	KICK OFF Challenge explor			09:00 - 17:00	Milan, italy			
		20/09/2024	KICK OFF Ideas exploration	*Mentors are assigned to the teams*		09:00 - 17:00				
	Week 4	23/09/2024	ACTIVITY Inspirational research	MENTORING *Core team, art and tech mentors*			Residency at SME or online			
		24/09/2024								
		25/09/2024								
		26/09/2024								
		27/09/2024								
Month 2 October	Week 1	30/09/2024	WORKSHOP Ideas exploration				Residency at SME			
		01/10/2024								
		02/10/2024								
		03/10/2024	** workshop to be scheduled in one or few days during the week*				* at least one week together			
		04/10/2024								
	Week 2	07/10/2024		MENTORING Core team, art and tech mentors	TRAINING Artech	16:00-17:00		DELIVERABLE 1 Individual Mentoring Plan	Final draft Revision & Approval Mentors revise the deliverable	Payment 1 Payment will be processed in the following week after all Deliverables will be reviewed and approved
		08/10/2024								
		09/10/2024								
		10/10/2024								
		11/10/2024								
	Week 3	14/10/2024	ACTIVITY Concept development		TRAINING	16:00-17:00	Residency at SME or online			
		15/10/2024								
		16/10/2024					* at least one week together			
		17/10/2024								
		18/10/2024								
	Week 4	21/10/2024								
		22/10/2024								
		23/10/2024								
		24/10/2024								
		25/10/2024			TRAINING Intro to the ethics of digital	16:00-17:00				
		28/10/2024								
		29/10/2024								
		30/10/2024								
		31/10/2024								
Month 3 Novemb	Week 1	04/11/2024		MENTORING *Core team, art and tech mentors*	TRAINING	16:00-17:00				
		05/11/2024								
		06/11/2024								
		07/11/2024								
		08/11/2024								
	Week 2	11/11/2024								
		12/11/2024								
		13/11/2024								
		14/11/2024								
		15/11/2024								
	Week 3	18/11/2024								
		19/11/2024								
		20/11/2024								
		21/11/2024								
		22/11/2024								
	Week 4	25/11/2024	MEETING Concept assessment				Online + In-person	DELIVERABLE 2 Concept Description	Draft Revision & Approval by the mentors	Payment 2 Payment will be processed in the following week after all Deliverables will be reviewed and approved
		26/11/2024								
		27/11/2024								
		28/11/2024								
		29/11/2024		PLENARY		09:00 - 17:00				
PROTOTYPE BUILDING										
Month 4 Decemb	Week 1	02/12/2024	ACTIVITY Concept feasibility	MENTORING *Core team, art and tech mentors*	TRAINING	16:00-17:00	Residency at SME or online			
		03/12/2024								
		04/12/2024								
		05/12/2024			TRAINING	16:00-17:00				
		06/12/2024								
	Week 2	09/12/2024								
		10/12/2024								
		11/12/2024								
		12/12/2024								
		13/12/2024								
	Week 3	16/12/2024			TRAINING	16:00-17:00				
		17/12/2024			Meeting for concept feasibility					
		18/12/2024								
		19/12/2024				09:00-17:00				
		20/12/2024								
	Week 4	23/12/2024								
		24/12/2024								
		25/12/2024	*Holidays*							
		26/12/2024								
		27/12/2024								
		30/12/2024								
Month 5 January	Week 1	06/01/2025								
		07/01/2025								
		08/01/2025								
		09/01/2025								
		10/01/2025								
	Week 2	13/01/2025						DELIVERABLE 3 Concept Workplan	Draft Revision & Approval by the mentors	
		14/01/2025								
		15/01/2025								
		16/01/2025								
		17/01/2025								
	Week 3	20/01/2025	ITERATION 1 Schedule the meetings for Activities planning (this week) and Activities review (second week)							
		21/01/2025								
		22/01/2025								
		23/01/2025								
		24/01/2025								
	Week 4	27/01/2025								
		28/01/2025								
		29/01/2025								
		30/01/2025								
		31/01/2025								
Month 6 Februar	Week 1	03/02/2025	ITERATION 2							
		04/02/2025								
		05/02/2025								
		06/02/2025								
		07/02/2025								
	Week 2	10/02/2025								
		11/02/2025								
		12/02/2025								
		13/02/2025		MENTORING Core Core team, art and tech						
		14/02/2025								
	Week 3	17/02/2025	ITERATION 3							
		18/02/2025								
		19/02/2025								
		20/02/2025								
		21/02/2025								
	Week 4	24/02/2025								
		25/02/2025								
		26/02/2025								
		27/02/2025								
		28/02/2025								
Month 7 March 2	Week 1	03/03/2025	ITERATION 4		TRAINING	16:00-17:00				
		04/03/2025								
		05/03/2025								
		06/03/2025								
		07/03/2025								
	Week 2	10/03/2025			TRAINING	16:00-17:00				
		11/03/2025								
		12/03/2025								
		13/03/2025		MENTORING Core Core team, art and tech						
		14/03/2025								
	Week 3	17/03/2025	ITERATION 5							
		18/03/2025								
		19/03/2025								
		20/03/2025								
		21/03/2025								
	Week 4	24/03/2025						DELIVERABLE 4 Demonstration of	Draft Revision & Approval by the mentors	
		25/03/2025								
		26/03/2025								
		27/03/2025								
		28/03/2025								
Month 8 April 20	Week 1	31/03/2025	ITERATION 6							
		01/04/2025								
		02/04/2025								
		03/04/2025								
		04/04/2025								
	Week 2	07/04/2025								
		08/04/2025								
		09/04/2025								
		10/04/2025								
		11/04/2025		PLENARY SESSION		09:00-17:00	Online + In-pers			
	Week 3	14/04/2025	ITERATION 7							
		15/04/2025								
		16/04/2025								
		17/04/2025								
		18/04/2025								
	Week 4	21/04/2025								
		22/04/2025								
		23/04/2025								
		24/04/2025								
		25/04/2025								
		28/04/2025								
Month 9 May 202	Week 1	28/04/2025	ITERATION 8							
		29/04/2025								
		30/04/2025								
		01/05/2025								
		02/05/2025								
	Week 2	05/05/2025								
		06/05/2025								
		07/05/2025								
		08/05/2025		MENTORING Core Core team, art and tech						
		09/05/2025								
	Week 3	12/05/2025	ITERATION 9							
		13/05/2025								
		14/05/2025								
		15/05/2025								
		16/05/2025								
	Week 4	19/05/2025								
		20/05/2025								
		21/05/2025								
		22/05/2025								
		23/05/2025								
Month 10 June 2	Week 1	26/05/2025	ITERATION 10							
		27/05/2025								
		28/05/2025								
		29/05/2025								
		30/05/2025								
	Week 2	02/06/2025								
		03/06/2025								
		04/06/2025								
		05/06/2025								
		06/06/2025		MENTORING						
	Week 3	09/06/2025	ITERATION 11							
		10/06/2025								
		11/06/2025								
		12/06/2025								
		13/06/2025								
	Week 4	16/06/2025								
		17/06/2025		EXHIBITION						
		18/06/2025								
		19/06/2025								
		20/06/2025								
	Week 5	23/06/2025	ITERATION 12					DELIVERABLE 5 Final	Draft Revision &	Payment 3 Payment will be processed in the following
		24/06/2025								
		25/06/2025								

Track for the Concept presentation

1. CONCEPT DESCRIPTION

[provide a description of the concept]

Connection to the scenario

[describe how your concept is related to the scenario, and how it responds to the values identified in the Futures Compass]

Challenge statement

[provide your challenge statement]

Context

[in which domain(s)/ sector is the concept expected to deliver value?]

Users

[define the main users, how they will interact with the concept, which actions they will perform, etc. Highlight also the impact on the other people involved (citizens, secondary users, ...), if any]

Concept requirements

[describe specific requirements of the concept]

2. TECHNOLOGY

[describe which technology will be applied, hardware and software components to be designed and implemented]

[provide a brief description of an experimental methodology that you will adopt to validate your concept during the feasibility phase]

Regarding the technologies used, please refer to the specific subsections below.

a. **Robotics**
   Describe the robotic platforms selected and the reasons for their choice. Explain additional sensors to enhance the robot's environmental perception, including details on their integration and key features.
b. **Wearable technologies**
   Outline the wearable sensors chosen and their purpose in the interaction, including reasons for their selection and details on features.
c. **AI**
   Describe the dataset(s) used to train machine learning models, including data structure, relevance for prototyping, potential biases, and how they will be addressed (include data repository references).

Provide an overview of the chosen machine learning models, including the reasons for their selection, technical insights on model design, and current development status.

d. }FUTURE IMPACTS AND POTENTIALITIES

[describe how the concept is oriented towards the future, how it is adapted and responds to future aspects of the topic, as well as what its future (disruptive) potential in this domain]

Ethical, social and environmental considerations

[provide an overview of the social, environmental, economic and ethical impacts of the concept (based on the MUSAE Futures Wheel]

MUSAE Concept Assessment Tool Nov 29th	Strongly	Somehow	Somehow	Strongly
Maturity of the Concept				
needed development)				
Does the concept impact the future society/community/sector?				
its intended life cycle, considering resource availability and user				
User: Who are the target users? Is the concept aligned with their needs and preferences?				
Innovation: Is the concept introducing novel features, methods, or approaches?				
Technology				
Use of Technology: How effectively is technology being utilized in the concept?				
assets owned or reliant on external parties?				
plugins) reliable and compliant with standards?				
or adapt to future technological advancements?				
Technical Feasibility: Are the technical requirements achievable within the constraints?				
User Experience (UX)				
Ease of Use: Is the concept intuitive and user-friendly?				
Engagement: Does the concept actively engage and retain users?				
varying abilities?				
Aesthetics: Are the visual and interactive elements appealing and coherent?				
Collaboration				
disciplines or organizations?				
Artistic Vision: How effectively does the concept integrate creative/artistic elements?				
and artistic approaches?				
meaningfully in the development process?				
Ethics				
Security Concerns: Are there potential security vulnerabilities?				
Privacy Concerns: Does the concept adequately protect user data and privacy?				
Potential Misuse: Could the concept be misused for harmful purposes?				
(e.g., accessibility, usability)				
the broader community?				
Inclusivity: Does the concept promote diversity, equity, and inclusion?				
ethical standards?				
Sustainability				
lifecycle? *(e.g., energy consumption, emissions)*				
Use of Resources: Are resources utilised efficiently and responsibly?				
Waste Management: Does the concept minimise waste production and support circular economy principles?				
Long-term Impact: What are the projected long-term effects on the environment and society?				
Financial Feasibility				
Cost-effectiveness: Is the concept economically viable within the available budget?				
Funding Opportunities: Are there clear opportunities for securing funding or investment?				

Development and Review Phase

This checklist needs to be used during the 2-weeks review meeting.

Evaluate Task Completion

1. Task Completion Analysis

- [ ] Are all functionalities tested and validated against requirements?
- [ ] Do the tasks meet technical objectives and performance metrics?
- [ ] Does each task output integrate seamlessly into the larger workflow?
- [ ] Has been each task documented and is the documentation accessible to everyone? Have you checked that everyone could reach it?

2. Concept Alignment

- [ ] Have both the company and the artist assessed the outcome against the original concept?
- [ ] Were adjustments made if any misalignments were found?

3. Quality Assurance

- [ ] Was there a peer review or code review for the technical outputs?
- [ ] Has there been a check for consistency in the style, both visually and technically?
- [ ] Are there any unresolved bugs or minor issues that need follow-up?

4. Timeline and Efficiency Analysis

- [ ] Were there any delays, and if so, were the reasons for the delays documented?
- [ ] Were resource allocations (time, tools, manpower) used efficiently for this iteration?

Investigate Reasons for Task Incompletion

1. Root Cause Analysis

- [ ] Were the reasons for any incomplete tasks thoroughly investigated?
- [ ] Did you identify factors related to project management or planning?
- [ ] Are there any issues with the concept that need addressing?
- [ ] Have insights been documented for future improvement?

2. Communication and Coordination Issues

- [ ] Were there any communication breakdowns or misunderstandings that led to task delays?
- [ ] Were all necessary resources, information, or tools available to the team on time?

3. Mitigation Planning

- [ ] Are there strategies in place to prevent similar issues in future iterations?
- [ ] Have potential risks been documented, and has the team devised mitigation plans?
- [ ] Have deadlines, scope, or objectives been adjusted as a result of the investigation?

Collaborative Retrospective Session (SUGGESTED)

For the mediator: use these questions to guide an open discussion.

1. Reflection and Improvement

- [ ] Are all team members participating to the retrospective session?
- [ ] What were the successes and challenges faced during the iteration?
- [ ] Were areas for improvement identified and documented?
- [ ] Has the alignment between the artistic vision and technical implementation been assessed?
- [ ] Are there actionable steps to refine processes and enhance future cooperation?
- [ ] Is the team's velocity and efficiency improving with each iteration?
- [ ] Are communication channels effective and inclusive? Have you experienced problems in communication?
- [ ] Were creative ideas and technical constraints in balance, or did one dominate the other?
- [ ] Did the artist and tech team feel that their inputs were valued equally?

2. Wrap up

- [ ] Was feedback from all members gathered equally, ensuring no one's input was overlooked?
- [ ] Did the team feel the retrospective session was a safe space for sharing concerns and suggestions?

Conduct Cross-Functional Review with External Facilitator

This checklist needs to be used before the external review meeting in addition to the previous points.

1. **Ethical and Sustainability Analysis**

- [ ] Are all activities adhering to your ethical and social plan?
- [ ] Are all activities adhering to your sustainability plan?
- [ ] Are you assessing interaction modalities?

2. **Risk Assessment**

- [ ] Have potential risks been identified and documented?
- [ ] Did you review current challenges and anticipate future obstacles?
- [ ] Are there strategies in place to mitigate identified risks?

3. Adherence to previous recommendations

☐ Have the external facilitator's feedback and concerns been adequately addressed?

4. Project Assessment

☐ Are the current tools (software, platforms) effective for managing the project?

☐ Are there any new tools or techniques that could improve productivity or creativity?

N.B.: This checklist is a living document. Feel free to add, remove, or modify items to better suit the specific needs and context of your project.

NOTES and COMMENTS:

Planning Phase

During this phase the team has to identify tasks/activities to be done in the following 2 weeks iteration. This checklist needs to be used during the planning phase.

Artist's Activities

1. **Creative Alignment**

- [ ] Have you ensured that all creative activities align with the overall product concept?
- [ ] Have you identified tasks/activities that are relevant to the project and can be achieved in two weeks?

2. **Socio-Cultural and Ethical Considerations**

- [ ] Have you reflected on the socio-cultural implications of your design choices?
- [ ] Did you assess the ethical impact of your designs?
- [ ] Are these considerations documented and integrated into your design process?

Technician's Activities

1. **Technical Development**

- [ ] Have you identified tasks/activities that are relevant to the project and can be achieved in two weeks?
- [ ] Have you thought to do a test to assess the completeness of the tasks?
- [ ] Have you considered some metrics to evaluate the completeness of the tasks?
- [ ] Have you written clear and complete requirements for the tasks?
- [ ] Do these requirements align with the artist's vision?
- [ ] Are technical constraints identified and communicated?

Collaborative Activities

- [ ] Have you co-developed tasks with both aesthetic and functional input?
- [ ] Did you conduct joint design reviews to align visions?
- [ ] Were brainstorming sessions held to solve complex challenges?
- [ ] Is open communication maintained between all team members?
- [ ] Are decisions made collaboratively, considering both creative and technical perspectives?
- [ ] Does each task integrate seamlessly into the larger workflow?