D8.4 GUIDELINES FOR THE ADOPTION AND EXPLOITATION OF THE FACTORY MODEL FOR EDIHs

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Executive summary

The MUSAE Factory Model Pack offers (E)DIHs a structured and human-centered approach to innovation, merging artistic experimentation, advanced technologies, and Design Future Art-thinking method. This guideline provides a practical roadmap for adopting and exploiting the Pack, ensuring its replicability across Europe—especially in Widening Countries (WiCos).

The MUSAE Factory Model is designed to help European Digital Innovation Hubs (EDIHs) deliver high-value digital innovation services while supporting sustainable, human-centred transformation. Its core ambition is to strengthen cross-sector collaboration enabling SMEs to embrace creative, technology-driven solutions that are both forward-looking and responsible. By adopting this approach, EDIHs not only enhance their innovation capacity but also gain recognition and credibility through the MUSAE Label.

To achieve these outcomes, the report recommends that EDIHs integrate the DFA method as a structured pathway for creative and future-oriented innovation. Engaging artists and SMEs through the MUSAE Open Call and Residency formats can spark diverse, impactful collaborations, while dedicated training and mentoring frameworks build the multidisciplinary skills needed for success. Leveraging the MUSAE Label and the broader S+T+ARTS ecosystem will further boost visibility, trust, and networking opportunities. Finally, the guidelines encourage EDIHs—particularly in Widening Countries—to adapt the Pack strategically, drawing on lessons learned from the successful pilot in Serbia.

By following the guidelines presented here, EDIHs can position themselves as leaders in human-centred innovation, expand their service portfolios, strengthen their market positioning, and contribute to Europe's broader goals for digital transformation and sustainable competitiveness.

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1. Introduction

1.1. Purpose of the document

The digital and green transformation is essential for SMEs to remain competitive and sustainable in the rapidly evolving global economy. However, SMEs often lack resources, expertise, and trust required to effectively adopt and implement new technologies such as AI, robotics, and wearable devices. The MUSAE project was envisioned to bridge these gaps by integrating artistic exploration with advanced digital technologies, offering new avenues for creative innovation.

European Digital Innovation Hubs (E)DIHs serve as essential connectors between technology providers, SMEs, researchers, and artists. They are uniquely positioned to support innovative environments where cross-sectoral collaboration can thrive. EDIHs facilitate technology adoption, support experimental approaches, and strengthen regional innovation ecosystems by acting as trusted intermediaries.

This document aims to provide EDIHs with a clear, practical roadmap to adopt and exploit the MUSAE Factory Model Pack. It outlines structured steps and processes necessary for successful implementation, highlights key components and their functionalities, and offers strategic guidance tailored for EDIHs in widening countries. Chapter 2 overviews the toolkit's components and phases, followed by Chapter 3's explanation of the Design Futures Art-driven method. Chapter 4 outlines how to implement open calls within EDIHs, while Chapter 5 details the residency programme, from preparation to execution and post-residency follow-up. Next, Chapter 6 details the training and mentoring framework, while Chapter 7 describes the MUSAE Label. Chapter 8 offers practical recommendations based on MUSAE's pilot residencies, followed by Chapter 9, which focuses on lessons learned and recommendations for the widening countries. Finally, Chapter 10 concludes with the strategic impact and future potential of the Factory Model.

1.2. Terms and acronyms

Acronym	Description
DFA (Design Futures Art-driven Method)	An interdisciplinary approach combining Future Thinking, Design Thinking, and Art Thinking to support innovative prototypes and sustainable practices.
STARTS (Science + Technology + ARTS)	An EU initiative promoting collaborative projects between artists and technologists to inspire creativity and innovation.
MUSAE Label	A certification awarded to EDIHs successfully adopting and implementing the MUSAE Factory Model Pack, signifying credibility and excellence.
WiCo (Widening Country)	Countries targeted by EU funding programs to enhance participation in European innovation ecosystems.
TRL (Technology Readiness Level)	A metric used to assess the maturity of specific technological solutions.

EDIH (European Digital Innovation Hub)	European Digital Innovation Hubs are one-stop shops supporting companies and public sector organisations to respond to digital challenges and become more competitive.
DFA method (Design Futures Art-driven method)	The Design Futures Art-driven (DFA) method is a structured approach that combines design thinking, futures thinking, and art thinking to guide artists and companies in co-creating future scenarios and transforming them into innovative, future-proof prototypes through interdisciplinary collaboration.

2. The MUSAE Factory Model Pack

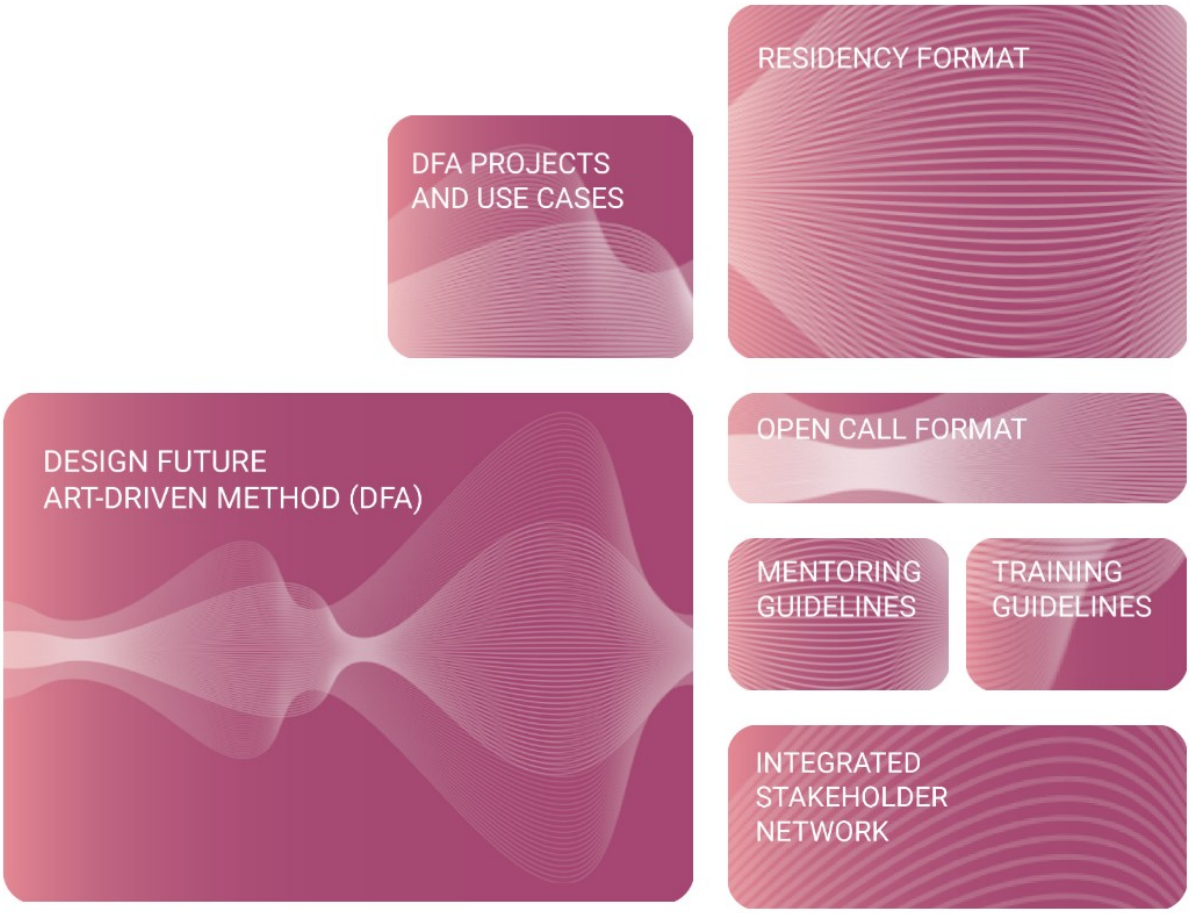

Figure 1 - MUSAE Factory Model Pack

2.1. Overview and components

The MUSAE Factory Model Pack (musae.starts.eu/factory-model-pack/) is an integrated toolkit designed for European Digital Innovation Hubs (EDIHs) to support innovation through collaborative projects between artists, technology experts, and SMEs. It offers clearly defined guidelines and practical tools that enable stakeholders to successfully implement the Design Futures Art-driven (DFA) method.

It consists of:

DFA Method

The **Design Futures Art-driven (DFA)** method combines artistic research and technology innovation to address future-oriented challenges. It consists of two main phases: 1) **explore phase** that identifies future trends and develops imaginative scenarios through a structured exploration process and 2) **generate phase** which transforms scenarios into tangible prototypes by collaboratively refining concepts and ideas.

Open Call Format

The **Open Call** format guides EDIHs through the entire process of attracting and selecting artists and SMEs for DFA-based collaborative projects. The process starts with setting clear objectives and themes, followed by preparing accessible application materials such as guides, forms, and FAQs. Transparent selection criteria, an expert evaluation panel, and defined assessment stages ensure fairness. Targeted promotion through networks like S+T+ARTS attracts strong candidates, while post-selection support and feedback provide value to all applicants.

Residency Format

The **Residency Format** details the practical execution of collaborative projects following the DFA method. It is divided into three stages:

Pre-Residency: Defining residency topics, setting up open calls, selecting artists and companies, and planning the training and mentoring process.
Residency Execution: Conducting scenario and prototype development activities through structured phases (Kick-off, Scenario Development, Prototype Development, and Presentation).
Post-Residency: Collecting feedback, evaluating results, and promoting the outcomes to maximize impact.

Training Guidelines

Training supports the effective application of the DFA method and ensures efficient collaboration. Training is organized into four complementary phases:

1. **DFA Method Introduction**: Familiarizing artists and SMEs with the DFA approach and its tools.
2. **Common Ground Building**: Establishing mutual understanding between artists, domain experts, and SMEs through interdisciplinary workshops.
3. **Collaboration Tools**: Introducing digital collaboration tools (e.g., Figma, Miro) for effective teamwork.
4. **Transversal Knowledge**: Providing training on key sustainability issues, ethical considerations, data management, and user interaction.

Mentoring Guidelines

Throughout the DFA collaboration, mentors play a pivotal role in guiding art-tech teams, ensuring that the process stays focused, collaborative, and impactful. They facilitate the application of the DFA method, mediate between artists and SMEs to bridge disciplinary differences, and provide both critical, constructive feedback and technical insights. At the same time, they safeguard the ethical use of technologies, ensuring

that innovation aligns with responsible practices. This mentorship is structured through regular bi-weekly one-to-one meetings, complemented by monthly core-team check-ins.

Integrated Stakeholder Network

This is a dedicated network connecting EDIHs to experts, artists, technology providers, and domain specialists. It helps hubs quickly identify suitable partners for collaborative innovation projects. Stakeholders are categorized into clear profiles (e.g., artists, domain experts, technologists), ensuring effective matchmaking for successful projects.

MUSAE Label

The MUSAE Label recognizes EDIHs that offer in their service the art-tech collaboration which follows the DFA method. It provides visibility, enhances credibility within the European innovation ecosystem, and offers tangible recognition of excellence in innovation practices.

2.2. MUSAE Factory Model Process Phases

The MUSAE Factory Model guides EDIHs through four clearly defined phases, from initial setup to long-term impact and scalability.

Factory Model Setup

This initial phase involves:

- Clearly defining objectives and expected outcomes.
- Establishing partnerships and stakeholder engagement.
- Setting timelines, responsibilities, and practical logistics for Open Calls and Residencies.

A robust setup ensures smooth operation and clear stakeholder expectations.

Piloting (Art-Tech Experiments)

During this experimental phase, artist-company teams collaboratively apply the DFA method through residencies. Outcomes may include future-oriented scenarios (conceptual visions) and functional prototypes (practical innovations). Piloting provides proof of concept, initial user feedback, and identifies potential areas for refinement.

Delivery (Guidelines, Training, Mentoring, DFA Projects)

The Delivery phase involves systematically documenting and disseminating the outcomes and learning points. It includes presentations and demonstrations of developed scenarios and prototypes. Delivery ensures knowledge transfer, transparency, and practical resources for wider use.

Transfer (Scalability & Sustainability through STARTS and EDIH Networks)

The final phase focuses on sustainability and wider impact, achieved by disseminating results and best practices to broader S+T+ARTS and EDIH networks through structured communications and networking

activities. This ensures long-term impact, sustainability of outcomes, and encourages broader adoption across Europe.

3. Design Futures Art-driven (DFA) method

The Design Futures Art-driven (DFA) method merges design thinking, futures thinking, and art thinking to foster radical innovation and future-proof prototypes. Unlike conventional innovation methods, DFA places artistic imagination at the forefront, guiding interdisciplinary teams to explore emerging societal, technological, and cultural challenges creatively and practically.

3.1. Method structure

The DFA Method Phases

The DFA method is structured around two primary phases: Explore and Generate. Each phase is specifically designed to enable innovative art-tech collaborations that anticipate and address future challenges:

1. **Explore Phase**: This initial phase focuses on deep research, trend analysis, and scenario-building. It is designed to expand participants' vision, stimulate creativity, and encourage critical thinking about potential futures. Participants engage in Horizon Scanning, identifying signals and trends that shape future contexts, followed by Scenario Building, where they develop detailed, vivid scenarios that articulate alternative futures.
2. **Generate Phase**: In this subsequent phase, participants translate their future scenarios into actionable, tangible concepts. This involves ideation processes that encourage divergent and convergent thinking, where numerous ideas are generated, discussed, and evaluated. The most viable and innovative ideas are selected and transformed into concrete prototypes (TRL5), which can be tested and further refined.

Tools: Figma and Miro Board

To support effective collaboration, the DFA method leverages two primary digital tools:

- **Figma (**link**)**: A user-friendly digital platform that provides comprehensive guidelines and step-by-step instructions for the DFA process. It serves as a resource hub, offering detailed documentation, templates, and visual aids to guide participants through each phase of the method. Figma ensures clarity and consistency across various teams and facilitates easy access to essential resources.
- **Miro Board (**link**)**: A collaborative online workspace designed to facilitate real-time interaction, brainstorming, and visual mapping. Teams utilize Miro to collectively track progress, share insights, and document research findings. The tool's interactive interface supports creative engagement, helps teams stay organized, and enhances communication between participants, mentors, and facilitators.

4. Implementing Open Calls within EDIHs

The MUSAE open-call model has a primary objective to *stimulate the co-creation of future-oriented solutions* by matching artists with technology-providing SMEs, all by following the Design Futures Art-driven (DFA) method. Each call therefore begins with a clearly framed theme that reflects both societal urgency and local DIH speciality — for example, MUSAE centred its first calls on "Food as Medicine", inviting proposals that explore personalised nutrition, mental-well-being through food, and low-carbon eating habits. By explicitly linking artistic imagination with digital-tech advancement in AI, robotics and wearable sensors, the call prepares DIHs to deliver high-TRL prototypes while advancing EU priorities on sustainability, health, inclusiveness and digital innovation. This is supported by detailed guidelines (link) and best practices (link).

4.1 Practical steps

Implementation phase	**Key actions**	**Recommended tool / evidence trail**
a. Scope & eligibility	Draft a concise Guide for Applicants defining topic tracks, funding envelope, legal eligibility and IPR rules; publish at least 60 days before deadline.	Templates in MUSAE Factory Pack
b. Application portal	Deploy a trusted FSTP platform—e.g. F6S (free) or FundingBox (paid) with GDPR-compliant data capture; pre-test logic checks before launch.	MUSAE 1st call (F6S); 2nd call (FundingBox); MUSAE Open Call Guidelines (link)
c. Promotion & applicant support	Leverage your own network and MUSAE Integrated Stakeholder Network. Co-host webinars & live Q&A sessions to walk applicants through criteria and budget tables.	MUSAE Open Call Guidelines and Integrated Stakeholders network (link)
d. Transparent evaluation	Eligibility check → Remote expert scoring Consensus meeting Jury-Day pitches (on-site/online) Feedback letters. All reviewers sign NDA & CoI forms.	MUSAE Open Call Guidelines
e. Contracting	Issue grant agreement, confirm payment tranches, book kick-off training on DFA, mentoring and ethics; embed teams in DIH lab infrastructure.	

Table 1 - Table shows steps for each of the implementation phases of an open call and the required action steps.

5. Residency program

The residency program is the heart of the MUSAE Factory Model, providing a structured framework for art–tech collaborations that transform creative concepts into tangible, future-oriented prototypes. It guides EDIHs through three interconnected stages — pre-residency, residency, and post-residency — that are supported by clear guidelines (link) and best practices (link).

5.1 Pre-Residency

The pre-residency phase lays the foundation for a successful residency. EDIHs are expected to define the residency topic/domain, requirements, and timeline, ensuring alignment with both societal challenges and available technologies. For MUSAE, the overarching theme was *Food as Medicine*, addressing sustainability, health, and ethical innovation. Requirements include participant profiles (e.g., artists with digital experience, SMEs in AI/Robotics/Wearables), residency duration, funding arrangements, and intellectual property agreements. This stage also involves preparing a structured training and mentoring programme covering the DFA method, interdisciplinary collaboration, and transversal sustainability knowledge.

Task	Purpose	Output
Define domain/topic	Aligns innovation with company's and societal needs	Clear thematic headline (e.g., Food as Medicine)
Set requirements	Establishes fair rules and expectations	Open Call eligibility, funding rules, IP agreements (refer to MUSAE Open call guidelines)
Prepare training & mentoring	Builds common language & skills	Training & Mentoring plan, selected mentors (refer to MUSAE Training and mentoring guidelines)
Create timeline	Structures residency progress	Residency calendar & milestones

Table 2. Key pre-residency tasks

5.2 Residency

The residency is the core implementation phase where artists, SMEs, and mentors collaborate following the DFA method. It is structured in three phases:

Phase 1: Scenario Development (Horizon Scanning, Visioning)
Artists and SMEs conduct trend research and STEEP+V analysis to identify long-term drivers and build future scenarios. The aim is to envision 5–10-year futures, producing clear scenario narratives. Example tools: Miro boards, Figma, DFA platform.

Phase 2: Prototype Development (Ideating, Prototyping)
Teams generate ideas and refine them into tangible prototypes (target TRL 5). The focus is both creative and technical, ensuring feasibility while fostering innovation. Training on digital technologies such as AI, Robotics, and Wearables complements this step.

Phase 3: Presentation & Dissemination
Results are showcased through exhibitions, events, and conferences, enabling validation, visibility, and transferability. In MUSAE, the *Final Prototype Exhibition* in Belgrade attracted diverse audiences, including SMEs, policy-makers and academia.

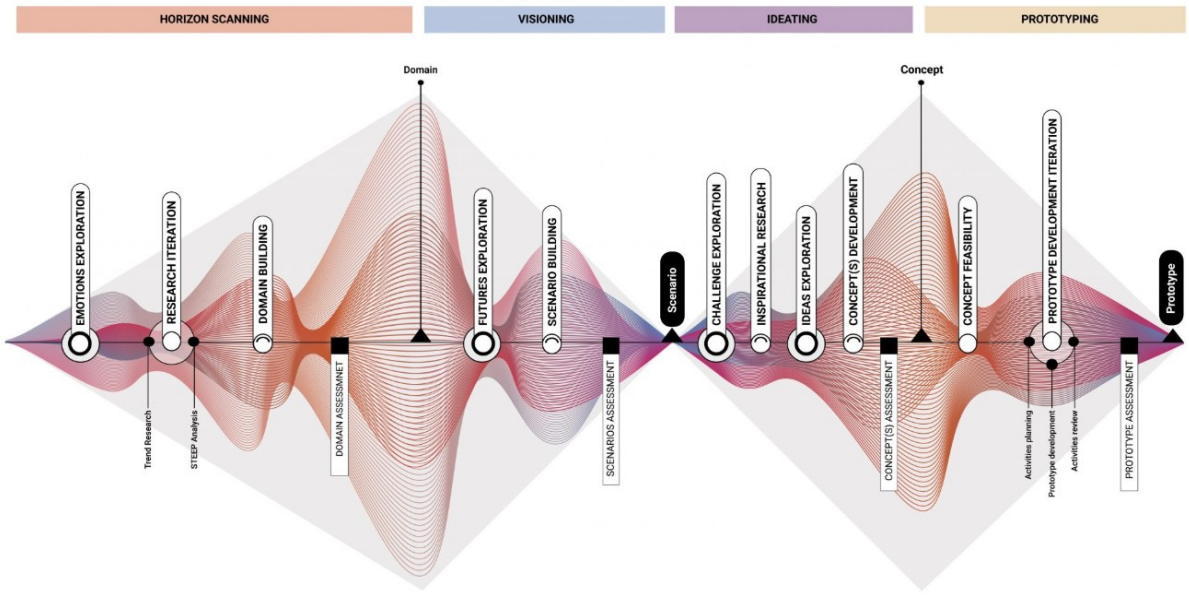

Figure 2 - Residency DFA Phase including Horizon Scanning → Visioning → Ideating → Prototyping

5.3 Post-Residency

After the residency, activities shift to evaluation, feedback, and dissemination. EDIHs gather structured feedback from participants to refine both the DFA method and the mentoring/training formats. Dissemination is carried out through exhibitions, conferences, and platforms like the STARTS Academy. For example, in Serbia the *BeeSustain* prototype combined AI and IoT for sustainable beekeeping, demonstrating strong impact on both ecological and SME innovation contexts.

Action	Example in MUSAE	Added Value for EDIHs
Evaluation & feedback	Surveys of artists/mentors on DFA phases	Continuous improvement of methods
Dissemination	Exhibition, conferences or other events	Knowledge transfer & visibility

Table 3. Post-residency actions

5.4 MUSAE Residency Outcomes

Over the course of its two residency cycles, MUSAE demonstrated the capacity of the DFA method to deliver tangible, future-oriented results (link). The **first residency** produced twelve future scenarios in the "Food as Medicine" domain, each created through intensive Horizon Scanning, Visioning and Scenario Building work. These scenarios combined artistic thinking with grounded research, offering concrete visions of how emerging technologies could address societal challenges in nutrition, sustainability, and health in 5-10 years. The scenarios served as a starting point for the second residency, guiding innovation roadmaps and inspiring further R&D.

The **second residency** translated vision into reality, resulting in eleven TRL-5 prototypes developed by multidisciplinary artist-SME teams (link). Each prototype addressed a specific challenge derived from the earlier scenarios, blending technological feasibility with creative insight. Solutions ranged from AI-driven biodiversity monitoring and citizen science tools, to neurofeedback devices linking food and mental health, and wearable systems supporting therapeutic cooking practices. These outputs exemplify how a structured residency format, supported by mentoring and training, can move rapidly from future scenarios to market-relevant prototypes, thus generating innovations with both regional and global relevance.

Future scenario (Residency #1)	**Prototype (Residency #2)**	**Brief description**
Patterns that Persist	BeeSustain	AI- and IoT-based hive monitoring with an interactive art book to support sustainable beekeeping, biodiversity conservation, and citizen science engagement.
The Cooking Ape Institute	NeuroCooking	A wearable sensor system that monitors brainwaves, motion, pulse, and muscle activity to deliver personalized, therapeutic cooking experiences for mental well-being.
Bio-Intelligent Data	Nourish	An EEG- and AI-powered neurofeedback tool that measures how foods affect mood, focus, and stress, delivering personalized insights for daily wellness.
What the World Eats	Growing Futures	A symbiotic system where humans, robots, and mycelium collaborate to create biodegradable, self-repairing habitats from local waste.
Holobiont Gardens	Remedy Garden	A bio-inclusive vertical garden made from 3D-printed reclaimed materials to cultivate medicinal plants and promote urban health through interspecies relationships.
Soil Skinships	S.O.I.L.	A wearable device that translates real-time soil data into tactile and sonic feedback, fostering an embodied connection between humans and soil health.
Patterns that Persist	Sprout to Flourish	An AI-assisted simulator that optimizes regenerative farming by generating intelligent companion planting layouts to improve biodiversity, soil health, and pest control.
Poetry of Nutrition	Symphony of Solace	An affordable desktop robot designed to enhance social interaction and nutritional support for isolated elderly people through engaging communication and adaptable movement.
Patterns that Persist	SOIL AI	An accessible system combining a digital microscope, app, and AI to analyze soil microbiomes, classify organisms, and

		produce clear, crop-relevant reports for better soil management.
Patterns that Persist	OAAK	A participatory digital platform that runs place-based "species quests" using AI vision and citizen science to help small farms account for biodiversity and engage with emerging biodiversity standards.
Food beyond Food	Fermenting Traditions	A low-tech fermentation tracker that pairs a DIY spectroscopy sensor with a web dashboard so small kombucha brewers can monitor microbial activity, flavour development, and safety in real time.

Table 4. MUSAE future scenarios and prototypes

6. Training and mentoring framework

The MUSAE framework combines targeted training with tailored mentoring to enable effective interdisciplinary collaboration between artists, technologists, and domain experts. This approach is built around the Design Futures Art-driven (DFA) method and is adaptable to different domains and technologies. The goal is to create a productive environment for innovation by aligning conceptual, technical, and collaborative capacities.

6.1 Training Phases

Training is conducted during the residency and addresses both artists and companies. It is divided into four complementary phases (not strictly sequential) to cover conceptual grounding, cross-disciplinary alignment, practical tools, and transversal knowledge. It is supported with detailed guidelines (link) and MUSAE best practices (link).

The first stage of the training journey begins with a **thorough introduction to the Design Futures Art-driven (DFA) method,** ensuring that every participant has a clear understanding of how it merges design futures processes with artistic research to drive innovation. Here, participants explore the principles and objectives of the method, learning how foresight, creativity, and structured processes combine to shape forward-looking solutions. They are guided through the fundamentals of scenario building, acquiring the skills to create well-structured, future-oriented narratives. This is complemented by the study of selected MUSAE case studies, which serve as tangible examples of the method's impact in practice. Finally, participants become familiar with the Factory Model Pack, including the templates and tools that will support them throughout the residency. This common foundation significantly reduces onboarding time and sets the stage for smooth, effective interdisciplinary collaboration.

With the basics established, the focus shifts to **building a common ground between experts and artists.** Successful interdisciplinary work depends on mutual respect and a shared understanding of each other's perspectives, skills, and priorities. To achieve this, domain experts present the key concepts, challenges, and opportunities in their fields, while technologists introduce relevant tools, past applications, and their limitations. Structured interdisciplinary workshops create a space for exploring different work cultures and aligning terminology, while informal, creative activities help to strengthen personal connections and trust within the team. As observed in widening country contexts, dedicating enough time to this phase is critical—shortened introductions often result in weaker mutual understanding, which can undermine later stages of collaboration.

Once mutual understanding is in place, teams are equipped with **practical tools for collaboration**. This training covers the use of lightweight Agile planning methods adapted for art-tech projects, ensuring teams can structure their work efficiently without unnecessary complexity. Participants are introduced to digital collaboration platforms that provide shared workspaces, version control, and organized asset libraries, alongside communication tools that support both real-time and asynchronous exchanges. Collaborative prototyping exercises encourage rapid, joint creation and problem-solving, reinforcing cooperative habits. Experience shows that agreeing early on a single project management tool and a unified file storage system is vital to avoid fragmentation and inefficiency.

Finally, the framework integrates **transversal sustainability knowledge**, embedding responsible innovation principles into every project. This includes guidance on ethics—covering data protection, inclusivity, and societal impact—as well as robust data management practices that ensure legal compliance, accuracy, and secure storage. Teams are trained in user-centered design and accessibility standards to make outcomes widely usable, while sustainability practices focus on reducing environmental impact and delivering social value. Intellectual property considerations are addressed early, with clear agreements on ownership and licensing to avoid disputes. For EDIHs, this dimension not only reduces operational risks but also strengthens credibility with stakeholders and funders, demonstrating a commitment to innovation that is ethical, sustainable, and impactful.

Phase	Purpose	Core Activities	Example Tools
1. **DFA Basics**	Build a shared understanding of the DFA method's principles, objectives, and processes.	• Introduction to futures thinking, design thinking, and art thinking • Scenario building techniques • Review of MUSAE case studies and Factory Model tools	DFA Method Platform, MUSAE use case portfolio
2. **Common Ground**	Align perspectives among domain experts, technology experts, and artists.	• Domain and technology introductions • Interdisciplinary workshops • Team-building activities	Miro, Figma
3. **Tools for Collaboration**	Provide practical tools to manage and track collaborative work.	• Agile-like project planning • Tool-specific training • Collaborative prototyping exercises	Jira, Trello, MS Teams
4. **Transversal Sustainability Knowledge**	Integrate ethical, environmental, economic, and social sustainability principles.	• Ethics and IP management workshops • Data management training • User experience best practices	Templates for ethics guidelines, IP agreements

Table 5. Training phases

6.2 Mentoring Structure

Mentoring runs throughout the residency and ensures that conceptual and technical objectives remain aligned with the DFA method, supported by detailed guidelines (link) and MUSAE best practice (link).

Mentor Role	Primary Function	Typical Background
Art Mentor	Guides conceptual development and ensures artistic integrity aligns with project goals.	Experienced in cross-sectoral art-tech collaborations

Domain Mentor	Provides topic-specific or technological expertise and ensures technical feasibility.	Academic, industrial, or applied R&D background
Core Team	Facilitates regular check-ins to keep all parties aligned.	Project managers, residency coordinators

Table 6. Mentoring team

Art Mentor – Conceptual Guidance

Challenges and refines the artistic approach to keep it relevant to the agreed objectives. Acts as a bridge between artistic vision and practical constraints.

Domain Mentor – Technical/Topic-specific Support

Ensures the technological and/or thematic robustness of the project. Advises on technical challenges and emerging trends in the field.

Core Team – Regular Check-ins and Workshops

Monthly team meetings for progress alignment, troubleshooting, and maintaining momentum. These are particularly critical during the prototype development phase.

7. The MUSAE label

The MUSAE Label is a formal certification awarded to European Digital Innovation Hubs (E)DIHs that have successfully integrated the MUSAE Factory Model into their services. It is both a quality seal and a network access pass. On the quality side, it certifies that the hub can independently deliver the Design Futures Art-driven method, supported by the MUSAE toolkit, training resources, mentoring structures, and intermediation procedures. On the network side, it formally connects the certified hub to the MUSAE stakeholder ecosystem—comprising artists, technologists, SMEs, and public sector organisations—and to the broader STARTS network. This linkage enables hubs to offer SMEs not just advanced technology solutions in AI, robotics, and wearables, but also a proven innovation process blending foresight, artistic exploration, and industrial prototyping.

For EDIH managers, the label brings three main strategic benefits. First, it differentiates the hub in a competitive DIH landscape, signalling to SMEs, funders, and policymakers that the hub applies a validated, human-centred, future-oriented innovation methodology. Second, it grants access to shared resources, best practices, and potential collaboration opportunities within a network of other MUSAE-labelled hubs, accelerating knowledge exchange and scaling solutions across regions. Third, it enhances the hub's capacity to meet the "Innovation Ecosystem & Networking" function in the EDIH mandate by formalising its role as mediator between artists, technologists, and industry.

Figure 3 - MUSAE Label

The label is awarded through a checklist-based validation process, overseen by the MUSAE Label and Certification Committee. Certified hubs can use the MUSAE logo both digitally and physically for two years, with renewal dependent on maintaining model integration standards. By aligning with the STARTS ecosystem, the label also ensures that certified hubs contribute to equitable access to advanced technologies and artistic innovation capacity across Europe, making it a powerful lever for regional digital transformation and sustainable competitiveness.

8. Recommendations for EDIHs

Overview

The DFA method has demonstrated a significant positive impact, particularly in fostering interdisciplinary collaboration and innovative thinking. Participants reported increased creativity, a clearer understanding of future trends, and enhanced capacity to translate complex ideas into practical, impactful solutions. The structured dual-diamond approach accelerated the journey from artistic vision to TRL-5 prototypes, while ensuring market relevance, sustainability alignment, and scalability across DIHs with different maturity levels.

This method has proven effective in aligning artistic and technological perspectives, which eventually resulted in meaningful, future-driven prototypes such as AI-based food sustainability tools, wearable neurofeedback devices, and interactive biodiversity monitoring systems. Across the two MUSAE art-tech experiments, the DFA method consistently moved concepts rapidly from vision to validated prototypes. For EDIHs, this translated into an enriched service portfolio, stronger market positioning, and new revenue prospects around creative prototyping services.

Open Calls

Two planning decisions proved especially important for the success of the MUSAE calls. The first was to keep the application window open for two full months, which allowed a wide and diverse mix of artists and technology firms to participate. The second was the choice of platform. In the first call, the free F6S portal was used, but evaluators spent many extra hours exporting data and manually checking conflicts of interest. Learning from this, the second call moved to the paid FundingBox suite, where built-in features such as NDA signing, automated scoring sheets, and dashboard analytics cut the administrative workload by half. The measurable outcomes were significant: eligibility rates rose by more than 40%, and evaluation time was reduced by half.

Equally important was the way support for applicants was structured. Instead of long documents or ad-hoc guidance, information was delivered in layered, bite-sized formats: a concise Guide for Applicants, ready-to-use templates, FAQ sheets, and three short webinars. This approach both reduced repetitive email traffic and raised the overall eligibility rate, ensuring that more strong proposals could move forward. Another best practice was the composition of the Evaluation Committee—combining art, technology, and business experts, all operating under strict NDA and conflict-of-interest protocols—ensuring fair, well-rounded selection decisions.

Training and mentoring

Interdisciplinary teams often have different levels of experience with cross-sector collaboration, highlighting the need for a glossary of terms to serve as a shared reference point for DFA-specific concepts. The MUSAE experience confirmed that early onboarding to digital tools such as Figma, Miro, and shared drives prevents duplication, version conflicts, and communication gaps.

Mentor flexibility remains a decisive factor for success; even experienced teams benefit when mentors adjust their involvement based on progress, challenges, and evolving goals.

Embedding measurable sustainability metrics into prototype evaluation from the start further raised the impact threshold. Finally, pairing an artist with both a technology mentor and a domain mentor ensured that projects remained both visionary and technically feasible.

Recommendations

Based on feedback from participants, mentors, and facilitators, the following recommendations have been identified to facilitate the application of the DFA method:

- **Engage Participants Early**: Organize engaging, interactive introductory sessions that clearly outline the DFA process, inspire participants, and highlight real-world applicability. Utilize workshop examples and supporting materials available on the Figma website and Miro board, including the glossary of future-thinking terminologies and detailed step-by-step explanations. Additionally, showcase successful scenarios and prototypes from previous MUSAE residencies to further inspire and motivate artists and companies.
- **Encourage early industry involvement**: Promote early and continuous interaction with company representatives through regular, informal brainstorming sessions and collaborative workshops. This approach creates a supportive environment, enhances practical relevance, and ensures projects align with industry needs and expectations.

Allocate Sufficient Time for Exploratory Phases: Extend Horizon Scanning and Visioning phases by several weeks where possible to allow deeper scenario synthesis, leading to more robust, future-proof prototypes.

Use Intuitive Digital Platforms with Supporting Materials: Provide clear tutorials, glossaries, and example cases to reduce onboarding friction and improve process consistency. Also, set up collaborative platforms, file structures, and communication protocols before creative work begins.

Leverage Widening Country Participation: Treat widening country partners as a source of unique perspectives and regionally grounded yet globally relevant solutions, as demonstrated by the BeeSustain project.

9. Widening countries

The MUSAE pilot at Serbia's ETF Robotics Lab demonstrated that the DFA method is not only transferable beyond established innovation hubs but can also flourish in less-represented regions when anchored in strong local infrastructure and connected to EU-level networks. Through hands-on access to collaborative robotics, digital biomechanics, and shared prototyping spaces, local artists and SMEs experienced tools and techniques typically concentrated in mature ecosystems.

ETF's active participation in BOWI, DIH-HERO, and DIH² networks ensured that residency results were disseminated to over 5,000 companies across the region, generating visibility, sparking collaboration opportunities, and accelerating uptake of art–tech innovation practices. The combination of local mentorship and EU-level expertise emerged as a decisive factor in translating creative concepts into market-ready prototypes.

Serbian case studies illustrate this dynamic:

- BeeSustain combined IoT-based hive monitoring, AI-driven environmental analysis, and an interactive Art Book to tackle biodiversity loss, climate resilience, and community engagement in beekeeping.
- Nourish applied EEG and AI to measure the emotional and cognitive effects of food, positioning itself at the intersection of personalized nutrition and mental well-being.
- Neuro-Cooking leveraged wearable EEG and motion sensors to adapt cooking instructions in real-time, reframing food preparation as a therapeutic and cognitive training activity.

These outputs confirm that widening country DIHs can act as competitive innovation hubs, delivering solutions with both global relevance and strong regional grounding.

Several lessons from MUSAE's widening country implementation stand out as especially relevant for EDIHs planning to adopt the Factory Model:

1. **Customized Training Programs**: Develop training sessions specifically tailored to local technological capabilities, cultural environment, and industry-specific requirements. Actively involve local stakeholders and experts in designing and delivering these programs. Reference local stakeholders available in the Integrated Stakeholders Network database to strengthen this customization process.
2. **Robust Mentoring Infrastructure**: Establish a mentoring network connecting local talents with international experts to foster knowledge transfer and skill development. Regular mentoring sessions and exchanges can significantly enhance the effectiveness of the DFA method. Refer to the international stakeholders in the Integrated Stakeholders Network database to identify suitable mentors.
3. **Localized Tools and Resources**: Utilize successful examples from previous MUSAE residencies, especially those involving teams and individuals from widening countries like Serbia, to guide implementation. For EDIHs in other widening countries, incorporate relevant local examples, culturally resonant scenarios, and context-specific case studies to enhance relatability and effectiveness of the DFA resources.
4. **Allocate Sufficient Time for Creative Exploration:** In Serbia, extending the Horizon Scanning and Visioning phases by several weeks allowed teams to synthesize research, ideas, and scenarios more deeply, leading to robust, future-proof prototypes.
5. **Engage Industry Mentors from the Outset:** Pairing each artist with both a technology mentor and a domain mentor during the Challenge Exploration and Ideas Exploration phases ensured that visionary concepts were aligned with technical feasibility and market needs from the very start.
6. **Use Intuitive Digital Platforms with Onboarding Support**: Serbian participants reported smoother collaboration when Figma and Miro were complemented with clear instructions, example cases, a glossary of future-thinking terms, and short tutorial videos.

7. **Adopt Layered Training and Mentoring Formats**: Short, focused training modules—covering DFA principles, domain–tech–art alignment, sustainability, and ethics—combined with regular mentoring check-ins built a shared language, trust, and an ethical framework across disciplines.
8. **Embed Sustainability from the Start**: Sustainability should be introduced as a core evaluation criterion at the first review milestone, ensuring that environmental and social considerations informed every design decision rather than being addressed as afterthoughts.

10. Conclusions

The MUSAE Factory Model Pack demonstrates that combining artistic experimentation, advanced technologies, and the structured Design Futures Art-driven (DFA) method can transform how European Digital Innovation Hubs (EDIHs) deliver innovation. By providing a practical, adaptable framework—complete with open call and residency formats, training and mentoring programmes, and the MUSAE Label—it equips EDIHs to foster sustainable, human-centred solutions that are both future-oriented and grounded in real-world needs. The experiences from the MUSAE pilots, particularly in Widening Countries, confirm that this model can succeed across diverse regional contexts, enabling SMEs and public institutions to engage in meaningful, cross-sector collaboration.

Moving forward, the adoption of these guidelines offers EDIHs a clear path to strengthen their service portfolios, enhance market credibility, and expand their role within Europe's innovation ecosystem. Strategic use of the MUSAE Label and engagement with the STARTS network will amplify visibility and networking potential, while embedding sustainability will ensure lasting impact. By embracing this approach, EDIHs can position themselves as catalysts for digital transformation and as leaders in shaping a more creative, inclusive, and technologically advanced future for Europe.