Learning Paths: Launch Toolkit

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Deliverable

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Executive Summary

The shemakes.eu project aims to empower future female innovators of the sustainable fashion industry through inspiration, skills, and networks. Partners use a three-pronged approach to reach this goal, providing innovative learning paths for girls and women of various ages, concrete business support and connections, and inspiring stories of female role models.

This deliverable focuses on introducing the learning paths (WP2). Built upon the experience of Fabricademy, the learning paths are considered important fuel for the .Shemakes innovative ecosystems as they will impulse local knowledge exchanges and encourage self-empowerment by creating experiences and synergies at local and global scale. We hypothesize that girls and women participating in the learning paths will gain confidence and skills that will allow them to take part in science, innovation, and entrepreneurship.

This document is directed by IAAC as coordinator of WP2 and co-created with the direct partners, especially the 5 other labs (WAAG, FAB LAB LEON, ONL'FAIT, REDU, MAKESENSE) and Matrix. It is an invitation to better understand the shemakes.eu learning approach, introduce the architecture of the toolkit and discover the first rounds of activities that will be done by the Labs.

The **first chapter** introduces the WP and describes the methodology used to co-design the approach and the content of the deliverable. It highlights the originality and relevance of the Fabricademy program, the power of co-creation and describes a series of interviews and co-creation workshops done to better gather the experiences of the stakeholders involved, frame, envision and operationalize the work plan of WP2.

The **second chapter** introduces the general learning approach of the shemakes.eu project. It first describes the main features of the existing Fabricademy program to update novice readers and help them to get familiar with the objectives, structure, vocabulary, and contents offered in the existing 6-month program. The four packages (sustainability, industry 4.0, innovation narratives, wearable technology) are introduced as well as the existing documentation mainly composed of a handbook and a series of related platforms and tools helping students and lab instructors to run the program. As a continuity with the main program of Fabricademy, the learning paths are defined in line with a STEAM approach, maker-centred learning pedagogy, a learning by doing methodology and the open-knowledge and equity principles as **a series of activities organized by one lab to one specific target of learners**. From definition to implementation, the chapter then

describes the structure and future contents of the toolkit and gives some tips on how labs will be able to document and interact with the content.

In shemakes.eu project, three generic paths have been identified by the partner: The Curiosity path for girls aged 8 to 18, Discovery for young women aged 18 to 25, and Innovation for women over 25 years.

Chapter 3, 4 and 5 explain the specificity of each learning path and share the strategy for each respective task (T2.2, T2.3, T2.4). The Curiosity Path is illustrated by Fab Leon, Discovery is described by Onl'fait and the Innovation Path is introduced by WAAG.

Finally, **Chapter 6** synthesizes the plan of activity for each lab expliciting their objectives of engagement, the potential activities they will run and the key stakeholders they will collaborate with from March to September 2021.

The document is completed by conclusions, connections to other WPs, references and an annex containing the extraction of the Miro boards.

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1. Introduction

1.1 Context and Objectives from DoA[1]

1.1.1 An introduction to Shemakes

Bridging the gender gap, in its mature phase, means moving through collaboration in scientific sectors towards innovation in business sectors.

Shemakes.eu blends the approaches of two leading innovation ecosystems – Fabricademy[2] and TCBL[3]- within the textiles and clothing sector and acts to promote, highlight and celebrate the leading role of women in innovation, with the goal of permanently re-shaping the opportunity structures of at least 16 European Member States and Associated Countries.

To carry out this goal, shemakes.eu develops an integrated innovation ecosystem promoting gender parity along three strategic axes:

- **Learning Paths**, modelled on the Fabricademy curricula, engaging girls and women innovators belonging to three age groups.
- **Innovation Services**, based on the TCBL Lab Service model, engage local communities and businesses in collaborative innovation activities as well as carrying out networked multi-Lab innovation projects and validating new business concepts.
- **Reputation Management** promotes different types of role models within the community of girls and women leading the way in the sector's transformation.

These activities are accompanied by four transversal WPs – Opportunity Ecosystem, Evaluation and Impact Assessment, Communication and Dissemination, and Project Management - that ensure their coherence in working towards the overall objectives.

Shemakes.eu is a two-year initiative with a consortium of 10 partners in 7 countries, led by the service company of the TCBL network. Its activities expand from an initial set of 6 core Labs to incorporate 12 'transfer' Labs in a second phase of implementation. Sustainability is ensured by incorporation of the new learning and service modules into the two pre-existing Fabricademy and TCBL networks, with the

[1] Description of Action of the shemakes.eu project
[2] https://textile-academy.org/
[3] https://tcbl.eu/

diffused uptake of shemakes.eu results driving impact towards enhanced roles and improved opportunities for women in mainstream economic sectors.

The process starts with the activities of the shemakes.eu Labs, where learning to innovate and applying new skills in digital production and textiles and clothing for a range of age groups are integrated with community building and interaction with businesses and their needs.

1.1.2 WP2 definition

WP2 aims to define and test Learning Paths from young girls to women innovators, incorporating elements of the Fabricademy courses into existing projects and curricula for three age groups. Participants thus take part in collective shemakes.eu learning experiences, some but not all of which are STEM-based, through a structured curriculum (6 months max) or shorter modules (1 day to 1 week). Three types of contents are addressed, with varying weights according to age group:

- **Technical knowledge** related to textiles and clothing, from crafts techniques to additive manufacturing; this can include pattern making, sustainability, textile applications, 3D modelling, materials, DIY recipes, sewing, weaving, knitting, dyeing, printing, screen printing.
- **Practical learning** by doing experimentations in Lab infrastructures, a weekly challenge to face in situ, and the design of individual projects,
- **Soft skills** integrating specific materials related to circular design, user-centred innovation and business modelling activities based on the Hypathia toolkit[4].

Each path is co-designed and tested in real contexts in three partner Labs in phase one, working with a locally relevant set of external stakeholders (schools, museums. universities, training centres, start-up incubators…) and extending that experience to 4 of the 12 'transfer' Labs in phase two.

Thus, this WP:

- Adapts, expands, and diversifies the Fabricademy model and tools for curricular pathways for different age groups and gender targets.
- Develops and deploys the Curiosity path for girls aged 8-18 in collaboration with schools, museums, etc.
- Develops and deploys the Discovery path for young women aged 18-25 in collaboration with academies, universities, etc.

[4] http://www.expecteverything.eu/hypatia/toolkit/

● Develops and deploys the Innovation path for women ages 25 and up in collaboration with T&C businesses, research and training institutes and start up and accelerator programmes.

1.1.3 Description of the deliverable

D2.1 Learning Paths: Launch Toolkit draws the first skeleton of the three Learning Paths (curiosity, discovery, innovation), providing a set of contents to the Labs so they can start their learning experiences and a methodology for crafting their intervention and co-producing new and original contents in itinere.

1.2 Methodology

In the first three months of the project, a series of activities have been organized to foster ideation and start designing a learning approach of the shemakes.eu project that is consistent with the DoA requirements, the values shared among the labs and their own individual motivation and resource. The toolkit is elaborated by IAAC in collaboration with the shemakes.eu partners, especially the Labs. It was created through desk research, an exchange of practices with partners and needs analysis realized via the co-creation interface Miro. First, the team (re)discovered the description of action and analysed the content of the existing program of Fabricademy. Then, other good practices were identified and discussed through several interviews with internal colleagues and weekly recurring meetings with the labs' partners. Finally, partners were invited to discuss the skills and activities they would like to integrate to customize the existing program for shemakes.eu target groups.

1.2.1 Why Fabricademy?

The Shemakes learning approach relies on the background of the training program Fabricademy that was selected for its originality and its disruptive vision for future Textile and Clothing applications combining the following key outcomes:

- **HYBRID LEARNING**. Combining online learning & Hands-On training by international experts.
- **NOVEL CAREERS PATHS**. Working at the intersection of Digital Fabrication, Bio-design, and Textiles.
- **LEARNING BY DOING**. Expanding the practices of Fab Labs with Textile Labs and Bio Labs

- **INTERNATIONAL NETWORK**. Exchanging Knowledge with a community of like-minded individuals.
- **OPEN SOURCE**. Promoting Open-Source Culture, sharing and collaborating.

The program explores the interrelation of human-technology-environment through the notions of embodiment, materiality, eco-design, bio-design, performance, smart textiles, and digital fabrication. It offers a broad overview of the state of the art of the current industry and builds on "learning by doing" methodologies, tackling themes like personal fabrication, distributed manufacturing, industry 4.0 wearable technology, bio fabrication, assistive technologies, and sustainability.

Fabricademy was established in 2016 as a collaboration amongst people of the Fab Lab network that share common agendas, wish to expand peer-to-peer educational networks, and believe that the current scene of the textile & fashion industry requires hybrid multidisciplinary profiles with digital competencies.

Moreover, Fabricademy introduces softer skills and easier entrance points to new technologies, broadening the scope, agenda within technology enabled spaces such as Fab Labs, encouraging gender equality and upskilling females in the tech domain.

Through its experimental, practice-based, and creative approach, Fabricademy is open to a wide-range of participants, coming from various ages, disciplines, and professions. Its purpose is to foster a community of pioneers that invent novel concepts, materials, products, experiences, and services that seek to bridge the gap between academia and Industry 4.0. Furthermore, it contributes with skills, collaborative tools and transnational communities leading to awareness, reinvention, and resilience.

With the shemakes.eu project, the support of the European commission enables the expansion of the network and the wider reach out of innovative T&C practices within the context of textile labs, science museums and grassroots organizations. A new opportunity has emerged to sustain the existing curricula, diversify, and open it in a more inclusive way by reaching out to various target groups, and diffusing the idea that learning has no age: people can learn and disrupt the T&C industry at each step of their lives.

1.2.2 The power of co-creation

From previous experiences, shemakes.eu partners have experienced co-creation as a powerful tool to facilitate the dialogues among stakeholders around one or several design objects built around a common purpose. Beyond individual responsibilities and task distribution, the labs opted to base their collaboration with an open and

solidarity mindset to create a safe and convivial environment fruitful for self-expression, dialogue and to awaken inspirations and creativities.

From January to March 2021, WP leaders from WP2, WP3 and WP4 have collaborated to propose a set of weekly activities to help labs in better knowing each other, in gathering key practices and guide them in better understanding and fulfilling their roles in the project. The process of activity design was always agile and went through various iterations between the different stakeholders engaged, in cooperation with labs, WP leaders and Project Leader.

The main online tool for interacting was Miro supported by the video conferencing tool ZOOM. This tool was selected for the variety of its functionalities, its simplicity of use and the experience of the WP leader in using it and making it accessible to other members.

1.3 Synthesis of activities carried out

Table 1.1. Synthesis of activities (January-March 2021)

Date	Meetings	Who?
04.01.2021	First internal IAAC meeting	**Kate, Santi, Xavi, Jess, Oliver, Guillem, Anastasia, Marion**
12.01.2021	Interview	**Xavi, Jess, Anastasia, Marion**
19.01.2021	Interview	**Kate, Paula, Marcel, Anastasia, Marion**
15.01.2021	Interview	**Santi, Chiara, Anastasia, Marion**
01.02.2021	Interview	**Oliver, Dafni, Anastasia, Marion**
15.01.2021	SU kick-off WP2	**All SU partners**
02.02.2021	SC meeting	**TCBL, IAAC, FLOD, MATRIX, WAAG**
05.02.2021	SU Labs meeting 2	**All labs except WAAG**
12.02.2021	SU Labs meeting 2	**All labs except WAAG**
19.02.2021	SU Labs meeting 3	**All labs, MATRIX**
26.02.2021	SU Labs meeting 4	**All labs, MATRIX**

03.03.2021	SU Labs meeting 5	**All labs, MATRIX**
03.03.2021	Alignment with TCBL	**TCBL + WP2 task leaders**
10.03.2021	SU Labs meeting 6	**All labs**

A brief presentation of activities is described below and is detailed in annex 1 containing the extraction of the Miro board. Below, each activity is synthesized by informing their core elements using the 5W (why, what, where, when, who), a summary of the main output and an illustrated overview of the activity

1.3.1 1st session: Building a global picture of wishes to kick-off WP2

WHY: To get people discovering the MIRO environment, gather ideas and existing practices from the network of Fabricademy, TCBL and Fab Labs concerning future learning paths for each target group, girls from 8 to 18 ages, young women from 18 to 25 years and women over 25 years.

WHERE: Miro Board

WHEN: 15th January 2021

WHO: All consortium members

WHAT: People were introduced to the WP and to the three learning paths. They worked in 3 groups corresponding to each path during 30mn where a discussion was facilitated. People could fill in individual post-its according to their network background and share it with the groups and highlight together key hot topics and tips to consider when dealing with a specific target.

MAIN OUTPUTS: For each target, participants identified tools and methods to be transferred to the targets as well as skills and competences to be developed in them. They discussed mainly the experience already available in the Fabricademy/Fab Lab and TCBL networks, knowing that references (tools, methods, skills, competence etc.) can be used as such or adapted to one or several of targets. If adapted, it could be as the "method" or the "process" e.g., sustainable design in T&C probably varies from one group to the other or "training how to sew" can involve different tasks.

OVERVIEW

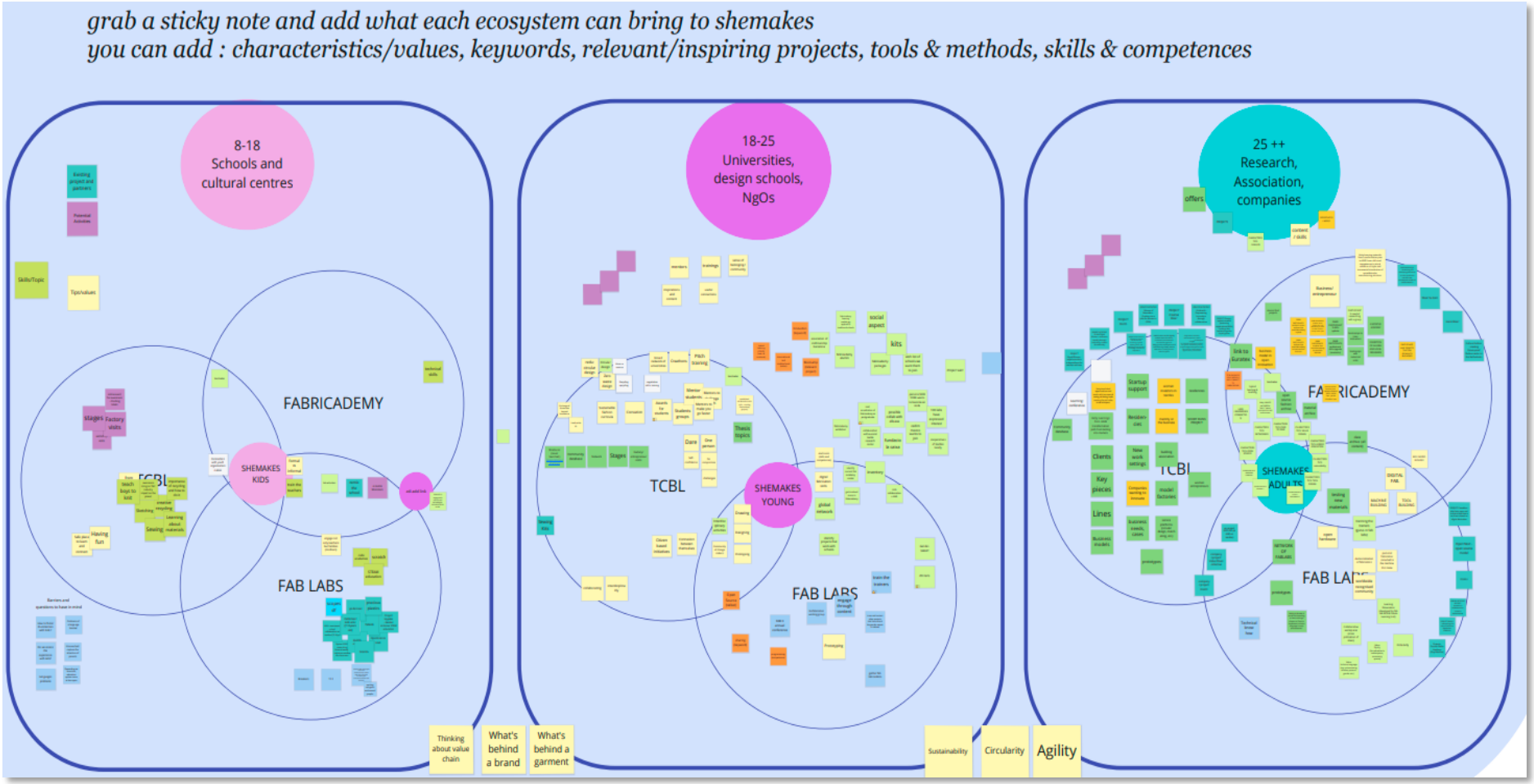

Figure 1.1: Kick-off Brainstorming session overview

1.3.2 Building upon existing practices and projects

WHY: To get to know better the lab's activities and perspectives while gathering good practices for feeding the learning approach of Shemakes.

WHERE: MIRO

WHEN: 5.02.2021

WHO: 6 Labs

WHAT: Before the session, Labs could gather internally key information, running focus groups or interviews with their local teams. According to the size of the lab, this preparation phase was crucial to better have a rich picture of their experiences and visions. During the session, Labs were first invited to describe key inspiring projects. Then they extracted information from them to detail methods and tools, stakeholders engaged, tips. In a second time, they were asked to brainstorm about the gender perspective and how those projects could help them to nurture their future activities in the project.

MAIN OUTPUT

Table 1.2: Knowledge base from the Labs

Lab	Associated Relevant projects	Associated Tools and Methods
IAAC	Fabricademy and Fabtextiles experiences, Circular Maker Academy MDEF, Do-it, Siscode, DDMP, Remix the barrio and school	Fab Textiles books, Hybrid model for distributed education, Future Learning Unit approach, prototyping infrastructure, co-creation.
LEON	Poderosas, SteamKids, Fabitos, Breakers, Jóvenes Makers, Crafts & Fashion design + carnival, STEM TALENT GIRL, Programa EDYTA Fundación Orange & (Secretariado Gitano) Scopes DF	SteamKids & Poderosas Program, My favourite monster, design clothes for your doll
ONLFAIT	SISCODE RRItools	Open Schooling, constructivism and the Tinkering Studio activities, gradual release of responsibility: I do it - we do it - you do it,

REDU	Mai Bine	Workshops on Traditional embroidery, Dolls and Christmas decorations Workshops out of fabric waste, Screening of movies ,Repair/ Redesign workshops for used clothes, Flash-mobs and art installations, Seminars on human ecology
WAAG	Reflow workshops, Open material archive, Culture.fashion, Craft in Abundance, BioShades	Problem-solved approach, learning on the making, hybrid online + offline format, bootcamps & hands on workshops, open-source documentation
Makesense	Test and Learn program Sprint program to validate your business concept Makesense Spot	Creathons toolkit, creativity workshops, Spot toolbox, Investment fund for social issues

Table 1.3 : Feedback from internal interviews in Labs

Projects	Brief Description and relevance for SU learning paths
Circular Maker Academy (innovation)	Pop-Machina Academy is a circular making and innovation training programme which trains and guides local champions within the seven pilots to set up a local circular maker space and establish a community around it, while also building their capacity as resilient makers. The vision is to establish a circular maker space in each of the pilot cities with programming dedicated to specific topics such as reuse of plastic, recycling wood, or using food waste. - A training for trainers' program of local ambassadors strongly linked to the sustainability package. - Integrated sessions for biomaterials, co-creation and circular open fashion with inventory provided - Potential resources for circular business model and social innovation - an 100% online distributed format documented with hack.md - Challenged oriented approach at city level - Active learning approach supporting learners to be conscious and reflect on which skills there are developing
MDEF (Discovery and Innovation)	MDEF is a one-year multidisciplinary design course which focuses on turning ideas into actions to transform the state of society. It proposes small-scale interventions to approach large-scale challenges to dissolve wicked problems instead of solving them with single moon-shot solutions. - Propose innovative formats of interventions to speculate/design (unexpected) futures that can inspire. - shemakes.eu could participate in MDEF by exploring gender perspectives of future scenarios and integrating innovative courses.

	- The Atlas for weak signals is a co-constructed vision that acts as a basis for structuring interventions. This activity was digitized in 2020 and can be run with online co-creation tools. https://fablabbcn.github.io/The-Atlas-of-Weak-Signals - They are building a community for ex-students
Hybrid and Distributed Model (all)	The hybrid and distributed model are a mix format of class/activity both physical and digital that educational programmes of Fab Lab Barcelona are using since Covid-19. It allows for both students and faculty present in-site and online, or Hybrid and at a distance, or Distributed. • It can help to structure nonphysical workshops that will be run by labs • They distinguished instructional and interactive workshops settings as well as 4 interaction modes (presentation, studio, discussion, workshop mode) • It requires relevant infrastructures • It highlights the importance of documenting activities with key information (Time, Title, Activity description, Interaction mode, Tools used, Materials needed) and propose visualizations and tables
DO IT (Curiosity and Discovery Paths)	DOIT – Entrepreneurial skills for young social innovators in an open digital world" is a H2020 funded project that brings together well-known European makerspaces and Fab Labs, which already work with children, with entrepreneurship education as well social innovation experts and networks. • It gives access to a toolkit for social entrepreneurships for young people reusable for the Curiosity path • It offered specific support for guiding facilitators • Specific tools for self-assessing onboarding activities
SISCODE (All paths)	SISCODE is an H2020 project aimed at stimulating the use of co-creation methodologies in policy design, using bottom-design-driven methodologies to pollinate Responsible Research and Innovation, and Science Technology and Innovation Policies. • The local pilot Remix El Barrio is an interesting incubation program of local designers mentorized by Fabricademy emphasizing biomaterial making, circular design and community engagement. • Co-creation approach and toolkits can serve as inspiration for creating activity and analyzing organizational transformation centred at the Lab level. • It connects with the European Living Lab Network, Ecsite and the Fab Lab Network
DDMP (innovation path)	The Distributed Design Market Platform acts as an exchange and networking hub for the European Maker Movement. The initiative aims at developing and promoting the connection between designers, makers, and the Market. • It offers makers (T&C included) a place to showcase their products and organize events to connect them at the EU scale. They have talent platforms, an award, and publications • They have expertise in new business models and can offer this perspective to the shemakes.eu project. • Some good practices and interests for integrating gender in their ecosystem

Table 1.4: List of general tips for running learning experiences

Understand your context while empowering your community

- Map and understand existing knowledge, interests from the participants of the academy
- Get feedback from participants to improve the methodologies
- Meet your target
- Foster knowledge exchange within the ecosystem
- Connect with other projects
- Be careful about disconnection of ambassadors when transferring to other Labs
- For formal education : teachers have the power. Go through the current curricula of the school to see how it fits best to the school
- Engage the young community (artists, local artisans, makers etc)
- Form heterogeneous group, Integrating beginners and advanced participants. They will teach each other, thus also bound.
- Integrate mentors and facilitators slightly older than the age group target to facilitate connexions.
- Entrepreneurs tend to succeed best as part of a collective of change makers

Get prepared, plan and DO

- Well defining the "How to" to avoid losing time/resource.
- Map resources for better preparation
- Keep online offline balance to keep students/ participants engagement.
- Importance to apply a Test and Learn logic to what we do: we make, we test, we learn, we try again.
- Activity à la carte (open laboratory rather than workshops at a fixed hour, fixed duration, etc)
- Mixed activities science, technology, and creativity (art)
- Use music and food to bring conviviality in physical events
- Provide Experience in the first person
- Let the girls choose their own project
- Help participants to create their personal challenge
- Leave enough space for each project to get personalized advice and tools (with well curated mentors for ex)
- Exemplify
- try to experience, live with your ideas
- Have many conversations - dialogues
- Connection with 'real' world: bring students to visit artists/designer studios as part of the curriculum
- Think in interventions
- Make more iterations of development for implementations
- Think how students can bring some physical /tangible creation at home
- Create Clubs (code club...)
- Use Slack and Discord with your community
- Always promoting sustainable consumption to all group ages (students and teachers)

Document, sustain and evaluate

- Introduce the concept of open source at the very beginning of the course, explaining its value
- Do micro-assignments
- Create open assignments/assign clients to the students

- Create testimonies, examples of previous students
- Make sure that consortium members will double-check by replicating
- Work on contents that are as universal and accessible Work on equally universal and accessible content.
- Think how to engage for longevity

Figure 1.2: Example of the canvas for gathering lab's experience

1.3.3 Co-designing the core concepts and approaching the learning paths for shemakes.eu

WHY: Reflecting on the learning approach from the toolkit, skills and activities

WHERE: Miro Board

WHEN: 05.02-12.02.2021

WHO: Labs

WHAT: Labs were invited to co-define the learning approach through three short activities. They first elicit their vision, needs and ideas for the toolkit, Then, they were invited to complete a list of the future skills for shemakes.eu. Finally, they were asked to fill out a matrix of activities in which they could complete each module of Fabricademy with customized activities according to each of the 3 learning paths.

MAIN OUTPUTS

Table 1.5 Learning approach: Feedback from Labs

Toolkit	Many ways to classify and categorize activities have been mentioned. Partners agreed to try to keep clarity, coherence with the previous work of Fabricademy and simplicity of use, adding gradual contents and extending possibility toward universal design. The main users of the toolkit will be the labs and they need to be guided in

	understanding Shemakes paths and in building their own path. The toolkit needs to describe and show concrete activities they can customize and integrate a series of tips and tutorials for better empowering them in creating activities. It will also give the possibility for labs to create their own content (new activity, examples of replication…) Future thoughts will need to happen to try to make it accessible in multiple languages.
Skills	3 ways of categorizing skills have been identified. • Separating soft and hard skills • Defining transversal set of skills for each main area of Fabricademy • Creating a panel of general skills for Shemakes learners: Fashion & Textile (Traditional fashion skills - pattern making, sewing, weaving, knitting, …), Graphic & Image (Creative art direction, conceptual branding, photoshop, illustration skills), Prototype & industrial products (Turning design ideas into process of manufacturing real-life products), Concept & Business (Tools for growing ideas into Business e.g. design thinking, innovation strategies), Education & research (Academic & non Academic, research & development), Co-design and gender (Creating best practices for collaborative work support a growing community teamwork and inclusivity) References: 21st Century Skills, 10 soft skills for customer service job, European Skills Agenda, Education and Skills (World Economic Forum), UNESCO - Skills for Work and Life
Activities	Creation of matrix of existing and future activities. It will serve as a first base of knowledge to create and integrate in the toolkit. (around 50 activities for each path) *see table of activities.*

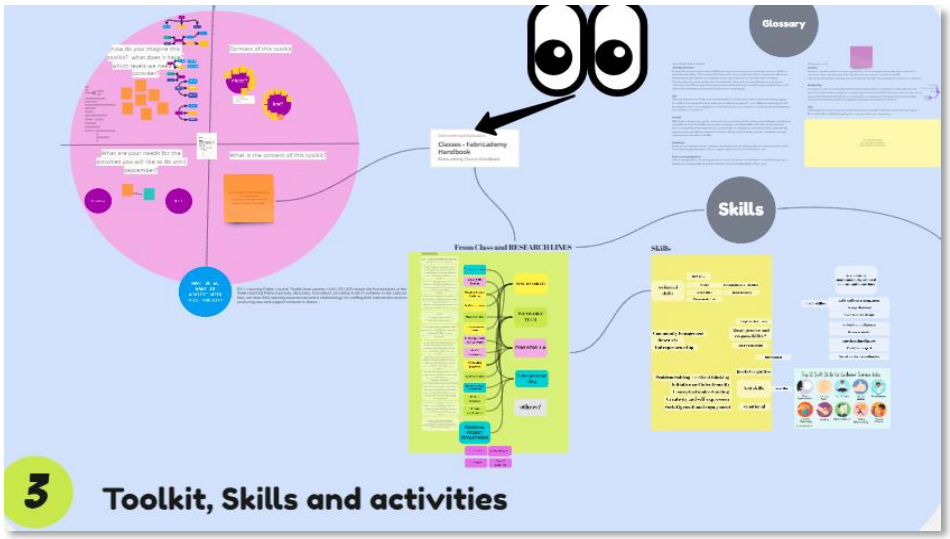

Figure 1.3: Learning approach: Feedback from Labs

2. Shemakes Learning paths: Approaches, models, and tools

In this paragraph, we describe the content, methodology and existing assets of the main Fabricademy program. We further introduce the notion of learning paths and describe each path and the proposed formats, audience, and approach.

2.1. Fabricademy

2.1.1. General Information

Fabricademy: Textile & Technology Academy is a transdisciplinary course that focuses on the development of new technologies applied in the textile industry, in its broad range of applications, from the fashion industry all the way to the upcoming wearable market.

The 6-month program runs in select laboratories across the world, and it is structured in two phases:

Phase 1 - Skills Capsules. The first phase (September to December) emphasises on the development of knowledge of prominent technologies through a series of hands-on intensive masterclasses that interweave traditional craftsmanship with advanced prototyping tools, innovative materials, software, and manufacturing techniques. This phase sees the students work individually in short intense exercises and experiments.

Phase 2 – Personal Project Development. The second phase (January to March) capitalises on all the learning of phase 1 in order to develop a mature personal project. Participants focus on individual in-depth applied project research, employing critical thinking, hard and soft skills for the development of innovative solutions that explore and implement more viable, sustainable, and fair alternative systems of today.

2.1.2. Hybrid education

The program has been based on a model of hybrid education that combines synchronous and asynchronous learning through teleconferencing systems and hosting Fab Labs for hands-on training.

2.1.3. Nodes

Each lab that participates in the Fabricademy program is a part of the global Fabricademy network (labs are often referred to as "Fabricademy Nodes"). The local branches of the Fabricademy program work with other participating Labs and experts from around the world via a distributed educational model where knowledge exchange provides a unique educational experience.

Fabricademy´s mission is to broaden the practices found in Fab Labs to other contexts and organizations and integrate textile labs into Fab labs by inviting different stakeholders to become part of the network, illustrated in this map:

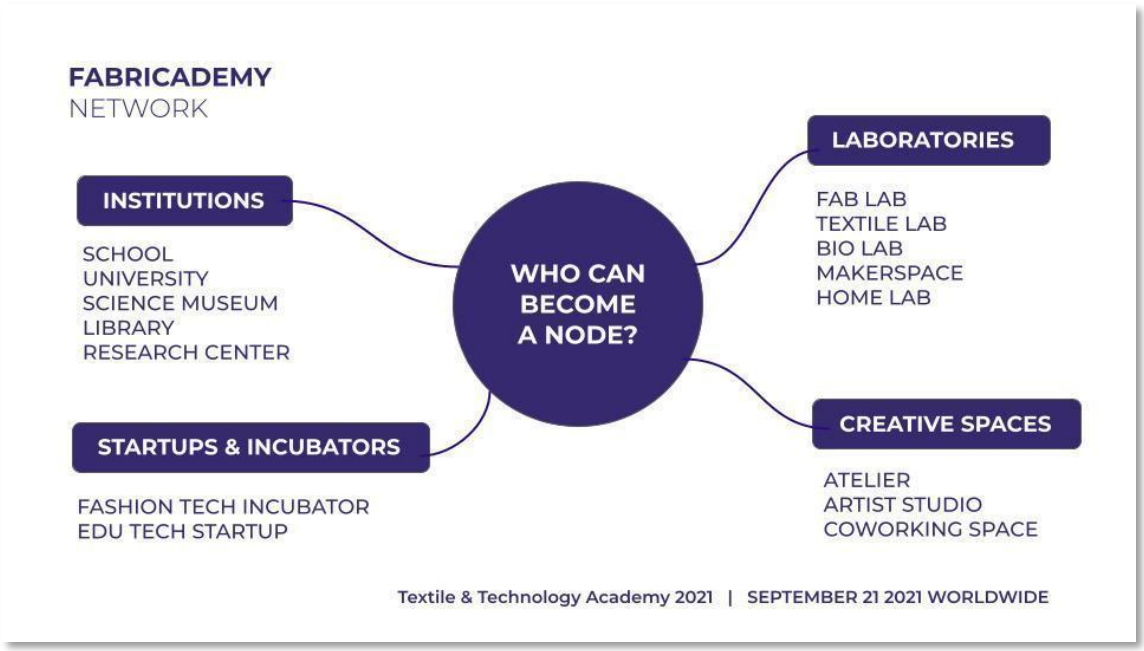

Figure 2.1. Panel of stakeholders as nodes[5]

2.1.4. Program structure

The program is structured in two phases according to a series of modules. See the table below:

Table 2.1. Structure of the Fabricademy program

PHASE 1: Modules	
1. State of the art 2. Digital Bodies 3. OS Circular Fashion	8. Textile as Scaffold 9. Open-source Hardware 10. Wearables II

[5]see image source: Fabricademy coordination, 2021

4. Biochromes 5. E-textiles 6. Biofabricating Materials 7. Computational Couture	11. Implications & Applications 12. Soft Robotics 13. Skin electronics
PHASE 2: Project development	
STRUCTURE	KEY FEATURES
• Concept • Research • Planning Workflow • Prototyping • Storytelling • Art Direction • Final Presentation • Exhibition	• In depth exploration of at least 3 subjects • Personal coaching • Global Biweekly online reviews • Global Midterm presentations • Invited jury and mentors

2.1.5. Packages

There are many ways to enrol in Fabricademy, since the program is also offered ¨A la carte¨, meaning that there is the possibility of choosing specific modules to attend.

In the *A la carte* menu there are packages of four modules according to topics, divided in Sustainability, Industry 4.0, Wearable Technology, and Innovation Narratives.

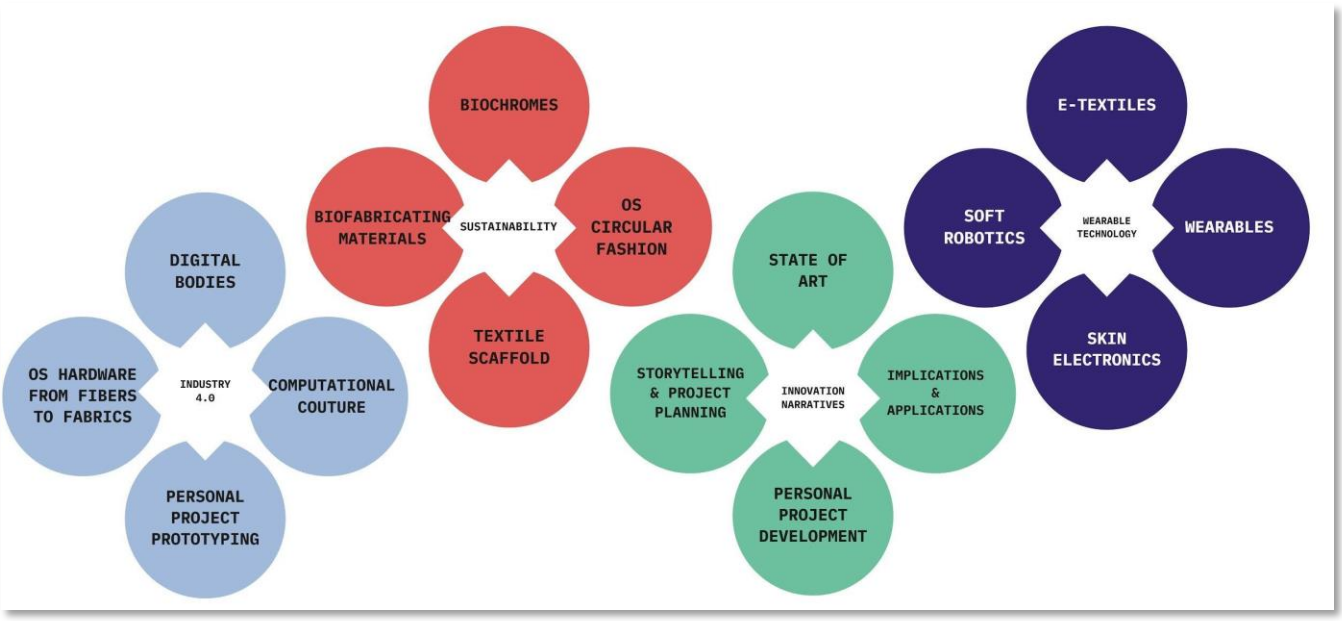

Figure 2.2. Main packages of Fabricademy

SUSTAINABILITY

Exploring the role of future eco-pioneers and material designers for a circular and sustainable textile and clothing field, bringing together craftsmanship knowledge and disruptive technologies. The lectures and hands-on learning sessions offer a view on the past and future of sustainable craftsmanship: an array of techniques for environmentally friendly alternatives for the fields of textile and clothing. This sustainability area of research clusters knowledge from biomaterials, natural pigment & dyes fabrication, modular reconfigurable laser cut designs, and the solidification of soft fabrics into hard structures for technical textile applications. It also introduces the participants to basic biotechnology practices.

It combines the following modules: State of Art, Biochromes, OSCircular fashion and Biofabricating materials.

INDUSTRY 4.0

Developing skills and exploring the field of new technologies such as 3D scanning, 3D printing (additive manufacturing), parametric design and 3D modelling, as well as subtractive manufacturing, such as CNC (Computer Numerical Controlled) milling and laser cutting. A combination of intensive workshops, where participants learn how to create digital files for apparel, fashion and accessories that are enabling mass customization, local manufacturing and reshape the factories of the Future through a performance-based hands-on approach to design.

It combines the following modules: Digital Bodies, Computational Couture, OsHardware from fibres to fabrics, Textile Scaffold.

WEARABLE TECHNOLOGY

The Wearable tech research area focuses on the design and integration of electronics with and as textiles for the development of smart fabrics that are aesthetically and performance-wise enhanced with microcontrollers, sensors, actuators, and programmable logics. Participants will obtain basic programming, hardware design and circuit crafting skills in order to create interactive prototypes using conductive threads, fabrics, e-embroidery, and other techniques. The projects can be developed for a broad range of applications, from performative arts to healthcare solutions.

It combines the following modules: E-textiles, Wearables, Soft robotics and Skin electronics.

INNOVATION NARRATIVES

Provide participants with theoretical and technical knowledge about disruptive technologies, materials and processes that are transforming today's industry and create the culture and conditions to innovate and change.

Gain a broad perspective of the textile industry and develop critical thinking to integrate sustainable design strategies that consider environmental, ethical, and societal challenges.

Focus on multidisciplinarity and develop a range of skills that combine crafts and interactive technologies, traditional fashion design and digital, analog and digital haute couture to generate emerging opportunities and create new hybrid professions.

Create career development opportunities for professional women to acquire technical positions, confidence, leadership, and entrepreneurial skills to promote gender parity in the leadership of the textile and fashion industry.

It combines the following modules: State of Art, Implications and Applications, Project Planning, Storytelling and Final Project presentation.

2.1.6. The original Handbook and Class Archive

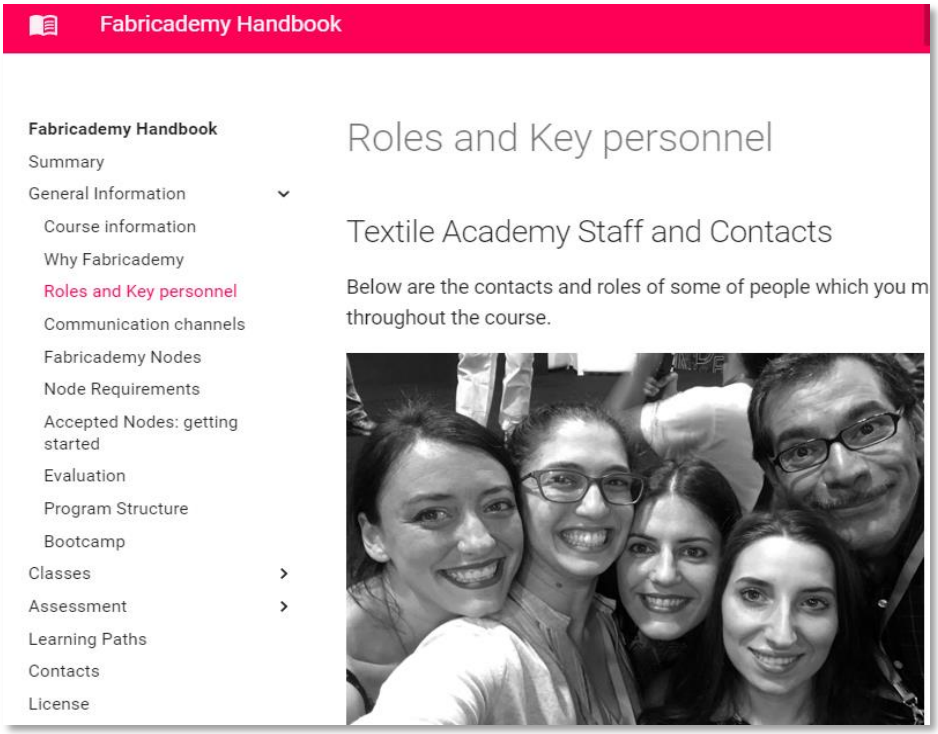

Figure 2.3. Overview of the Handbook

Fabricademy cares about keeping alive its program by using open documentation platforms.

The handbook has been created as a resource for Students, Local Instructors, New (and old) Labs and Gurus alike by Anastasia Pistofidou, Luciano Betoldi, Anna Kaziunas France, Jean-Michel Molenaar, Fiore Basile, Cecilia Raspanti, Claudia Simonelli. It gives general information about the program, present contents for each class and explains the evaluation process. This handbook is accessible by everyone with an open-source creative common share alike, non-commercial license. The team revise it regularly to adjust the version.

To complete the handbook, a class archive was developed containing all pedagogical materials developed each year, and the student's documentation webpage. Finally, all learning materials are also uploaded on the vimeo channel enabling asynchronous learning and opening access for all.

2.1.7. Inventory

Fabricademy is a program that seeks to expand the Fab Lab inventory, to enable textile designers and creatives to learn digital tools. It also seeks to transform traditional textile infrastructures and fashion schools to embrace new technologies by implementing Fab Labs and later, curricula related to technologies.

For this reason, Fabricademy has created an online open-source public Inventory where new labs can find the necessary materials, tools, and equipment.

The inventory is in an excel format found at this link. It adds-on to the Fab Lab Inventory found at this link. It is constructed both for labs and for individuals, since, due to the current covid pandemic, there were many cases of students attending the classes from home. This inventory is on continuous development and it takes into consideration that since technology is evolving, tools, components and equipment are as well being updated. For this reason, it is important not to purchase in big quantities, especially when it comes to electronics.

Both inventories come with estimated costs and purchase links. For facilitation reasons they point to Amazon. Still, it is explicitly stated that Labs should try to find local providers and can think of making the machinery themselves depending on the initial investment they have available.

2.1.8. Assessment Platform

Participants enrolled in the Fabricademy course, once accepted, automatically obtain an account at fablabs.io. They are invited to create a page to trace their

work. The assessment is the process of evaluating the student's work from their website and via the Nueval App, it happens in two rounds: the first is the local evaluation and the second round is global, once the student has finished the program . The evaluators are the local instructors and global Fabricademy coordination.

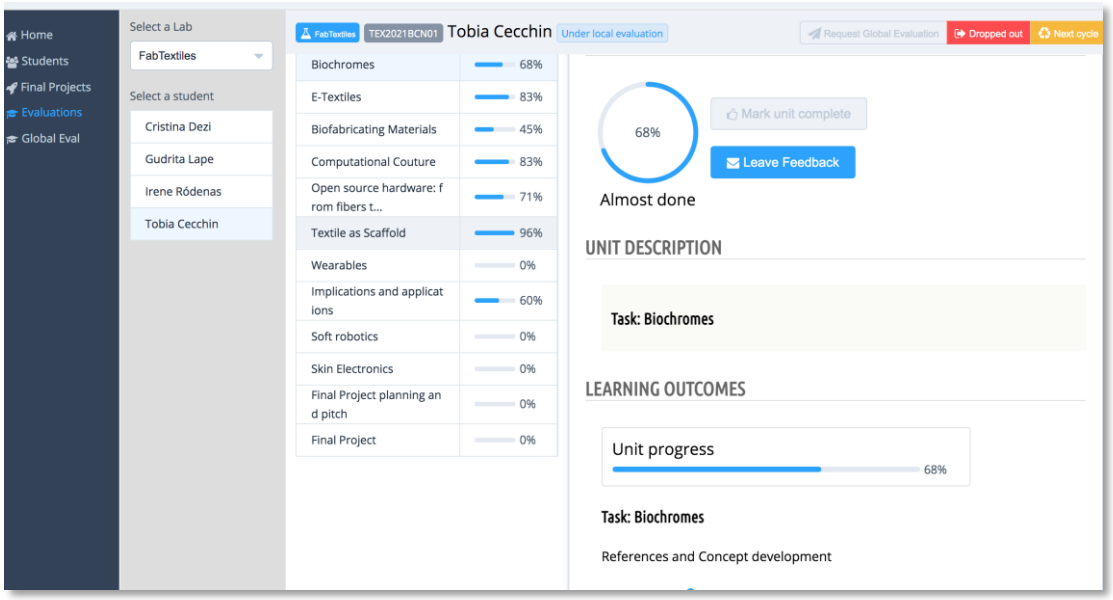

Figure 2.4. Overview of the Assessment Platform

2.2. From Fabricademy to Shemakes learning paths

Shemakes learning paths will be created in continuity with the main program of Fabricademy. They are designed under a STEAM approach, maker-centred learning pedagogy, a learning by doing methodology and the open-knowledge and equity principles. On one hand, they make the original content accessible to a more diverse audience. Reciprocally, they will feed the extant course with new content coming from the emerging needs of the textile and clothing industry and the new generations of material designers, textiles artisans, makers, entrepreneurs, and agents of change. In this section we present the notion of learning path and describe how we will operationalize it during the project.

2.2.1. What is a learning path?

According to Clement (2000), a learning pathway is a route taken by a learner through a range of activities, which permit to build knowledge progressively. In that

sense, learning pathways are intrinsically individual and thus connected to the personal characteristics such as motivations, experiences, and cognitive abilities. Educational programs and activities organized by third places will create environments to facilitate the learners to enhance their learning experiences and effectively help them to build the appropriate knowledge they expect to acquire. Such environments also aim to inspire and be stimulating to boost creativity and critical thinking, helping learners open their mind (and bodies) to face complex realities.

In a few words, educational programs are worth being adjusted and rethought according to the local context and the learner's characteristics. Therefore in shemakes.eu, with the intent to push for more inclusivity, we have decided to explore how to better frame the Fabricademy program to a strong diversity of future learners and experiment different categories of learning paths that can be customized by each lab according to their context and the profile of their members.

In Shemakes, **a learning path is defined by a series of activities organized by one lab to one specific target of learners**. Each activity can be associated with existing Fabricademy packages and modules and is reinforcing a set of specific skills. The following graph represents the overall skeleton of a learning path.

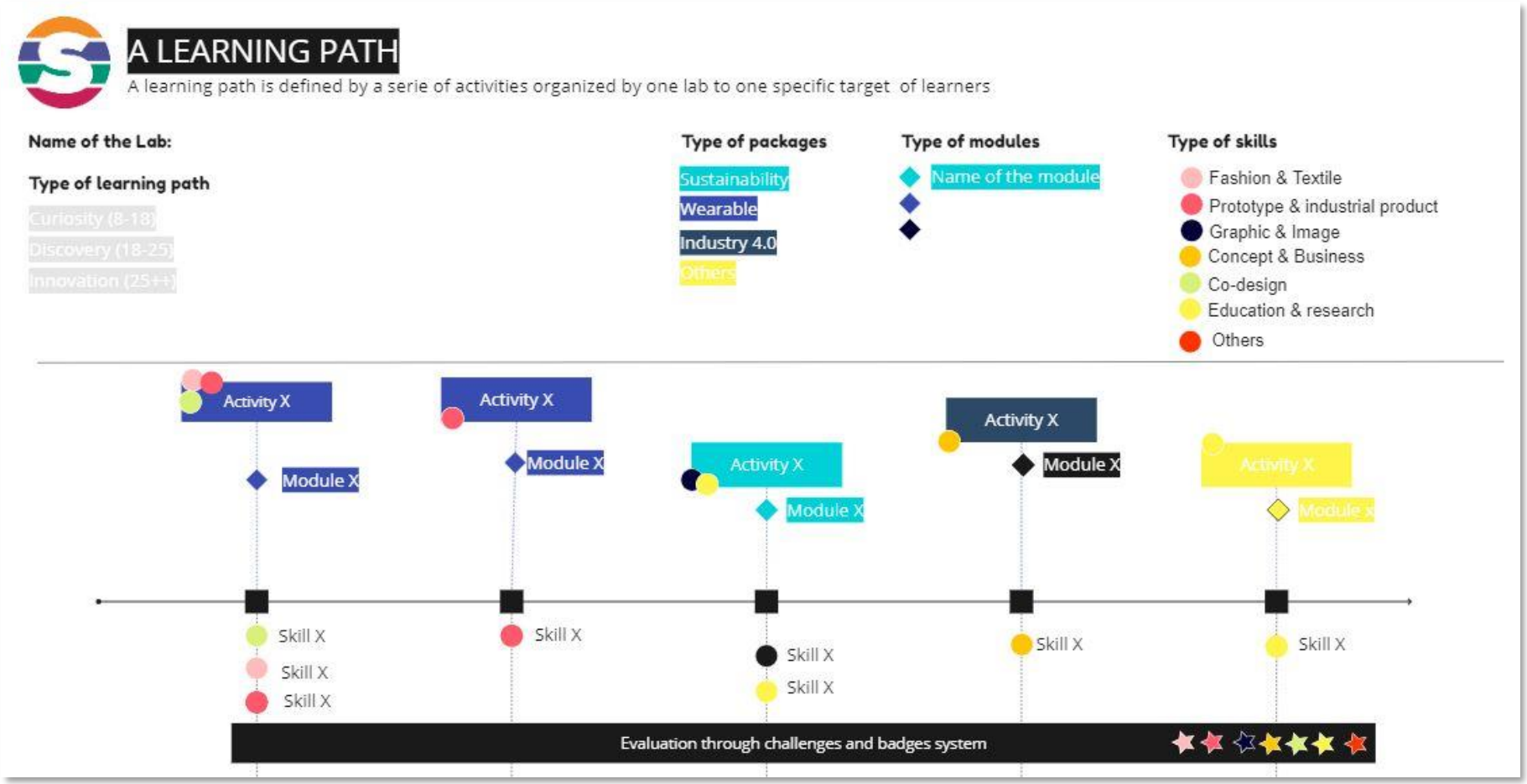

Figure 2.5. Overview of the skeleton of a Shemakes learning path

To support the engagement of labs as well as the continuous improvement and documentation of the learning paths, the partners are creating a toolkit that will help labs to better structure their own proposals and that contain guidelines for teachers, facilitators, and curriculum developers. It will be directly integrated in the existing Handbook to better anticipate its sustainability, meaning its future use by the community.

2.2.2. How will it be integrated in the Handbook?

The handbook will add a section with the Shemakes Learning path containing 4 subsections: a general section and three sections corresponding to each of the three paths.

The global section will introduce the shemakes.eu project, the learning paths and gives general information to the labs that will permit them to design their own path and find a relevant way to assess knowledge.

Then, each of the three path's sections will be composed of:

- an introductory section,
- practical tips for teachers to design and assess their learning paths,
- some examples of pathways developed by the labs,
- the list of activities categorized in packages where users can click for more detailed information on activities.

For each package, users will have the possibility to access various possible activities and will be encouraged to compose their interventions in different steps with:

- Warm-up (quizzes, games, icebreakers, inspirational talks)
- Theoretical (content presentation through webinars, lectures, mini presentation of topics) and/or
- Practical (Hands-on activities, demonstration, step by step tutorials, pre-recorded or live) and/or
- Challenges (makeathons, group exercises, individual projects), for open practices and evaluation.
- Closing activity with takings, impacts, feedback, reflections.

For each activity, instructors will be guided thanks to a set of guidelines created by their peers. These guidelines will help them to understand, replicate and customize the activity to their own context. Here are the recommended elements labs will need to gather to explain their activity:

- Name of the activity

- License and credits
- Activity Canvas
- 45˝ sound recording of what the activity is about
- Activity description, objectives & purpose
- Target audience and context of use
- Proposed Schedule
- Equipment & tools
- BOM (bill of materials)
- Safety rules
- A step-by-step process (illustrated)
- Estimated cost
- Activity Assessment Rubric
- Tips to facilitate the activity in context (to do, not to do)
- Respective guidelines and flyers for participants
- Links to recorded material (presentations, video recordings)
- References and further reading
- Related and supporting activities/modules

A summary of each relevant activity will be present in the handbook supported by a pdf downloaded for future uses. The handbook will be accompanied by templates, introduction graphics and the necessary logos provided by the communication leader of the consortium (FLOD). For now , five needs have been identified and will be available in the handbook for the labs.

- A template for timeline of activities (see Figure 2.5)
- A template for activity description (see Figure 2.6)
- A form for evaluation of the paths aligned with WP5 (see Figure 2.7)
- A guideline to help labs to integrate contents in the handbook
- Guidance for the basics of shemakes.eu communication: self-filming, audio recording and running interviews, recommendations for social media and hybrid modes of education, co-produced with FLOD.

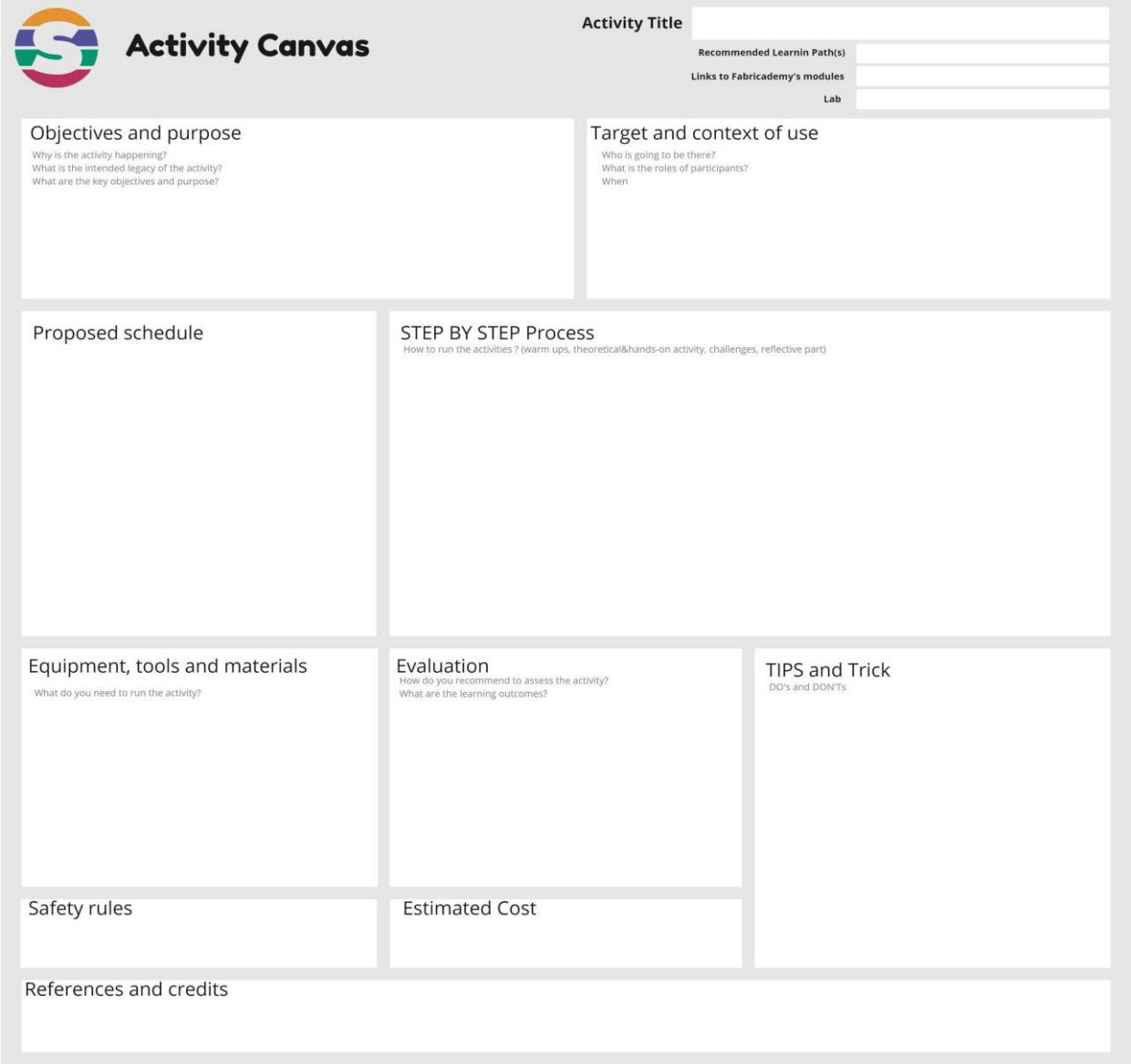

Figure 2.6. First draft of the activity canvas

Here is the link to access to the handbook section:

http://fabricademy.fabcloud.io/handbook/11_learning_path/

The relevant links will be also associated with the shemakes.eu website in the learning paths section.

2.2.3. Evaluation strategy

When considering the notion of evaluation in the Shemakes Learning approach, three levels of assessment have been identified. Indeed, knowledge can be captured:

- at the **path level.** WP2 will analyse the overall engagement of each lab in experimenting the curiosity, discovery, and innovation paths. At this level, the Task Leader will ask each lab to experiment with their respective path to gather a series of information about it. They will fill a feedback form and have the possibility to create some interviews with participants and instructors. The indicators for evaluation will be revised with Tavistock to align the form with the evaluation strategy (WP5).

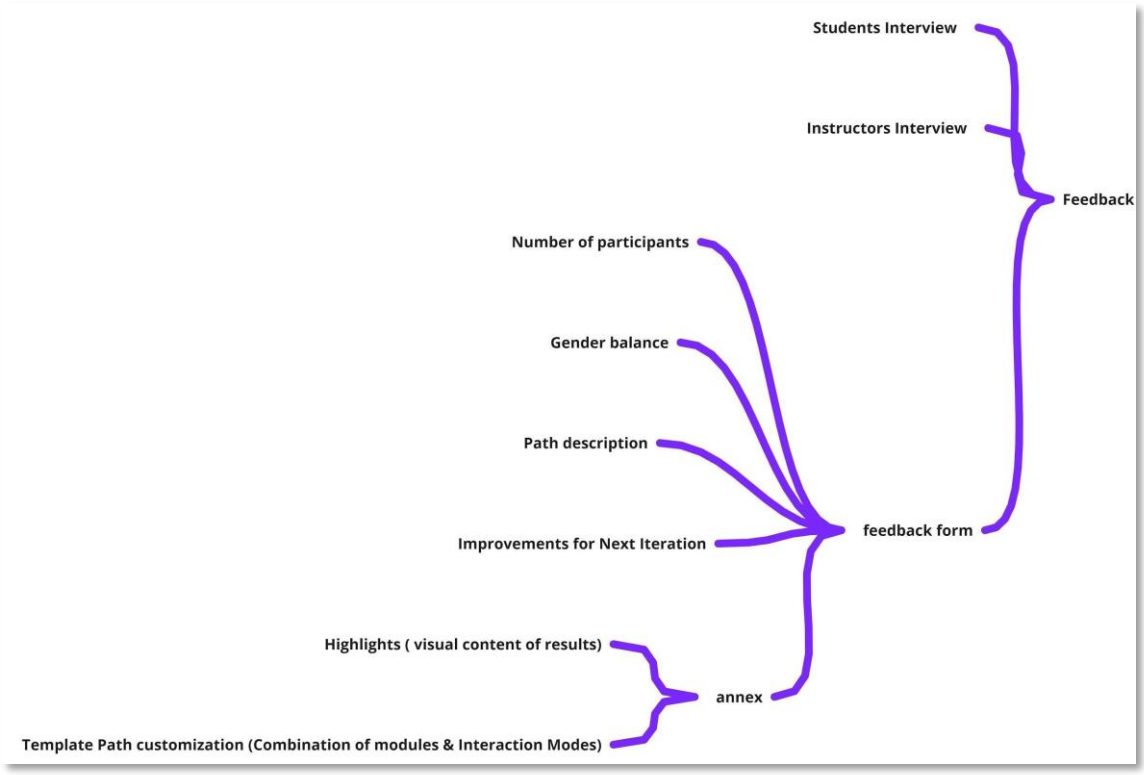

Figure 2.7: Approach for capturing feedback from each lab

- at the **activity level**. Labs are recommended to assess their activity all along their path. They could choose among existing practices and select the most appropriate to their context.

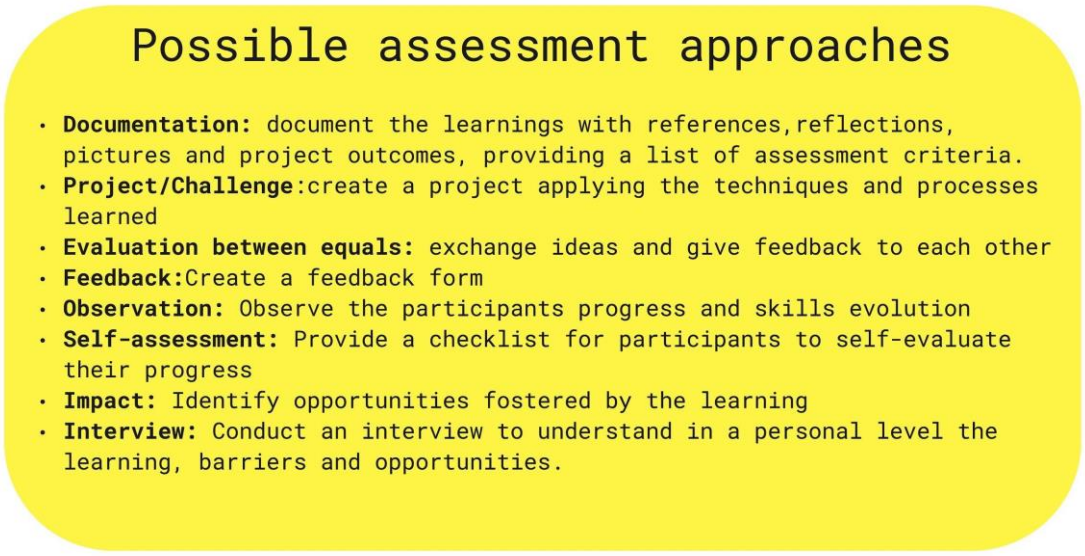

Figure 2.8 Overview of methods for assessment activity

- **At the participant level.** Each participant will gain experience and knowledge through the activities offered by the labs. Each participant will have the possibility to be informed about the skills behind each activity and to evaluate them through specific challenges. Labs are encouraged to use the existing evaluation platform of Fabricademy and customize it for their own context. Once evaluated and validated, participants will receive "badges" that act as certificates or first level of skill recognition.

2.2.4. Overview of the three Shemakes learning paths

As presented in the description of action, partners have agreed on defining three categories of learning paths.

Table 2.2: Summary of the three learning paths

Curiosity	Discovery	Innovation
Working with schools and museums to find and nurture future talents as well as create aspirations, trust, and joyful moments for kids.	Working with academy, university or institute for fashion, textile design, etc. to incorporate Fabricademy modules into existing curriculums and better align skills acquired with emergent needs of T&C ecosystems	Working with T&C professionals to create 'routes to job' for women who have been through an alternative professional training, ranging from self–built to more traditional career path.

Girls aged 8 to 18	Young women aged 18 to 25	Women aged 25+

Each path is built with at least 3 labs designing, experiencing, and testing it. For each path, Labs will design their sequence of activity picking up ideas from the main course of Fabricademy and customize to better support each learner in their respective pathway of learning.

In the following section, we will describe the ongoing work to draft each learning path.

3. The Curiosity Path

3.1. Main description (DoA)

This path addresses primary and secondary school female students aged 8-18. Developed as formal, informal and after school activity in close collaboration with schools and science museums, it allows to find and nurture future talents as well as create aspirations, trust, and joyful moments for kids. Fab Lab Leon leads the activity, together with IAAC and ONLF, based on its running programme Poderosas, which aims to overcome stereotypes and prejudices among girls in order to foster new vocations. Each Lab, as well as four of the 12 transfer Labs in phase two, works with two groups of 8 girls maximum three years apart.

3.2. Main inspirations

El programa Poderosas de Fab León (https://www.poderosas-tech.es/)

"Poderosas" is a project (developed by the TMA Foundation through FAB LAB León) focused on girls in order to increase the number of scientific vocations of women at an early age, through direct contact with innovative method and practice, stimulating and increasing girls' interest in science and technology. "Poderosas" develops and implements educational programs and events designed to promote self-confidence and support the aspiration of technical careers for girls between the ages of 6 and 12, encouraging their commitment to science and technology and valuing social utility and economics of science and technology.

On February 11, 2017, within the activities within the framework of the International Day of Women and Girls in Science, the United Nations presented a report on the

incorporation of women into the scientific field in which it was described that the barriers that make it difficult for women to choose and develop a scientific career under conditions of equality are mainly the stereotypes and prejudices that girls face and that have an impact on their educational and work careers, and on the other the greater family burdens as well as selection biases during working life.
With this project we want to eliminate the existing stereotypes and prejudices among Leonese girls, thus promoting new vocations and thus reducing the discrimination suffered by women in the scientific field.

Poderosas learn both tech and soft skills for 32 weeks developing a final project that they have to present to the public (family and friends). Each course represents a new spiral of learning new skills and practising the old ones towards a new and higher personal project.

Other inspirations have been discussed in the co-creation sessions:

Table 3.1 : Curiosity group

Projects	Fab Kids, ZDI , Scopes df, Poderosas, System 2020, Scientix, OpenScienceHub, UN for youth, Steamcat
Events	EU Contest for Young Scientists https://11defebrero.org/
Tools and methods Ideas	e-textile monsters, Train the trainers, Internships, Factory visits, online event for awareness - checking labels
	Teach boys to knit Awareness rising on T&C industry impact on the planet, Sketching, Sewing, learning about materials, importance of recycling and how to do it
Emerging questions to solve together	How to foster attention with Kids ? Do we assess the experience with Kids? Language's problems Depending on countries, education system more or less open How do we best capture the attention of parents? Problems of a large age bracket

3.3. First draft of Curiosity - Fab Leon

3.3.1. Context and experience of the Lab

FabLabLeón belongs to a non-profit foundation created by Telice, an SME working as a contractor for railway systems. The Foundation's objectives are to stimulate the

spirit and development of entrepreneurial and leadership skills and to stimulate interest in science and technology as pillars of knowledge and innovation.
FabLabLeón was integrated into the Fab Lab Network in 2011 and is a node of FabAcademy, and Fabricademy, as part of Academany.
It fosters entrepreneurship, innovation, science, and technology with a special focus on kids and teenagers through our STEAM Educational programs "SteamKids", "Jóvenes Makers" and "Poderosas", a girls-only tech educational program. These girls will devise, create, experiment, prototype, and innovate surrounded by cutting-edge science and technology in order to eliminate stereotypes and existing prejudices that limit the participation of women in the scientific-technological field. They will discover theoretical foundations as they are needed in the practical applications that they will develop. This methodology allows awakening curiosity and scientific interest at a personal level, as well as creativity and innovation at a professional level. In fact, training is guaranteed since the students will carry out a personal project through which to put into practice all the skills acquired innately.
This learning path will give FabLabLeon the opportunity of sharing our experience in education for kids with Schools, Museums and other labs hoping that there will be more girls interested in technology applied to textiles.

3.3.2. Key(s) Collaboration(s)

Its main collaboration is the MUSAC (Museum of Contemporary Art of Castile and León) located in Leon. It has been collaborating with the Museum making activities for kids in their "pequeamigos del MUSAC" activity, and also with some community projects . Leon Mini Maker Faire I and II were celebrated in the MUSAC

It also works in close collaboration with several schools and High Schools in Leon that come to visit FabLabLeon space and do some activity once a month. One of them is the Certificate of Higher Education (TEXTIL ART).

Other potential collaborators are LIPER Fashion Design Academy and two Foundations, Cerezales Antonino y Cinia and Foundation CEPA, that are mainly focused in ensuring that everyone in the community has access to culture and to the production and sharing of knowledge.

- Who will you collaborate with to organize it?

We will collaborate closely with the Museum Education Director and the Museum Library and also with some Teachers of the schools

- With whom will you work? both teachers and girls?

I would love to work with boys and girls

- How do you plan to engage with ? Are there any strategies of communication to develop?

The Museum Library has an education program for kids “Pequeamigos del MUSAC” open to the public and is willing to collaborate with us promoting the activities.

It will also use the collaboration with the Biotechnology Association (ABLE) to communicate the program (For the University girls, but they are actually making biotech activities in the schools)

3.3.3. Sequence of modules and activities

In the Curiosity, the 20 girls will be split into 2-3 groups: 8-11, 12-14 and 15-18.

FabLabLeon will start with open activities (depending on the Covid restrictions) with the collaborators (3 for 15 children):

- 8-11 will need step-by-step activities (it would use some of the textile - activities used in Poderosas: Make your T-shirts, customize your bag, make an interactive monster)
- 12-14 consist in 1 weekend project (around 8 hours) where girls will choose to curate some textile projects.
- 15-18 will be directly inspired and based on the Fabricademy bootcamp.

Figure 3.2. Curiosity Learning Path of Leon (by ages)

Below, an example of application for the Curiosity path with the key activities selected.

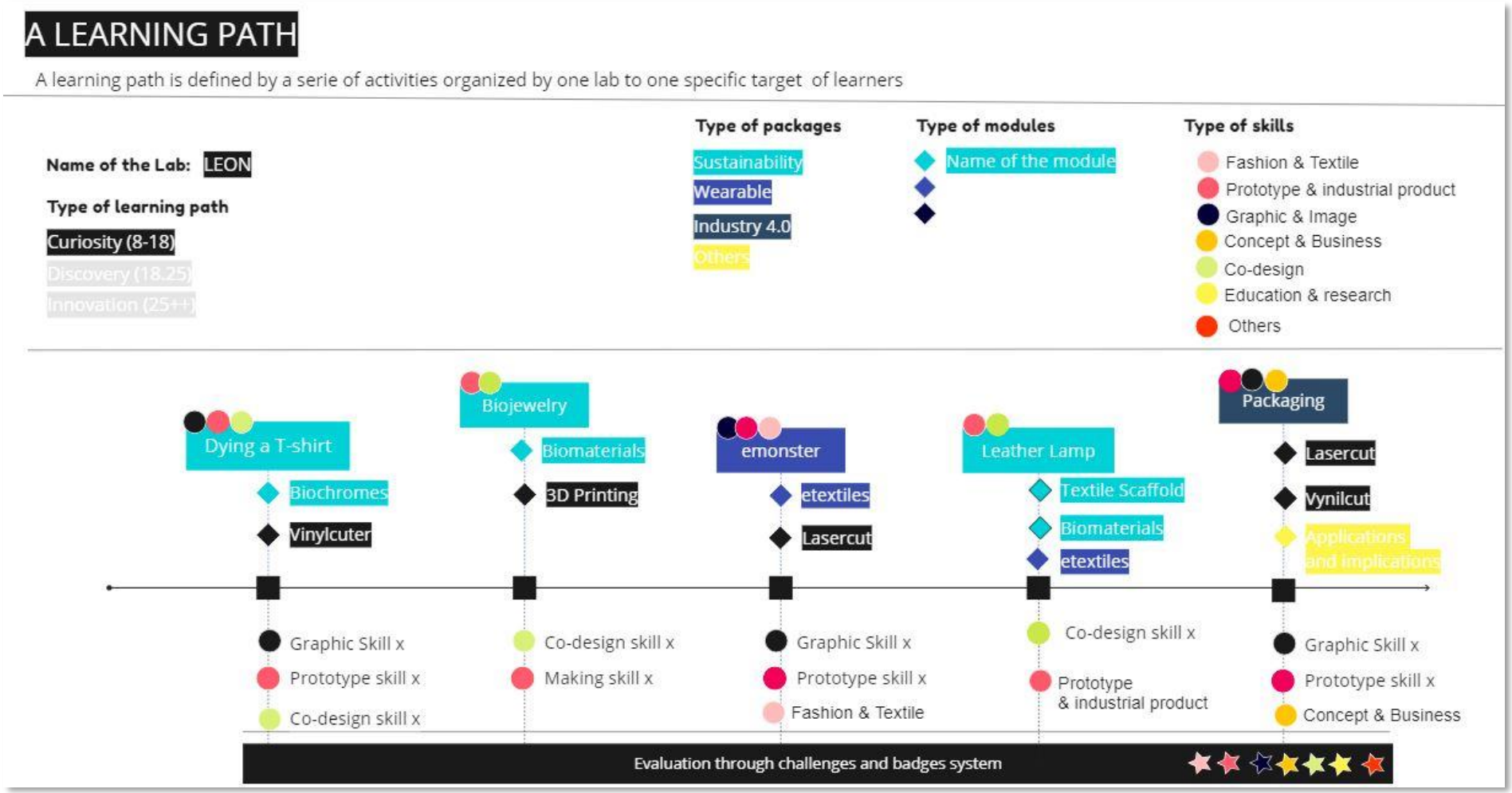

Figure 3.1. Overview of the Curiosity Learning Path

3.3.4. Example of the e-monster workshop

One of the activities that fits well with this target group is the e-monster workshop, for which the below canvas can be used.

Figure 3.3. Example of canvas for e-monster workshop

3.3.5. Evaluation and self-reflection

Assessment will vary according to the activity. It will be interesting to evaluate some specific aspects for this target such as curiosity, creativity, self-confidence of the child. Below an example of evaluation grid by kids or teachers that can be used to assess engagement and progress.

	-	+	++	+++
Curiosity I am engaged in the proposed activities, I ask questions, I am motivated.				
Creativity I make connections between the problems in question, I can come up with ideas.				
Research I can collect information and investigate, I can consider several possibilities.				
Communication I can rely on my classmates, I can take their input into consideration.				
Self confidence I am not afraid to share my opinions and defend my ideas.				
Critical thinking I can reflect on my work when it does not succeed, I include doubt in my work.				
Participatory listening I listen when the teachers and my classmates speak to better understand and learn.				

Figure 3.4. Example of evaluation of activity

3.4. Tips for other labs

This is a first checklist for the first round of activities. This list may be further developed for the second phase and to conduct activities in the transfer labs.

- Younger girls need to be guided step by step, the desirable age difference between girls should be 3 years maximum, preferable 2 with the younger ones.
- In order to accomplish each part and for girls to present their project at the end, the desirable max number of girls per instructor should be 9.
- The lab should provide a Safe place to learn and connect
- Having fun is the first goal
- Engage not only teachers but families
- Think about formal and informal education

4. The Discovery Path

4.1. Main description (DoA)

This path addresses young women aged 18-25 and is thus closest to the existing format of Fabricademy. Led by ONLF together with IAAC and LEON, each Lab (as well as four transfer Labs in phase two) establishes a collaboration with at least one **academy, university or institute for fashion, textile design**, etc. to incorporate Fabricademy modules into existing curricula and better align skills acquired with emergent needs of T&C ecosystems. Through this path, participants are exposed to innovative practices that they can integrate in their portfolio of competences, and the Labs can establish permanent collaborations with more **traditional educational institutions**.

4.2. Main inspirations

The Discovery Path is mainly inspired from the 5 years-long experience of the main course of Fabricademy. The Discovery Path will add on the curricula, programmes, and approaches that the partner institutions (academy, university or institute for fashion, textile design…) will develop over years of experience with thousands of students. In terms of gender opportunity, the Discovery path is an interdisciplinary, creative, and high-level technical path that will attract both women and men for its own nature.

Textile Academy Bootcamps

The Textile Academy Bootcamp is an intensive 5-day course for creatives, fashion and textile designers, teachers and students, and digital fabrication experts. It is an immersive experience. During the course, participants explore new possibilities and alternatives to the current textile and clothing manufacturing systems guided by technologists, textile and fashion designers, computational experts, and other specialists in the field from all over the world.

https://textile-academy.org/bootcamp/

Masterclass program (Fabricademy x Amsterdam University of Applied Sciences)
Under the title “Making Sustainability Work” the newly formed Critical Making learning community at the Amsterdam University of Applied Sciences has brought together creative social entrepreneurs, and educators/researchers within the ACIN network to

explore the emerging field of bio fabricating materials and biochromes (e.g. growing fungal leather and bacterial dyes). These sustainable counterparts to traditional design materials will be explored through critical making and reflecting in an intensive masterclass program facilitated by the Fabricademy network of fashion and textile labs from around the globe.

More information here.

Other inspirations have been discussed in the co-creation sessions:

Table 4.1: Discovery group

Projects	Gendersmart, E4FT, FashionTechalliance
Events	FAB X annual conference, Fabricademy annual exhibition, TCBL annual conference
Tools and methods	Short runs, Bootcamps, stages, train the trainers, build upon existing toolkits, thesis topics, challenge focus, hybrid learning, workshop about electronics, sustainable and circular fashion, recycling, co-creation, designing activities, prototyping
Ideas	Factory/ entrepreneur visits, mentoring Collaborations with Elisava, NY Parson school, Caixa Foundation, Eurecat, Cedim Mexico, creathons, HVA Accreditation in university for existing curricula Awards for students, contacting with broader network of university Community of changes, creating wishing list for schools negotiation skills
Barriers and questions	Time for accreditation Coherence between curricula

4.3. First draft of Discovery application by Onl'fait

4.3.1. Context and experience of the Lab

The association Onl'Fait opened the first Fab Lab in 2017 in Geneva. It is an open space dedicated to digital fabrication and education. Onl'Fait provides its community with the technical, technological, and human resources to build and develop a prototype or a product. The Fab Lab is active along 3 axes of development: education (from primary schools to professional reintegration), urban manufacturing (textile and woodworking), technology and science democratization (open source and hardware). The Fab Lab was involved in the first edition of the Fabricademy which matched with the opening of the space. It became the Swiss

node for Fabricademy in 2018 and established several collaborations with designers and couturiers.

The first 3 years of the Fab Lab's life were dedicated to the development of programmes for primary and secondary schools in collaboration with regional institutions which were dedicated to education. At the same time, Onl'fait was also involved in the professional reintegration of unemployed people. It was thus evident that closer collaborations with tertiary education were needed to complete our offer and strengthen our competences as a recognised actor of the educational arena of the region.

The expectations of Onl'fait are to learn from institutions that have a long tradition in programmes for 18–25-year-old students and at the same time to innovate a domain that might tend to crystallize on old methodologies and dynamics. Cross-pollination and recognition are important outcomes for Onl'fait. Onl'fait aims to create a diverse environment of work in terms of gender, as the Fab Lab has proven capable of, with a 50% female staff.

4.3.2. Key(s) Collaboration(s)

Onl'fait will mainly collaborate with 5 key institutions in Geneva:

- **HEAD – Genève**. Created in 2006, it draws on a rich, cultural, and artistic heritage to nurture young creative talent nationally and internationally. Renowned for the quality of its bachelor's and master's degrees in Fine Art, Cinema, Interior Architecture, Space & Communication, Visual Communication as well as Fashion and Accessory Design. It has established itself as one of the leading schools of art and design in Europe.
- **TECFA**. it is an academic unit specialized in the field of educational technologies, since 1989. This unit is part of the Faculty of Psychology and Educational Sciences from the University of Geneva, Switzerland. Research at TECFA covers a broad field of studies, such as cognitive, social, and affective implications of information and communication technologies.
- **MUSEUM**. The biggest Natural Science museum of Switzerland, MUSEUM has an exhibition area of 8,000 m^2 and welcomes 250,000 visitors each year. The museum also focuses on future scientific challenges, new technologies, current issues, and environmental protection.
- **CANTON OF GENEVA**. the cantonal office of employment will be an important partner to develop programmes addressed to young women from 18 to 25 years old who failed the traditional academic part and are looking for career paths (SEMO weeks)

- **AU FIL DU GESTE**. Association that shares a space with Onl'fait at MACO (Manufacture Collaborative) and works on the professional reintegration of disadvantaged women in the domain of textile and fashion.

Onl'fait will work closely with a pool of teachers from HEAD and TECFA to reach young people that are already engaged in a learning path related to the Shemakes Discovery Path; meaning creativity, textile, fashion, new technologies and education. The teachers will be key partners to adapt the Discovery Path to the needs and expectations of their students and organisations.

MUSEUM will allow Onl'fait to reach a broader group of young people that might be looking for specific training.

The CANTON OF GENEVA and AU FIL DU GESTE will support Onl'fait to reach disadvantaged women who are looking for employment in the textile sector.

The communication will be developed in collaboration with each partner and will be targeting specific profiles that could benefit from the Shemakes Discovery Learning Path.

4.3.3. Sequence of modules and activities

Onlfait plans to integrate the following modules of the Fabricademy in its discovery path:

Table 4.2: Discovery group

Modules	**Selection of activities**
• OS circular fashion • Biochromes • E-textile • Bio-fabricating materials • Computational couture • (OS hardware) • Textile as scaffold • Wearables • Project pitching	• Bootcamp • Seamly 2D • Rhino Grasshopper • Inkscape • bacterial dyes • modular fashion • hacking knitting machines • digital embroidery • moulding • documentation • wearables
Timeline • April (1 week): textile and new technologies week at HEAD • May (2 days): e-textile workshop at Mapping festival	

- May - September (6 months): mini expo about textile and microorganisms at MUSEUM
- June-September (4 months): workshops in collaboration with Au fil du Geste
- April - December (10 months): Motivational internships (SEMO)

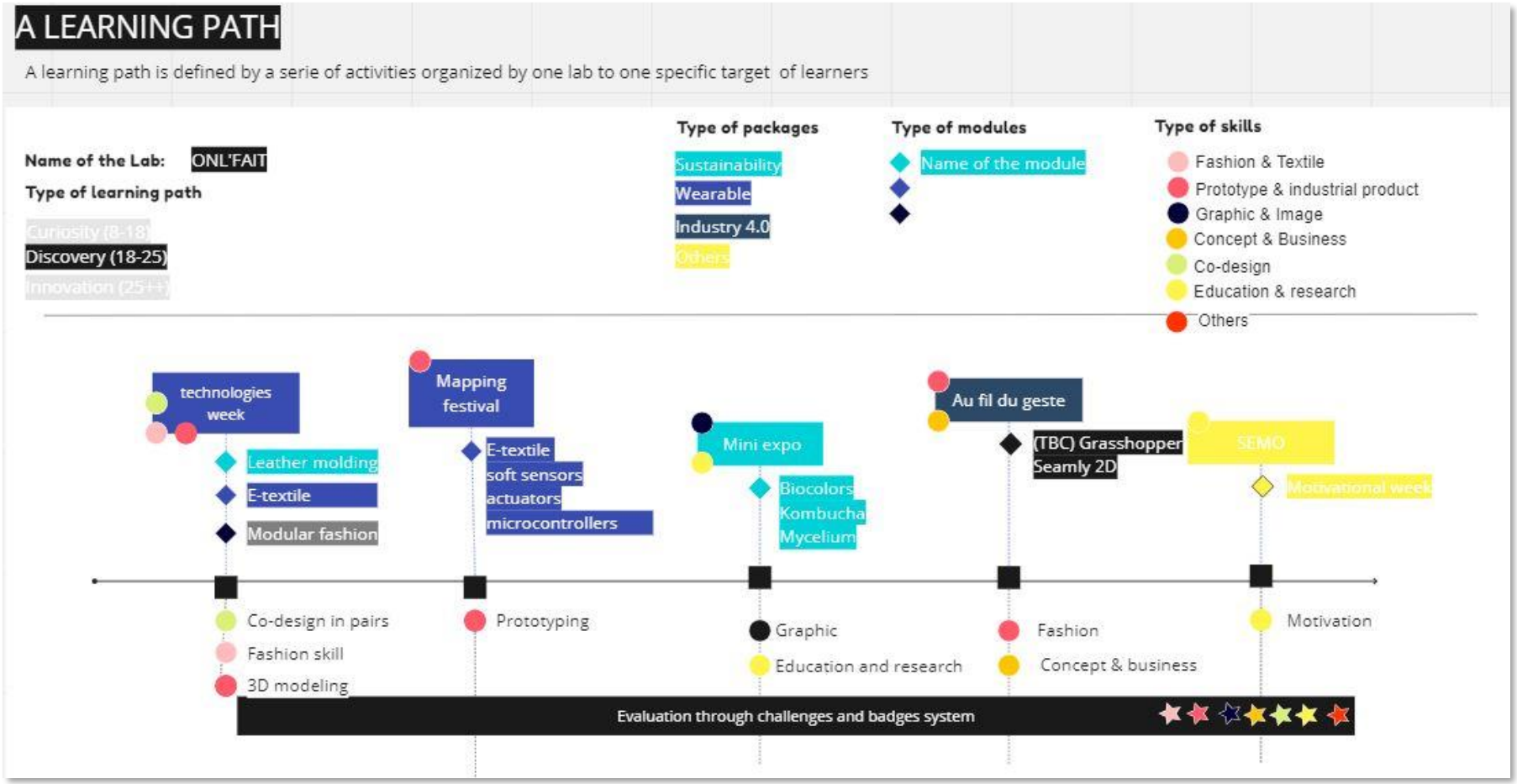

Figure 4.1: Overview of the Discovery learning path by Onlfait

4.3.4. Example for the bootcamp with HEAD.

An example of a local bootcamp addressed to 30 female students of HEAD from the 12th to 16th of April.

Objectives: The objective of Fashion and New Technologies (Mode et Nouvelles Technologies) week is to present participants digital modelling and digital manufacturing techniques focused on textiles. During a week, students will learn the theoretical bases of the chosen techniques and develop props to be presented on the last day of the course. The evaluation criteria will be established in collaboration with the tutors/teachers and will include the documentation of the process.

Planning:

- Location: HEAD and Onl'fait
- Dates: 12-16 April
- Schedule: 9:30 am -1:00 pm and 2:00pm – 5:30 pm
- Participants: 30 students (3 groups). The participants will be divided in 3 groups which work on the same subject during the week.
- Machines: participants will have access to a technician, the machines of HEAD and of Onl'fait

Table 4.3 : HEAD Bootcamp planning

Day	a.m.	p.m.
Monday	Introduction	design
Tuesday	Design and tests	Production
Wednesday	Production	Production – Check point
Thursday	Production	Documentation
Friday	Presentation preparation	Presentation

Activities

E-textile: Manufacture of a drawstring bag with integrated electronic components: light sensor, microcontroller (Gemma or Lilypad) and LEDs. The bag will be decorated with die cut self-adhesive fabric.

Modular Fashion: Fashion workshop and laser cutting. Participants will draw titles to assembles without having to sew them. The material used will be felt with the use of the laser cutter. The tiles will be used to create a purse.

Leather moulding: Manufacture of a moulded leather pouch. Participants will use a parametric modelling software (Rhino) to draw a shape to be made with the CNC or 3D printer. The shape will then be moulded in leather.

4.3.5. Evaluation and self-reflection

The main criteria for evaluation will be inspired by the Nueval system; which was developed in the framework of the Fabricademy programme. If possible, Onl'fait will use this system to evaluate hard skills and competences which are at the core of the Discovery path. The evaluation criteria will be adapted to those already relevant and used by the partner institutions: HEAD and TECFA. Regarding the academic learning and the CANTON, they would want the participants to gain professional competences that have been acquired thanks to shemakes.eu.

Onl'fait will run and evaluate a reflective journal / zine to learn by reflecting on the experience. A zine is a short, self-published book of text, images and collage that stimulates creativity and introspection. This tool will provide opportunity to establish an individual and group understanding, creating a sense of accomplishment and can help for planning the future.

4.3.6. Remaining challenge and open questions

Onl'fait would like to exchange with Matrix and IAAC to understand in detail how some Fabricademy modules were integrated in the official curricula of their partners institutions at university level before making a proposal to TECFA and HEAD.
Further reflection will be needed to understand how to present the programme shemakes.eu to a diverse public of young women and men as well as how to introduce the theme of gender in science and technology.
Regarding ambassadors, further details will be needed to identify the best candidates based on what they will be needed to deliver to the programme.

4.4. Tips for other labs

This is a first checklist for the first round of activities. This list may be further developed for the second phase and to conduct activities in the transfer labs

- Competences are at the core of the discovery path. Before approaching a university with the aim of becoming a partner, be sure to have the right staff and the appropriate level of knowledge for a conversation on an equal level.
- When working with schools and universities, the teachers are just as important as the students. Train the trainers about new trends and technologies and empower him/her to act, thus the impact of the program will be much amplified as teachers can represent best the Shemakes values and carry on the program without our full support. The goal of shemakes.eu is to bridge the gender gap in science and technology, so do not forget to have female scientific or technical professionals in your team who can teach about e-textile, hardware, etc.
- Inspire, propose challenge, and connect
- Exchange of Know How beyond boundaries
- Promote self-confidence without compromise

5. The Innovation Path

5.1. Main description (DoA)

This Task addresses women innovators aged 25 and up. It focuses on the possible 'routes to job' that are open to women who have been through alternative professional training, ranging from self–built to more traditional career paths.

Mapping out the possible 'routes to job' will help us gain insight in the hypothesis that Fabricademy and the Shemakes labs enable women to thrive in the T&C sector by learning them certain skills and tools. **The aim is to formulate an Innovation Path for the empowerment of individual women innovators, and to strengthen and improve the network as a whole.**

Should certain **difficulties or missing skills** on the 'routes to job' arise that have not (yet) been fully covered or noticed by the network, they **will be addressed and incorporated** in Fabricademy and the Shemakes labs. From there, the network will design **Innovation Paths and additional learning path activities** such as workshops, mentoring programmes, and challenges to best enable future women innovators on their 'routes to job'.

Led by WAAG together with IAAC and MAKE and extending to four additional transfer Labs in phase two, work is based on **a series of interviews** to carve out the Innovation Path with key stakeholders in that area: **women innovators** and their expectations, **institutions** that have an influence on gender policies, **businesses** who want to or have recruited women from different background education and all **stakeholders** who believe that diversity is key to drive change in the society at large like incubators for example. This leads to a set of hypotheses of 'job routes' that can then be tested with relevant Advisors as well as feeding into the work of Task 3.4.

5.2. Main inspirations

The main inspiration for designing the Innovation Path are the women within or surrounding the Shemakes labs ecosystem and Fabricademy network. Each participant lab has a different set and area of activities, with distinctive focus on various research agendas. However, it is possible to identify from this diversity, several women that thrive from working in innovation in the T&C sector.

These women occupy leading positions in labs, teach in relevant educational institutes, research new solutions for existing problems, perform art to question society, improve designing our clothes or create companies to do so. They may be ex-alumni from Fabricademy, researchers, entrepreneurs, artists, designers or even consultants. What they share is a passion for innovation and the fact that their careers have a positive and significant impact on the future course of T&C sector.

5.3. Process for improving the design of innovation paths by WAAG

Looking at the diverse pool of women innovators in T&C sector within the labs network, this innovation path will focus on learning from these women innovators, creating a link between past Fabricademy alumni, other women innovators who have a link within the network, and future Shemakes participants.

Valuable understanding

The course of the learning path will compose valuable understanding in a threefold manner. The goals are firstly, to identify the skills obtained through the Fabricademy course or other relevant alternative education, that have been proven valuable. How did the Fabricademy course enable its students and have prepared them for their current position in the T&C sector? Secondly, to discover the role that Fabricademy and/or the lab ecosystem played within their career path. Thirdly, to identify skills that were not yet included in the Fabricademy curriculum but would have been valuable towards their professional path, from learning to positioning themselves in the job market. With this knowledge, we build towards a future proof set of additional tools to empower future women innovators relevant for this transition.

To summarize, we aim to understand and trace possible career paths in order to:

- Increase the value and employability of the women innovators in the sector;
- Identify the skills that enabled these women to reach their current position and how they were related to Fabricademy or other training/qualification;
- Understand the gaps and opportunities during this process to craft activities that can provide better support to future women

Start shaping the innovation Path by identifying potential activities

The following step would be to identify a series of activities associated with each innovation path as an outcome of this exploratory process. Depending on the outcome, possible activities could include bootcamps with industrial visits; training

with instructors and lab managers; setting up residencies and short-run projects; promoting ex-alumni works through exhibitions; setting up co-creation challenge sessions with (future) women innovators and companies.

During co-creation sessions with the other labs, there were a series of examples and ideas that could be incorporated by shemakes.eu to bridge the innovator with the job market. The summary can be found in the table below:

Table 5.1: Innovation group

Projects	Equal4Europe, Global Digital Women ,DISCO, Creative Wear, Change, Reginnova, Genderplusnet, Herewear, Culture.Fashion, Careables, Open!Next, DSI, SISCODE, REFLOW, Euratex, DDMP, Centrinno
Target diversity	Ex-alumni, Entrepreneurs, companies, research institutions, Women investors in textiles
Future Offers ideas	-Using role models to inspire -Using Fabricademy to start and innovate a business or to complete a phd and investigations -Bootcamps with industrial visits -Bootcamps to train instructors and lab managers -Promoting ex-alumni works through exhibition as entry point for connecting with innovation stakeholders -Build the success stories -Prototyping, testing, validating, implementing with/for companies -Proposing residencies, short-run projects -Feeding open libraries and community databases
VALUES	Networked, open source, enabling, Hi-tech accessibility, hybrid education, value-driven, peer2peer, inclusivity, equity, crosspollination
Contents/ skills	Virtual validation of styles and incremental introduction of smart & circular manufacturing solutions, technical knowledge, business models in innovation, entrepreneurship

Nevertheless, we intend to kick off this process by first deeply understanding the nuances of the multiple careers path options, for then to outline and approach the tools/activities that add the most value.

5.3.1. Context and experience of the TextileLab

TextileLab is a creative research lab combining digital fabrication processes, crafts techniques, textiles knowledge and material research into relevant opportunities for the textile, fashion, and material fields and how these affect the way we work

together towards change. As a starting point, TextileLab embeds the core values of Waag into tangible practise cases and divides its activities in research, knowledge sharing and showcasing, that form a constant workflow cycle, where both technical and cultural innovation are continuously feeding each other.

By embedding open-source strategies, a circular approach, and a vision based on the entire chain and ecology, TextileLab helps bridging innovation in the tech and textiles field. The three labs Fab Lab Amsterdam, Open WetLab and TextileLab together form Make, Waag's research department . They define the research agenda and the vision on how we make, why we make, what we make at Waag. TextileLab and the two other labs facilitate a strong community of practitioners, by further connecting them and supporting their collaborative and interdisciplinary approach.

Being the co-founder of Fabricademy and TextileLab Amsterdam, the team at Waag has collaborated with many women innovators and held several activities to promote their development, such as artistic residences, mentoring on research projects, providing creative tech & hands-on workshops and many others.

5.3.2. Key Collaboration(s)

In order to define the possible career paths of women innovators within and surrounding the Fabricademy and labs networks, Waag will collaborate with Iaac and Makesense partners to identify and list the women involved in the first exploratory phase. The three labs will also formulate together the research format and techniques that will take place and how to assess the results.

The target group are women innovators that participated in either the **Fabricademy course or other alternative professional training** outside of the regular art-, design - and tech institutions. Further specifications are that they are **aged 25+** and are working or actively looking for a job in the textile and clothing sector.

The goal is to interview **a total of 15 women** (to be listed) in the first phase. Each partner will involve 5 women, so that a broad scope of career paths with a variety of skilled experiences from the network is covered: from wearable tech pioneers to heritage explorers, and from lab directors to independent researchers.

Task 2.4 will develop an initial understanding of a number of different career paths and job routes for the future female innovators of shemakes.eu. To be explored and followed within the T&C sector, in order to increase their professional value throughout this path.

The Innovation Learning Path will be framed by the point of view of the women and their relationship with their career path culminating in their current job position. The

perspective of those who hire these women will also be addressed on this exploratory research, highlighting the enabling factors as well as the challenges and opportunities to improve the relationship between innovator & employer/market.

The work planned on WP3, specifically on T3.4 Business Engagement, will work in close collaboration with the development of this learning path. Activities planned on T3.4 will be designed to bring together the network of labs, business, and the women innovator. Creating a positive, enabling environment for new business ideas to thrive as well as to draw together the business needs and opportunities to action.

5.3.3. Activities Description and Timeline

During the first project phase, the labs involved on the Innovation Path will focus their activities on conducting a deep exploratory research, a rough timeline with the main activities can be found on the figure below:

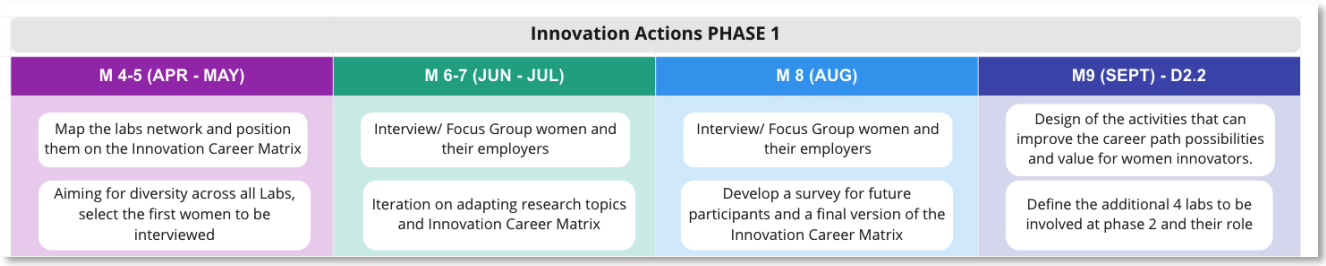

Figure 5.1: Phase 1 of the Innovation path

The following steps will be applied to collect the relevant input, test the hypothesis, and formulate the series of activities that will be incorporated by the Innovation Path:

1. Hypothesis and Criteria Formulation
2. Research technique
3. Data Collection
4. Outcome Analysis
5. Craft or Development of new additional tools that can help these women

1. Hypothesis and Criteria Formulation

To create a shared understanding of which type of women innovators are present within the Lab community, a number of criteria departing from the existing inspiring women will be formulated as guidelines. By mapping out the possible job routes, we drafted an initial Innovation Career Matrix that will serve as a guideline for plotting the women innovators and selection of the candidates to source data from.

The Innovation Career Matrix will guide our aim to select a diverse group of innovator women from the network. Moreover, it serves as a tool to test the hypothesis that Fabricademy and the Shemakes labs enable women to thrive in the T&C sector.

The focus of the Innovation Career Matrix is twofold. On the one hand, it lies within the shared enabling characteristics of the women. These shared enabling characteristics need to be celebrated, reinforced, and highlighted to serve as a role model function for future women innovators. On the other hand, the Innovation Career Matrix provides a tool for detecting the difficulties that women innovators are facing on their way to professionalize and set up businesses, works of art or innovative products. These shared difficulties will need support and tools for development in the next phase. The criteria bring together a set of possible working places where innovation flourishes in the T&C Sector, represented by the matrix columns:

- Academia & Research
- Culture & Society
- Art - Performance & Textile Art
- Industry:
    - Design & Production
    - Technology

The second set of initial criteria takes inspiration from the existing professional journeys that women in the labs network have taken and their roles in these institutions, being clustered into 5 large areas of innovation, represented by the rows:

- Researchers (Academic Researchers, Educators, Independent Researchers)
- Designers (Independent Designers, Wearable/ Tech Innovators, Industry Innovators)
- Artists (Sustainability Advocates, Heritage Explorers, Textile Artists, Performance Artists, Advocates for change)
- Entrepreneurs (Business Innovators, Lab directors)
- Consultants (Expert Mentor, Advocate for change)

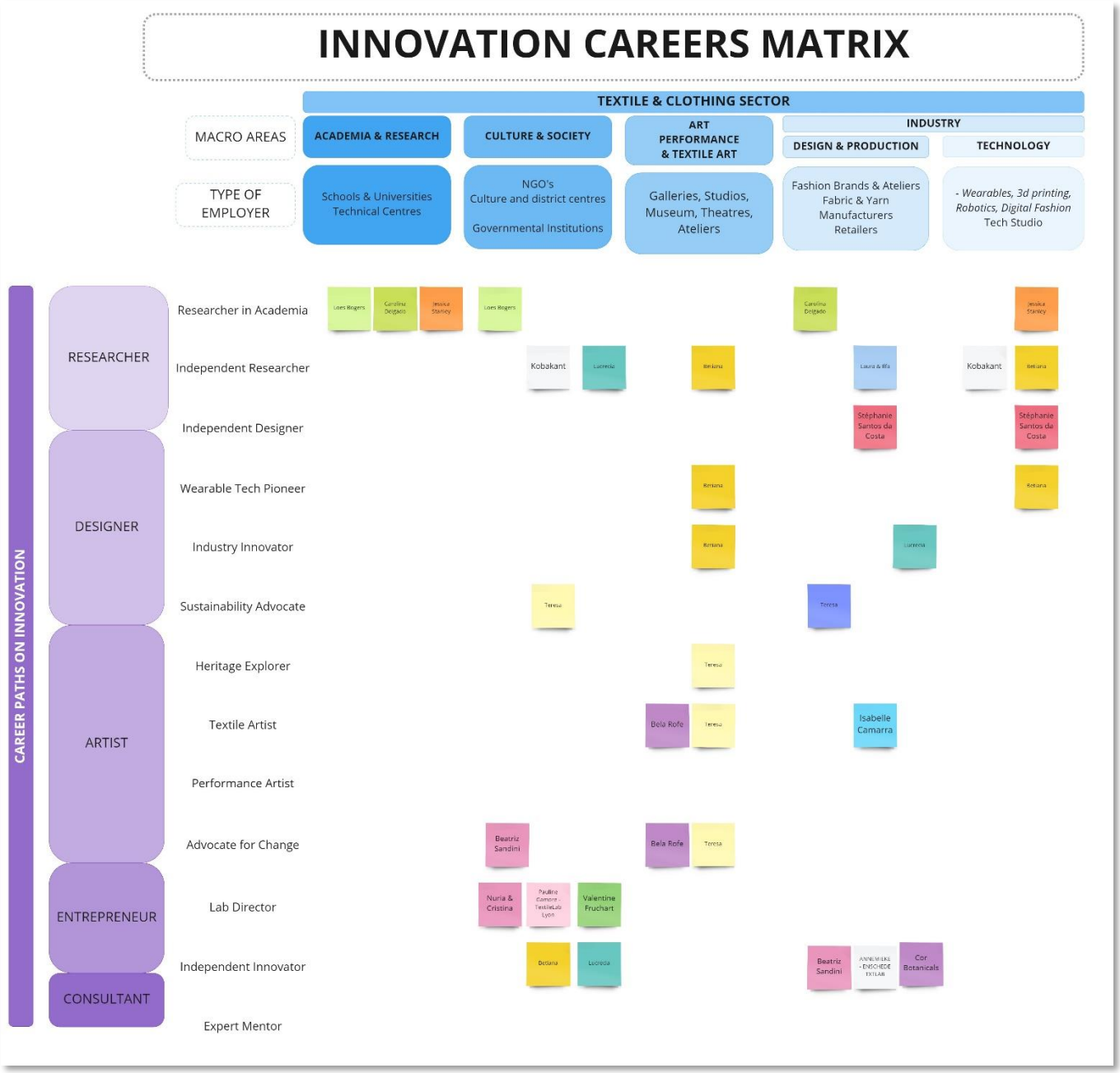

Figure 5.2: Innovation Career Matrix

2. **Research Technique**

Different formats and methodologies can fit the first phase of exploration with the target group. The main goal is to achieve in-depth qualitative data via a diverse multi-perspective group of individuals, extracting the widest range of possibilities of careers paths within the T&C sector.

The preferred research techniques will be:

a. Semi-structured one to one interviews,

b. Discussion with a focus group of individuals that share either the same type of work environment (columns on the chart) or similar job roles (rows)
c. Open-ended question survey, potentially applied to the institutions or business employing these women

From the definition of an initial number of women, each lab will conduct a first round of interviews to validate the topics mentioned in 5.3.3.3 Data Collection. Due to coronavirus pandemic restrictions, these interviews are likely to happen in an online environment. The recorded "zoom" sessions will allow deeper investigation of topics mentioned and also serve as content for feeding the description of the innovation path in the Fabricademy handbook.

3. Data Collection

In order to develop a research framework that should cover and fit a varied selection of women innovators, we crafted an initial set of areas of topics for analysis. These areas cover topics to analyse the profiles, motivations, needs & opportunities, employability, and experiences with gender inequality.

On the women innovator perspective:

- Profile
    - Demographics
    - Educational Background - Most relevant skills, tools, knowledge gained from Fabricademy or other educational path that had an impact on your profession of today
    - Professional Background - Career Path / Current Job position
- Motivational
    - What were the reasons that led you to an alternative/ /innovative learning journey?
    - If there was/is a change in career path, what made you interested in working with innovation?
- Needs & Opportunities
    - Reflecting back on your professional career development. What are areas of skills, expertise, knowledge etc… that you wished you were better equipped in?
    - Was there anything in your environment that you felt was enabling or enabled you somehow?
    - Were there other gaps you had to overcome?
    - What type of collaborations and activities could you imagine with Fabricademy and TCBL in the future? Is there anything we

could envision together? Would you be interested in…? (mention the identified activities)

- Employability
    - How did you perceive the reception from the market to the skill set you gained at Fabricademy or from the innovation activities proposed (above)?
    - How do you perceive opportunities for innovation in the T&C Sector now?
- Gender
    - Do you feel you are treated equally compared to men in your workspace? Is there gender balance in your organization?
    - Do you believe you have female qualities / attributes that were advantageous to reach your career position of today? If yes, which ones and why?

On the employer institution/ organization perspective:

- Definition of innovation
    - How would you define innovation in your organization ? How is innovation addressed in the organization?
    - Is there a process in place to incentivize innovation to flourish?
- Profile
    - What is the typical innovator profile in your organization ? What would your ideal profile be ? What is it going to be in 3/5/10 years from today ?
    - When recruiting for innovation, what are the main skills, expertise, knowledge looked for? Hard skills x Soft skills? Specialist or transdisciplinary?
- Sourcing
    - How and where do you find innovators ? What are the schools/networks you are currently working with and why ?
    - When recruiting for innovation, what are the challenges you face to source candidates ? Do you easily find skilled profiles ? Why ?
    - What do you expect from them in terms of results ?
    - How is the gender diversity / balance treated in the institution? What about intersectionality (precise if necessary) ?

- What are the barriers that women candidates might currently be facing to join your company ? Your innovation team ?

4. Outcome Analysis

In this phase, the labs will share and analyse their collected information on the initial possible careers path. This analysis will help to gain insight in the strengths, the needs, and missing skills of the women innovators. Simultaneously It will provide a deeper understanding of the needs and wants of businesses within the T&C sector in order to bridge the gap and foster future engagement.

The outcome will serve as input to further strengthen the enabling power of the labs and women innovators to fit the market reality.

The different paths will also give an understanding on how to better adapt to each of the 'routes to job', because every situation asks for a different set of solutions:

- from tech to creative: which process learning skills and creative skills are needed if a tech innovator wants to explore the creative industry?
- from creative to tech/systemic: which process learning skills and tech/systematic skills are needed if a creative innovator wants to explore the tech industry?
- from systematic/business to innovation: how can a business develop more innovation-driven products or processes?

During the months 5-8 an iterative process of adjustments on the research topics will be carried out. By the end of the M9, Waag, IAAC and Makesense will have researched the career path of at least 15 women innovators within the T&C sector.

5. Collection of extra activities for the Innovation Path and co-creation

The next step is to complete the Shemakes learning toolkit with specific content that will enable future women innovators. Depending on the Outcome Analysis, one could think of tools for business modelling, tools for marketing your ideas and how to present yourself on the job market, hands-on knowledge to write for funding etc. All the extra activities for the Innovation Path will be collected.

This first group of activities will be carried out on phase 2 by the initial 3 labs and additional 4 labs. The activities can be closely related to the ones happening on T3.4, business engagement, once that will focus on how to instigate and promote a fruitful network between labs & business.

6. Onboarding Labs in the creation of their own learning paths

6.1. Who are the 6 Labs?

Table 6.1: Short description of the 6 Labs

FAB LAB BARCELONA https://fablabbcn.org/ Core Team: Anastasia, Marion, Xavi	FAB LAB LEON https://www.fablableon.org/ Core Team: Nuria	MAKESENSE https://makesense.org/en/ Core Team: Sabrina
WAAG https://waag.org/en Core Team: Cecilia, Ista, Beatriz, Isabel	ONL'FAIT https://www.onlfait.ch/ Core Team: Cristina, Shannon	REDU http://www.redu.org.ro/ Core Team: Andrea, Elvys

6.2. Roadmaps of activities and partnerships

In parallel with the co-creation sessions dedicated to better know each other and co-design the learning approaches of shemakes.eu, IAAC has proposed some activities so as to onboard them in the design of their own activities. Firstly, they were briefly asked to think about some ideas of what they would like to do if they have to develop each learning path. Then, the minimal engagement for each lab was discussed so as to better operationalize the design of the paths, aligning their respective motivations and resources attributed for running the shemakes.eu project.

Table 6.2 presents the **minimal** engagement expected from each lab according to the description of action of the project.

Table 6.2: Minimal engagement to reach for each lab

IAAC	WAAG	LEON	REDU	ONLF	MAKE

15 girls in Curiosity 7/8 girls in Discovery 5 women defining innovation paths	5 women defining innovation paths	20 girls in Curiosity 7/8 girls in Discovery courses		15 girls in Curiosity activities 7/8 girls in Discovery	5 women defining innovation paths

Beyond those defined objectives, all labs have the opportunities to test other paths and activities according to their own internal resources and motivations. To have a global overview of activities developed by each lab, individual roadmaps were prepared to start envisioning and planning labs' activities.

Table 6.3 represents each roadmap. In blue are highlighted the mandatory paths while in grey, labs have defined optional path's activities they want to test.

Table 6.3: Individual roadmap for each lab

WP2 ROADMAP FOR LAB: IAAC			
	Objectives engagement	Activities to plan	Partnerships Stakeholders to engage
Curiosity	15 girls	*Biomaterial craftivism, demonstrate the processes and reflect of possible opportunities, applications, and barriers in biomaterials 20th of April. 1x3 hours activity. *Train the trainers with "Col.legi Montserrat" teachers. *Train the trainers with Poblenou "Pere Tarres" centre. Format: (13 teachers, informal education, duration 3h, 1h Fab Lab Barcelona tour, 1h30min, Biomaterial's introduction ,30 min reflective activities)	DHUB design museum Remix the School project Escola San Marti and/or Open call to other schools + Collaboration with Natzaret School network + Pere Tarres Foundation
Discovery	8 girls	Biomaterial making 16th of April. 1x3 hours activity. + Biolab and biology basics and work with living organisms for design. Textile dyeing with bacteria + coaching workshop of 2 hours date: 5th April + Textile contents in Centrinno schools and missions	DHUB design museum Open call to Elisava, Ied, esdi, Ici, Eadimoda + Collaboration with the Master in Design for Emergent Futures (IAAC and ELISAVA) +Partners of the Centrinno project

Innovation	5 women	Make and tell activity between alumni, potential applicants and the e-stitches community Possible Interviews/focus groups with other local women in TC	Fabricademy Barcelona alumni, + Links with Centrinno, La Fabrica, and Texans pel Clima, e-stitches community

WP2 ROADMAP FOR LAB: WAAG			
	Objectives of engagement	Activities to plan	Partnerships Stakeholders to engage
Curiosity	20+ girls	Co-design an extracurricular learning path focused on fashion/textile innovation for secondary school students	Montessori Lyceum Amsterdam (MLA)
Discovery	10+ women	Collaboration to offer Fabricademy packages to the university lecturers (teach the teachers)	University of Amsterdam (HvA) / Amsterdam Fashion Institute (AMFI)
Innovation	5 women	Exploratory Research to identify and empower career paths on innovation	Fabricademy alumni + exemplary women innovators part of the Lab local network

WP2 ROADMAP FOR LAB: LEON			
	Objectives of engagement	Activities to plan	Partnerships Stakeholders to engage
Curiosity	20 girls (split into 3 groups)	7 girls from 8-11 interactive monster (2x3h). 7 girls from 12-14 textile sensors & measuring data (2x3h) 7 girls from 15-18 bio dyes and biomaterials (6h)	MUSAC Pequeamigos Fab Lab Leon students? Pastorinas School Carmelitas HighSchool ABLE
Discovery	8 girls	Kombucha leather and biomaterials with Biotechnology students (16th April at the same time that BCN would work) 1x3	León University Biotechnology Association (ABLE)

		hours (Friday afternoon)	
Innovation			

WP2 ROADMAP FOR LAB: ONL'FAIT			
	Objectives of engagement	Activities to plan	Partnerships Stakeholders to engage
Curiosity	15 girls (split into 3 groups)	6 girls from 8-12 Voodoo Dolls activity (3h) 6 girls from 12-14 biomaterials (3 h) 3 girls from 15-18 textile sensors (12 hours on 2 days)	Local library Museum Mapping festival
Discovery	8 girls	Week of fashion and new technologies (5 days) SEMO weeks TBC workshop TECFA	HEAD Canton of Geneva TECFA
Innovation	1-3 women	Support 1-3 female designers in the context of the CENTRINNO project	CENTRINNO MACO Au fil du geste

WP2 ROADMAP FOR LAB: REDU			
	Objectives of engagement	Activities to plan	Partnerships Stakeholders to engage
Curiosity	15 girls	Doll making workshop, 8bit embroidery workshop Format - 3 hours workshop	Schools and High Schools from Iași
Discovery	10-15 ladies	Upcycling workshop (Renew your old clothes) through embroidery or natural dyes or basic sewing Format: 3 hours workshop (if we decide on a more complex content, we could extend to 2 days)	University of Arts "G. Enescu"-Iași , Technical University " Gh. Asachi" - Iași, Local community
Innovation	5 women	Local factory visit	

WP2 ROADMAP FOR LAB: MAKESENSE			
	Engagement	Activities to plan	Partnerships Stakeholders
Curiosity			
Discovery			
Innovation	5 women	Exploratory Research to identify and empower career paths on innovation	Fabricademy alumni + exemplary women innovators part of the Lab local network such as entrepreneurs developing innovative textile start-ups within our incubator, consultants such as Hallcouture and fashion brand leaders. consultants.

Those roadmaps represent emergent trajectories that will possibly change overtime when confronting realities of the following months.

6.3. Connecting with other WPs

WP2 (Learning Path) is strongly connected with other WPs, especially WP3 (innovation services) and WP4 (reputation management). Those three WPs are running in parallel and act as the core functions of the shemakes.eu project that are being structured and supported by other WPs.

While WP2 is envisioning, creating, developing, and testing the content of activities in collaboration with diverse stakeholders, WP3 is observing and proposing engagement strategies to better enable the environments in which the labs are evolving and look for creating new services to better sustain them in a more long-term perspective. The playground of WP2 are the instructors and learners while in WP3 the focus is on the LAB infrastructure. They are interdependent as the learning activities need infrastructures to be carried out and are at the same time objects of innovation services already deeply integrated in the existing models of labs.

On its side, WP4 is reflecting about the role-models that are shaping those new environments and is designing a new reputation model not only to showcase the diverse representations of women power in and beyond labs but is reflecting on the system of progress and recompenses existing behind learning experiences and such globally distributed educational programs. In WP4, Labs are working closely with Matrix to facilitate the identification of the role-models and define a selection and

onboarding process that fits with the values and motivations of labs and participants.

WP2 will also work with FLOD to align the template and content production with the overall communication strategy, with WP8 to align with ethic requirements as well as with WP5 to adopt an evaluation process for the learning paths in coherence with the overall approach.

7. Conclusion and outlook

The learning paths can be considered as an important fuel for the Shemakes ecosystems as they impulse knowledge exchange, self-empowerment and create synergies at local and global scale. It is hypothesized that learning by doing, people and particularly girls from the youngest age could better feel confident and appeal to take part in science, innovation, and entrepreneurship. With the curiosity, discovery and innovation paths, labs are experimenting new forms of partnerships and new formats adapted from the main course of Fabricademy that are aiming to motivate, understand and create new vocations. Through the document, we have explained the plan of WP2, how we onboarded in the projects thanks to online co-creation and give a first skeleton of activities that will be developed and tested in each lab.

From now on, the 6 labs will start their activities, applying their roadmaps and adjusting it to their context. Until September, they will document their activities with precaution in at least two ways: by creating activities that will be available in the handbook and by filling an evaluation of their path via a common form.

The first loop of experimentation will serve for testing and analyzing the various paths and for producing relevant contents that will be used in a second loop of experimentation with 12 transfer labs.

Beyond preparing this second round especially in making the toolkit accessible and consistent ,we will start defining the selection process of the transfer labs and create a dynamic for engagement through an open call. Core discussions will happen in coordination with the Shemakes partners, especially WP1 and WP4, to structure the relationships between the 6 Labs and 12 Transfer Labs and define the ambassadors as intermediate players in between labs. In that sense, Gurus and Ambassadors will run train the trainers' sessions and co-organize a distributed bootcamp where ambassadors will have the opportunity to travel to the transfer labs to facilitate the transmission of knowledge and desires of the new local nodes.

Through all those series of activities and learning experiences, we hope to consolidate the learning background of Fabricademy and to empower people to make, innovate and reflect with and beyond technologies. We want to better understand and sustain those emergent ecosystems of innovation and see how to foster the culture of inclusivity when facilitating such activities. We wish to find synergies to overcome the gender gap present in the existing T&C industry.

8. Document information

Revision History

Revision	Date	Author	partner	Description
V 1.0	22.02.2021	Marion Real	IAAC	First draft and table of contents
V 1.1	17.03.2021	Anastasia Pistofidou / Marion Real / Beatriz Sandini / Isabel Berentzen / Cecilia Raspanti / Cristina Olivotto / Nuria Robles / Andreea Spataru	IAAC,WAAG, ONLF, LEON, REDU	Second draft and table of contents
V 1.2	22.03.2021	Anastasia Pistofidou / Marion Real	IAAC	Third draft with reviewers comments
V 1.3	25.03.2021	Anastasia Pistofidou / Marion Real	IAAC	Fourth draft with reviewers comments
V 1.4	31.03.2021	Marion Real	IAAC	Final Version

Statement of Originality

This deliverable contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation, or both.

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9. Glossary

This glossary introduces new terminology to frame the learning approach of Shemakes.

Activity: an activity is a specific workshop or event organized by a lab. It can be part of a specific class, integrated in a path. It can target a specific group with a specific topic and promote a specific set of skills. Some instructions on how to prepare, run and reflect the activities will be produced so they can be replicated.

Assessment Rubric: an assessment tool that enables judgements to be made about how well the shemakes.eu participants achieve the intended learning outcomes.

Challenge: The challenge is used as an efficient and effective framework for learning while solving real-local issues (Johnson, L. et al, 2009). It also helps participants gain deep topic area knowledge and develop the skills necessary to thrive in an ever-changing world.

Co-Creation: Co-creation is a non-linear process that involves multiple stakeholders and actors in the ideation, implementation and assessments of products, services, policies, and

systems with the aim of improving their efficiency and effectiveness and the satisfaction of those who take part in the process (Real, 2019)

Documentation: Documentation allows learners in any of the pathways to participate in their learning processes (Tolisano, 2018). Documenting involves more than supporting learning by providing visible evidence. It requires accessing and reflecting on one's own learning processes and articulating what is taking place throughout a learning journey (pathway). There are three documenting learning types:

- **Documentation OF learning** focuses on displaying artifacts: What did the learner do? What is the result of the learning?
- **Documentation FOR learning** focuses on interpretation of artifacts: Why do I accept this artifact as evidence of my learning progress? How could someone else learn from my failures and successes?
- **Documentation AS learning** focuses on the learning process involved in capturing and reflecting on artifacts: What is worthy of capture during a learning opportunity? How can I convey my thinking visibly and audibly using media platforms and tools?

Fabricademy: It is an educational distributed program that explores the interrelation of human-technology-environment through the notions of embodiment, materiality, eco-design, biodesign, performance, smart textiles, and digital fabrication. It offers a broad overview of the state of the art of the current industry and builds on "learning by doing" methodologies, tackling themes like personal fabrication, distributed manufacturing, industry 4.0 wearable technology, bio fabrication, assistive technologies, and sustainability. https://textile-academy.org/

Gradual Release of Responsibility: The gradual release of responsibility (GRR) model is a particular style of teaching which is a structured method of pedagogy framed around a process devolving responsibility within the learning process from the teacher to the eventual independence of the learner. This instructional model requires that the teacher, by design, transitions from assuming "all the responsibility for performing a task...to a situation in which the students assume all of the responsibility".[1] The ideal result is a confident learner who accepts responsibility for their own learning and directs this learning through the cognitive processes involved, moving through the academic spectrum, to independent choice (personalised learning). As Buehl (2005) stated, the GRR model "emphasizes instruction that mentors' students into becoming capable thinkers and learners when handling the tasks with which they have not yet developed expertise".[2] (Wikipedia)

Hybrid Learning: Hybrid Learning is an educational approach where some individuals participate in person and some participate online. Instructors and facilitators teach remote and in-person learners at the same time using technology like video conferencing.

Lifelong Learning: Lifelong Learning captures the seemingly simple idea that to flourish in the contemporary world humans need to learn significantly across the different phases of their lifespan (Hager, 2012). Learning does not only happen in educational systems but at any time in life at any place through experiences. Learning is an ongoing process based on the attitude

and pursuit of an entity being curious to learn. This may come in many forms and may change over the duration of time; however, the constant is the motivation to gain knowledge.

Maker-Centred Learning: Maker-centred learning (MCL) is a learner-centred pedagogy that aims to return the prominence to students, making them responsible for their own learning. Working on maker projects, students learn to think for themselves, to research and learn from their mistakes and successes acquiring a deeper knowledge through active exploration of real-world challenges and problems (Edward, 2016). It is a style of active learning and inquiry-based learning. Each of the Shemakes pathways is designed under this approach. The primary and secondary benefits associated with Maker-Centred Learning (Edward, 2016) are based on developing learner agency (stuff-making, community building), building character (self-making), fostering the development of knowledge and skills within the relevant Shemakes subjects, maker-specific tools, technologies, processes, and practices.

Module: A module is a class as actually defined in the Fabricademy program. It contains a set of activities to reach theoretical and practical knowledge on a specific topic with associated skills. From now on there is one module by topic. In the Fabricademy handbook, it is now framed as a weekly course describing the program outline, necessary tools/software, materials, assignment, evaluation and assessment, references. Here the main ones:

- **WELCOME: State of the art:** This module is about Fabricademy´s mission, vision, portfolio, and best practices. It also presents the overall course and welcomes the new participants and labs. The task of the week is to create a personalized webpage using git in the digital space that is provided to the participants.
- **Digital Bodies:** This module is about the concept of the Body in fashion, in art and in sculpture, showing emerging technologies of digital tailoring, scanning, and introducing the participants to the whole range of technologies found in the lab. The task of the week is to learn how to 3D scan, to get introduced to 3D modelling and to fabricate a mannequin using the laser cutter.
- **Circular Open-Source Fashion:** Focusing on alternative systems such as circular fashion, agile fashion, open value chains, zero waste patterns, this class will teach you how to design and fabricate modular textile elements that can be laser cut and shared on a common platform. The task of the week is to learn how to 2D design, learn different types of fabrics, laser cut a pattern and upload it on an open-source platform.
- **Biochromes:** This module is about textile dyeing techniques using natural dyes, crafting pigments and inks as well as learning basic microbiology and biolab tools and safety rules for textile bacteria dyeing. The task of the week is to produce natural dyes, inks, pigments, and bacterial dyes.
- **E-textiles:** In this module participants get to learn the materials for e-textile and wearables applications. They get introduced to basic programming with Arduino. The task of the week is to create swatches of soft sensors, hard-soft connections, and program at least one analogue and one digital sensor, using conductive fabrics and threads.

- **BioFabricating Materials:** Participants are introduced to crafted and grown biomaterials, open recipes for material making and inspirational best practices. The task of the week is to produce at least one crafted and one grown material and document their recipes.
- **Computational Couture:** Participants are introduced to the concept of parametric design, the creation of systems, rather than products. They use 3d modelling software and parametric design software to design and learn about 3D printing with a focus on textile applications. The task of the week is to design in 3D using parametric design and learn how to 3d print.
- **Open-source Hardware- from fibres to fabric:** Reinventing the textile industry requires reinventing materials, processes, and tools. In this module participants are introduced to textile processes from fibres to fabrics, such as weaving, knitting, sewing, felting etc… and to open-source tools easily fabable and try to create new tools, hack, or restore existing machines to support innovative p
- **Textile as Scaffold:** Looking into technical textiles and applications in architecture, Geotech and composites this module explores techniques of solidification, fabric formwork, leather melding, crystallization, composites, and bio composites to widen the spectrum of textile applications. The task is to 3D model and learn CAD to CAMM technologies with the scope to create molds for composites using CNC milling machines.
- **Wearables:** Building on the module of e-textiles, this module deepens the knowledge of programming inputs and outputs using soft and conductive materials for wearable applications and interactive garments. The task is to learn different outputs and create swatches combining both inputs and outputs.
- **Implications and applications:** During this week participants are introduced to emerging scenarios and applications in the textile sector and beyond. They called to start working on their final project proposal that they will be developing from January to March. They will pitch their proposal in the format of a presentation or a video of 5' maximum. Recent developments in electronics, software programming and service design are shaking the current notions of what a textile is.
- **Soft Robotics:** Unlike rigid robots we are mostly used to, soft bodied robots have similarities and performance characteristics like living organisms or the human body. This module is inspired by biomimicry and it investigates soft actuators, sensors and grippers using novel materials, artificial muscles, and performative locomotion design.
- **Skin electronics:** Inspired by invisible computing, augmenting human capabilities and magic of interacting, this class proposes novel ways of interacting with the world. The focus is on Katia Vega´s Beauty Technology, a wearable computing subfield that integrates technology into cosmetics to be applied directly to one's skin, fingernails, and hair to transform the body's surface in an interactive platform.
- **Project Pitch.** Students are asked to present their projects while being introduced to the techniques of storytelling and confront a real jury that will help them to better

structure their presentations, improve the quality of their projects and connect them with relevant people from their network.

Package: A package is a set of classes that bring knowledge in one specific area of knowledge of the Fabricademy course. Four packages are existing now on: Sustainability, Wearable Technology, Industry 4.0, Textile Narratives.

Pathway: A learning pathway (path) is a route taken by a learner (any of the target groups) through a range of activities, which allows him/her to build knowledge progressively (Clement, 2000) and develop part or all the skills and competencies defined in the Shemakes project. In Shemakes, learners will be able to follow three types of pathways - curiosity / discovery / innovation. Labs will pick-up or design their activities, modules, and programmes to better support each learner in their respective pathway of learning. The Shemakes toolkit will provide a set of activities and modules for each path so labs can better structure their own proposals, as well as a guideline for teachers, facilitators and curriculum developers.

Personal Project Development: Participants focus on individual in-depth applied project research, employing critical thinking, hard and soft skills for the development of innovative solutions. It is structured on bi-weekly reviews and focus-group

Skill: Skill is the expertise or the ability to do something well. The Encyclopaedia of the Sciences of Learning suggests that a skill is "an overlearned behavioural routine resulting from practice" (Seel, 2012). Skills are increasingly divided into categories such as basic or higher; or as 'behavioural and social', 'technical' or 'creativity and critical thinking'; or as 'academic' or 'vocational'. Basics of coding, 2D and 3D design, use of electronic circuits for data collection, digital fabrication for prototyping artefacts, moulding, and casting with biomaterials are some of the technical skills covered during the Shemakes learning program. Beyond technical skills, Shemakes approach permits learners to develop soft skills which are largely non-cognitive and social such as creativity, problem-solving, critical thinking. These are frequently used by employers as a near synonym for competencies or transversal skills.

STEAM: STEAM is an educational and innovation framework bringing science, technology, engineering, and mathematics together with the arts/other disciplines (STEM + Art=STEAM or S-TEAM). The STEAM framework also aims to bring together all types of learners with the goal of being more engaging, creative, and naturally successful for all members of any educational system, formal or informal. We need to add "Art" to turn STEM into STEAM.
Artists and designers make information more understandable, products more desirable, and new inventions possible through the project-based inquiry that has long been practised in the art studio (Maeda, 2013).

10. References

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Hager P.J. (2012) Lifelong Learning. In: Seel N.M. (eds) Encyclopaedia of the Sciences of Learning. Springer, Boston, MA. DOI: 10.1007/978-1-4419-1428-6_164.

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Ling, T. (2012) "Evaluating complex and unfolding interventions in real time" Evaluation, 18(1), pp 79-91. Maeda, J. (2013) "STEM + Art = STEAM," The STEAM Journal: Vol. 1: Iss. 1, Article 34. DOI: 10.5642/steam.201301.34, Available at: http://scholarship.claremont.edu/steam/vol1/iss1/3

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Seel, N.M. (2012 "Skill", Encyclopaedia of the Sciences of Learning. Springer, Boston, MA. https://doi.org/10.1007/978-1-4419-1428-6_3254

Tolisano, S. R., & Hale, J. A. (2018). A guide to documenting learning: Making thinking visible, meaningful, shareable, and amplified. Thousand Oaks, CA: Corwin.

Websites

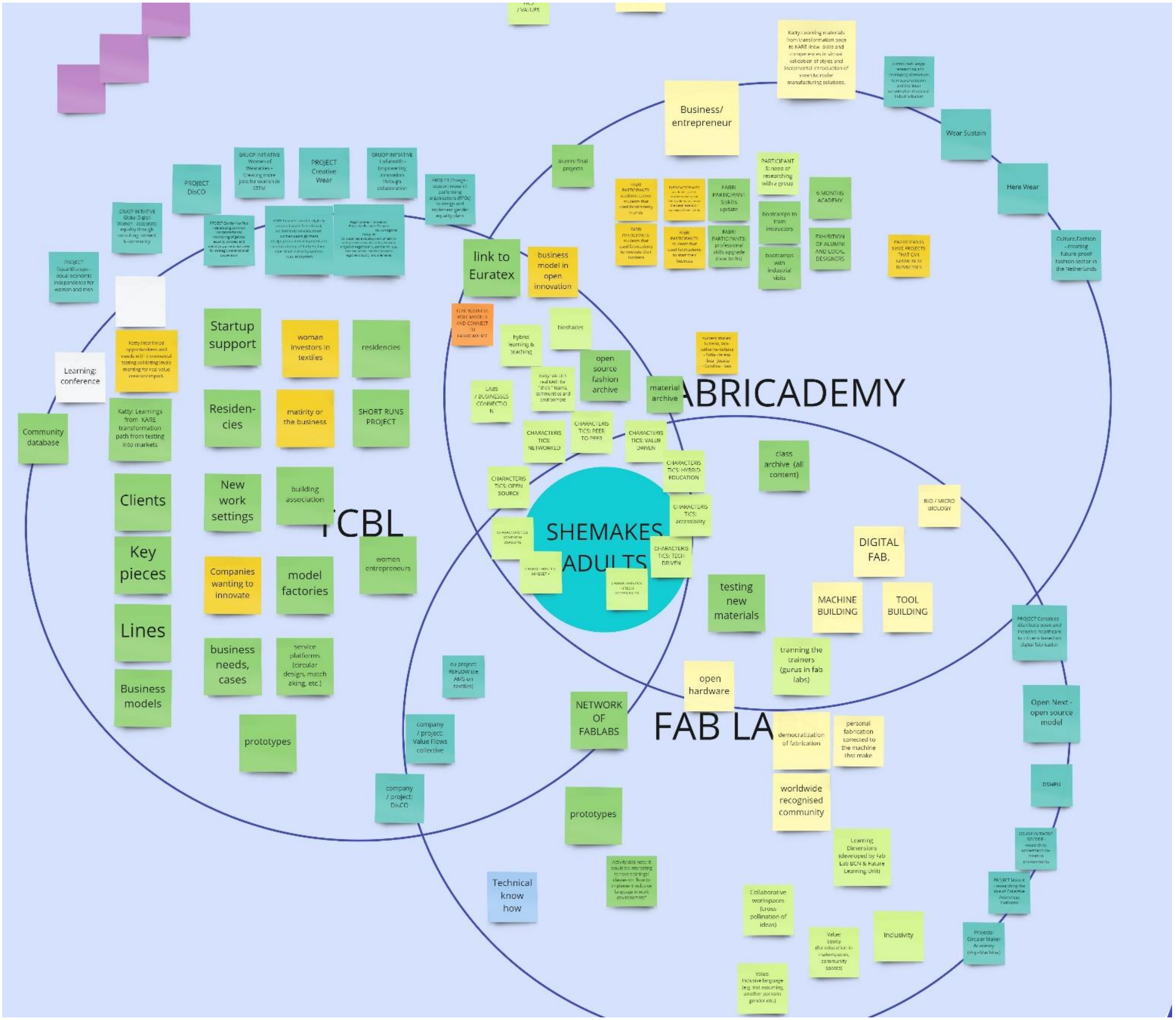
https://www.bbc.co.uk/newsround/49405357

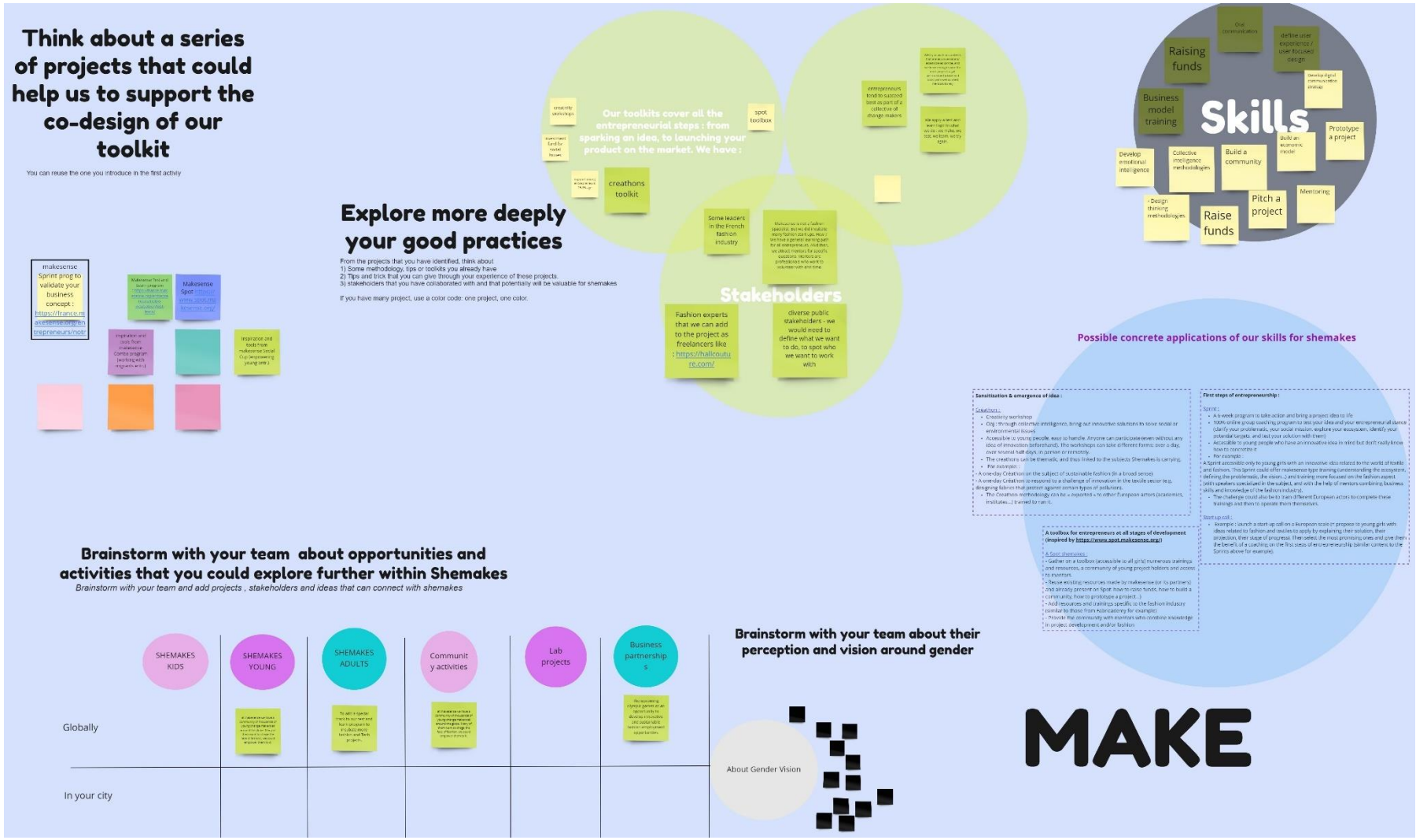
https://digital.hbs.edu/platform-rctom/submission/adidas-revolutionizing-the-supply-chain-with-speedfactory/

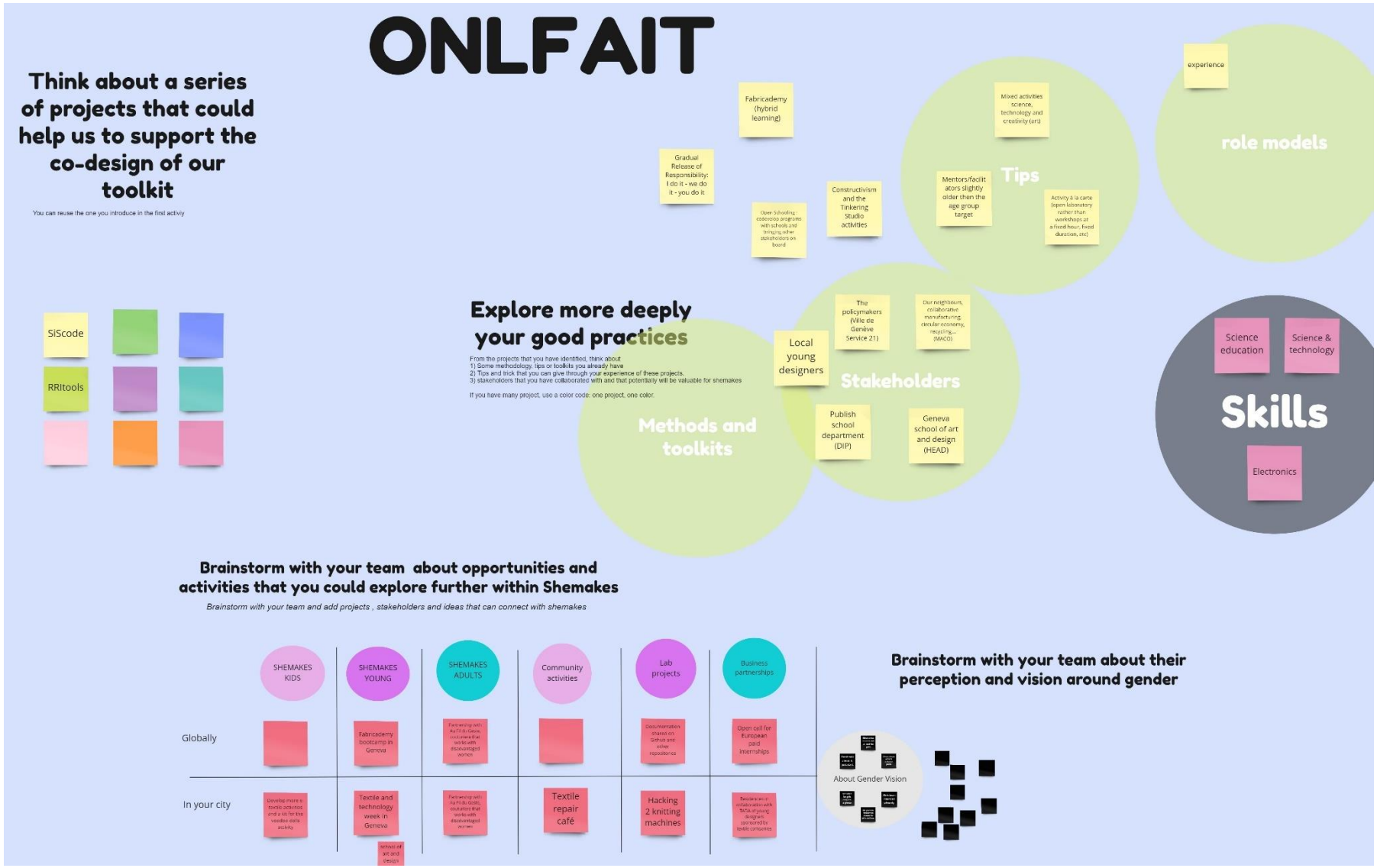
https://ec.europa.eu/environment/industry/retail/pdf/issue_paper_textiles.pdf

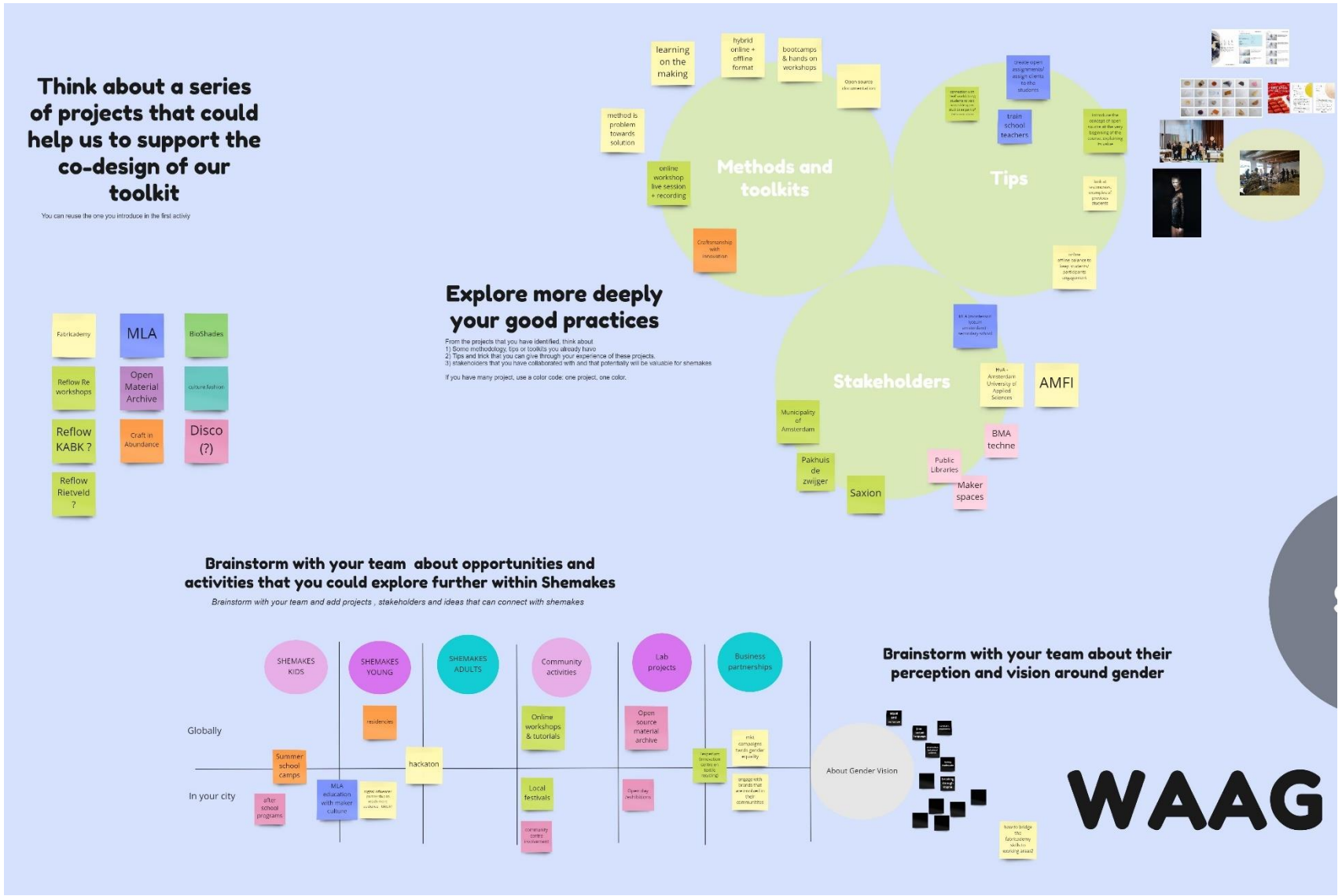
11. Annex

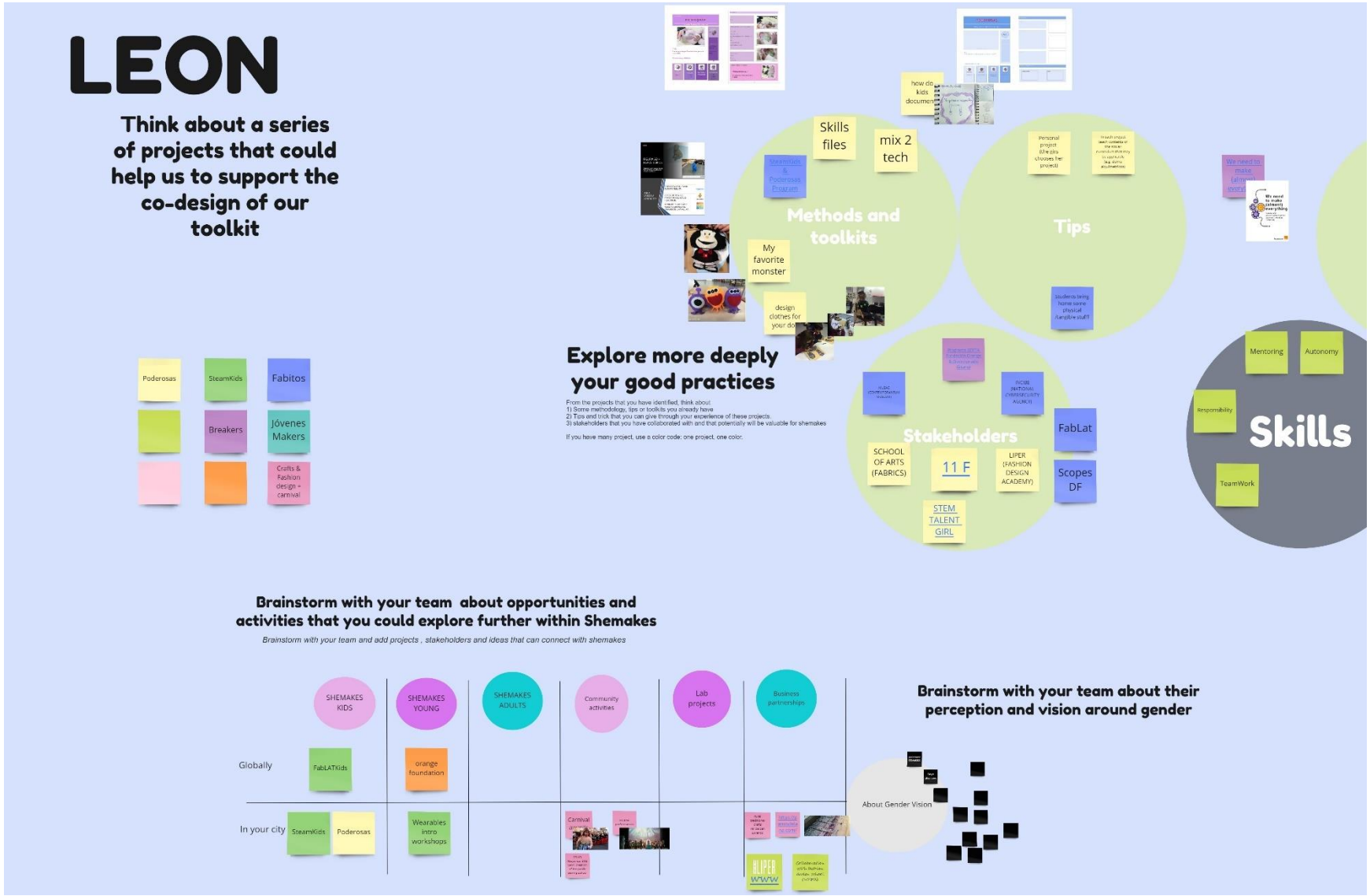
The annex document contains some Miro board extraction: an example of the first brainstorming session with all partners for the Innovation path and the extraction of individual lab's sections in Miro.

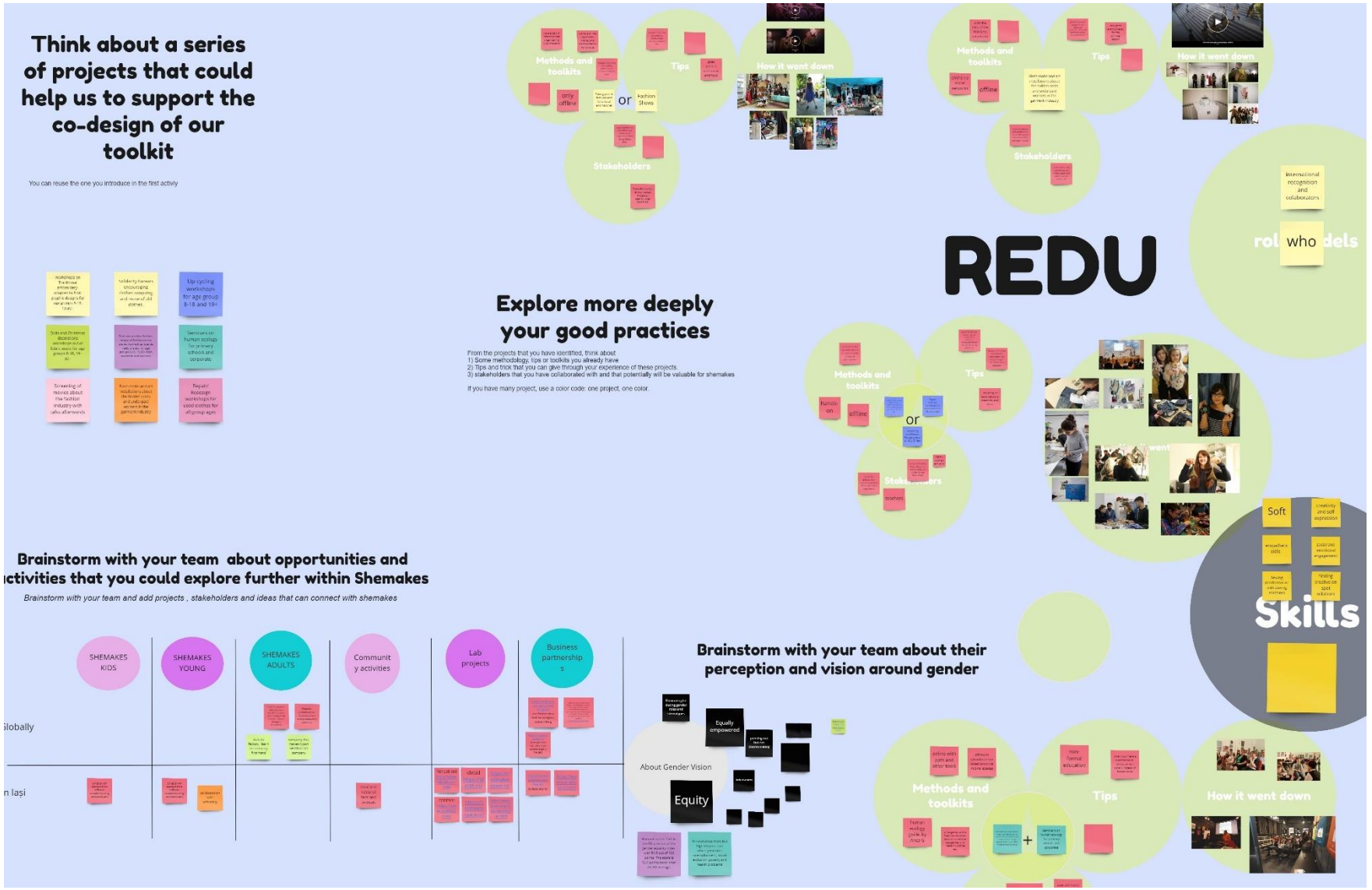

Business/ entrepreneur
Wear Sustain
Here Wear
PROJECT DisCO
PROJECT Creative Wear
alumni final projects
link to Euratex
business model in open innovation
biohacks
hybrid learning & teaching
open source fashion archive
material archive
ABRICADEMY
6 MONTHS ACADEMY
EXHIBITION OF ALUMNI AND LOCAL DESIGNERS
bootcamps with industrial visits
Startup support
woman investors in textiles
residencies
Learning: conference
Community database
Katty: Learnings from KARE transformation path from testing into markets
Residen- cies
matirity or the business
SHORT RUNS PROJECT
Clients
Key pieces
Lines
Business models
New work settings
building association
TCBL
Companies wanting to innovate
model factories
women entrepreneurs
business needs, cases
service platforms (circular design, match aking, etc.)
prototypes
SHEMAKES ADULTS
class archive (all content)
BIO / MICRO BIOLOGY
DIGITAL FAB.
testing new materials
MACHINE BUILDING
TOOL BUILDING
tranning the trainers (gurus in fab labs)
open hardware
NETWORK OF FABLABS
FAB LA
democratization of fabrication
personal fabrication conected to the machine that make
worldwide recognised community
company / project: Value Flows collective
company / project: DisCO
prototypes
Technical know how
Open Next - open source model
Learning Dimensions developed by Fab Lab BCN & Future Learning Units
Collaborative workspaces (cross pollination of ideas)
Inclusivity

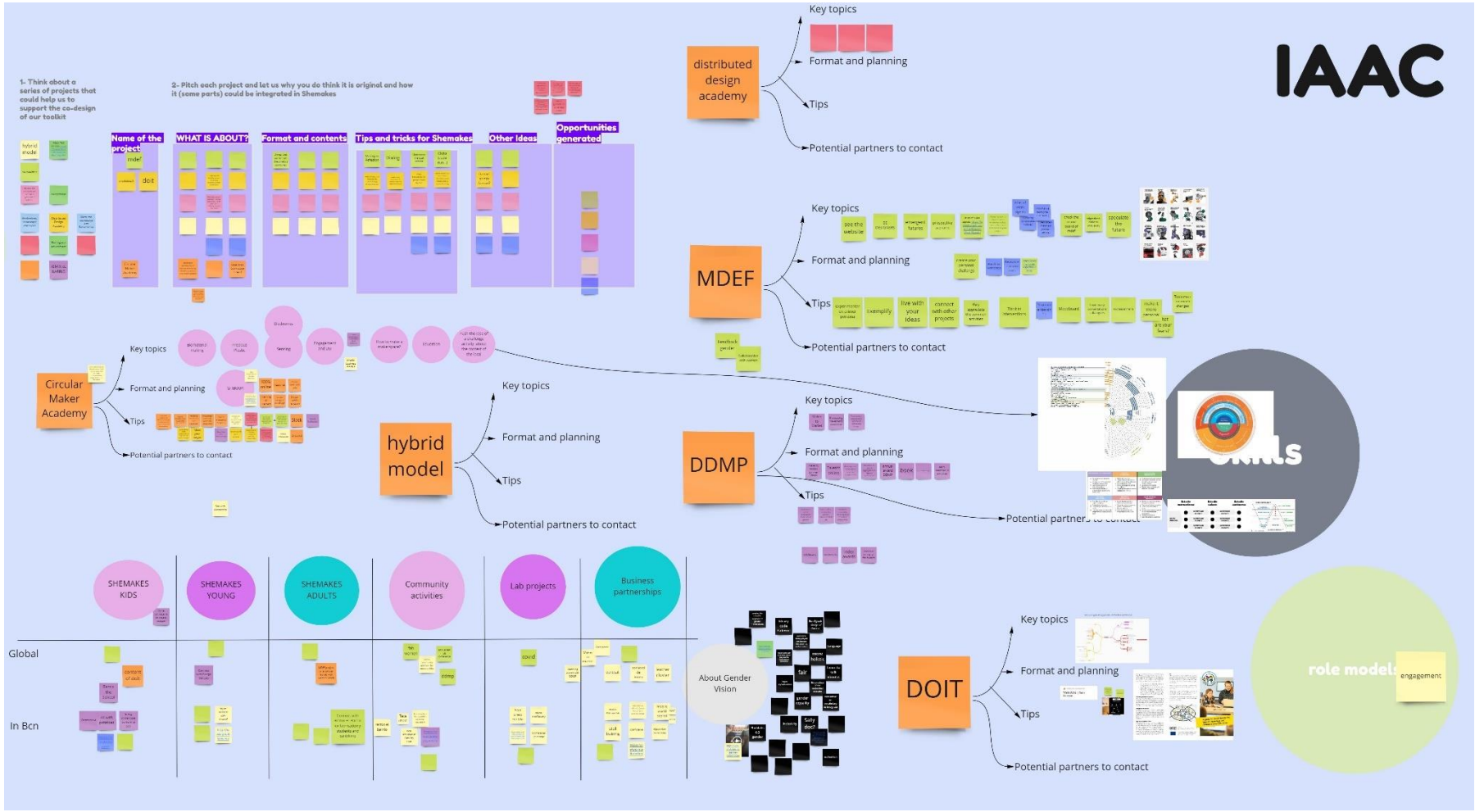

Think about a series of projects that could help us to support the co-design of our toolkit
You can reuse the one you introduce in the first activity
Our toolkits cover all the entrepreneurial steps : from sparking an idea, to launching your product on the market. We have :
spot toolbox
creathons toolkit
Explore more deeply your good practices
From the projects that you have identified, think about
1) Some methodology, tips or toolkits you already have
2) Tips and trick that you can give through your experience of these projects.
3) stakeholders that you have collaborated with and that potentially will be valuable for shemakes
If you have many project, use a color code: one project, one color.
Some leaders in the French fashion industry
Stakeholders
Fashion experts that we can add to the project as freelancers like : https://malicoutu re.com/
diverse public stakeholders - we would need to define what we want to do, to spot who we want to work with
Skills
Raising funds
Business model training
Develop emotional intelligence
Collective intelligence methodologies
Build a community
Pitch a project
Raise funds
Mentoring
Prototype a project
Possible concrete applications of our skills for shemakes
Brainstorm with your team about opportunities and activities that you could explore further within Shemakes
Brainstorm with your team and add projects , stakeholders and ideas that can connect with shemakes
SHEMAKES KIDS
SHEMAKES YOUNG
SHEMAKES ADULTS
Communit y activities
Lab projects
Business partnership s
Globally
In your city
Brainstorm with your team about their perception and vision around gender
About Gender Vision
MAKE


ONLFAIT
Think about a series of projects that could help us to support the co-design of our toolkit
You can reuse the one you introduce in the first activiy
Fabricademy (hybrid learning)
Gradual Release of Responsibility: I do it - we do it - you do it
Constructivism and the Tinkering Studio activities
Tips
Mixed activities science, technology and creativity (art)
Mentors/facilitators slightly older then the age group target
Activity à la carte (open laboratory rather than workshops at a fixed hour, fixed duration, etc)
experience
role models
SiScode
RRItools
Explore more deeply your good practices
From the projects that you have identified, think about
1) Some methodology, tips or toolkits you already have
2) Tips and trick that you can give through your experience of these projects.
3) stakeholders that you have collaborated with and that potentially will be valuable for shemakes
If you have many project, use a color code: one project, one color.
Methods and toolkits
Local young designers
The policymakers (Ville de Genève Service 21)
Our neighbours, collaborative manufacturing, circular economy, recycling... (MACO)
Stakeholders
Publish school department (DIP)
Geneva school of art and design (HEAD)
Science education
Science & technology
Skills
Electronics
Brainstorm with your team about opportunities and activities that you could explore further within Shemakes
Brainstorm with your team and add projects , stakeholders and ideas that can connect with shemakes
SHEMAKES KIDS
SHEMAKES YOUNG
SHEMAKES ADULTS
Community activities
Lab projects
Business partnerships
Globally
In your city
Fabricademy bootcamp in Geneva
Open call for European paid internships
Textile and technology week in Geneva
Textile repair café
Hacking 2 knitting machines
Brainstorm with your team about their perception and vision around gender
About Gender Vision


Think about a series of projects that could help us to support the co-design of our toolkit
You can reuse the one you introduce in the first activity
learning on the making
hybrid online + offline format
bootcamps & hands on workshops
method is problem towards solution
online workshop live session + recording
Craftsmanship with innovation
Methods and toolkits
train school teachers
Tips
Explore more deeply your good practices
From the projects that you have identified, think about
1) Some methodology, tips or toolkits you already have
2) Tips and trick that you can give through your experience of these projects.
3) stakeholders that you have collaborated with and that potentially will be valuable for shemakes
If you have many project, use a color code: one project, one color.
Fabrikademy
MLA
BioShades
Reflow Re workshops
Open Material Archive
Reflow KABK ?
Craft in Abundance
Disco (?)
Reflow Rietveld ?
Stakeholders
AMFI
Municipality of Amsterdam
BMA techne
Pakhuis de zwijger
Public Libraries
Saxion
Maker spaces
Brainstorm with your team about opportunities and activities that you could explore further within Shemakes
Brainstorm with your team and add projects , stakeholders and ideas that can connect with shemakes
SHEMAKES KIDS
SHEMAKES YOUNG
SHEMAKES ADULTS
Community activities
Lab projects
Business partnerships
Globally
In your city
residencies
Summer school camps
hackaton
after school programs
MLA education with maker culture
Online workshops & tutorials
Local festivals
Open source material archive
Brainstorm with your team about their perception and vision around gender
About Gender Vision
WAAG


LEON
Think about a series of projects that could help us to support the co-design of our toolkit
Skills files
mix 2 tech
Methods and toolkits
Tips
My favorite monster
Explore more deeply your good practices
From the projects that you have identified, think about
1) Some methodology, tips or toolkits you already have
2) Tips and trick that you can give through your experience of these projects.
3) stakeholders that you have collaborated with and that potentially will be valuable for shemakes
If you have many project, use a color code: one project, one color.
Poderosas
SteamKids
Fabitos
Breakers
Jóvenes Makers
Crafts & Fashion design + carnival
Stakeholders
SCHOOL OF ARTS (FABRICS)
11 F
LIPER (FASHION DESIGN ACADEMY)
FabLat
Scopes DF
STEM TALENT GIRL
Skills
Mentoring
Autonomy
Responsibility
TeamWork
Brainstorm with your team about opportunities and activities that you could explore further within Shemakes
Brainstorm with your team and add projects , stakeholders and ideas that can connect with shemakes
SHEMAKES KIDS
SHEMAKES YOUNG
SHEMAKES ADULTS
Community activities
Lab projects
Business partnerships
Globally
FabLATKids
orange foundation
In your city
SteamKids
Poderosas
Wearables intro workshops
Carnival
Brainstorm with your team about their perception and vision around gender
About Gender Vision


Think about a series of projects that could help us to support the co-design of our toolkit
You can reuse the one you introduce in the first activity
Methods and toolkits
Tips
How it went down
Stakeholders
or
Explore more deeply your good practices
From the projects that you have identified, think about
1) Some methodology, tips or toolkits you already have
2) Tips and trick that you can give through your experience of these projects.
3) stakeholders that you have collaborated with and that potentially will be valuable for shemakes
If you have many project, use a color code: one project, one color.
REDU
Brainstorm with your team about opportunities and activities that you could explore further within Shemakes
Brainstorm with your team and add projects , stakeholders and ideas that can connect with shemakes
SHEMAKES KIDS
SHEMAKES YOUNG
SHEMAKES ADULTS
Communit y activities
Lab projects
Business partnership s
Brainstorm with your team about their perception and vision around gender
About Gender Vision
Equally empowered
Equity
Skills
Soft


1- Think about a series of projects that could help us to support the co-design of our toolkit
2- Pitch each project and let us why you do think it is original and how it (some parts) could be integrated in Shemakes
Name of the project
WHAT IS ABOUT?
Format and contents
Tips and tricks for Shemakes
Other ideas
Opportunities generated
IAAC
distributed design academy
Key topics
Format and planning
Tips
Potential partners to contact
MDEF
Key topics
Format and planning
Tips
Potential partners to contact
Circular Maker Academy
Key topics
Format and planning
Tips
Potential partners to contact
hybrid model
Key topics
Format and planning
Tips
Potential partners to contact
DDMP
Key topics
Format and planning
Tips
Potential partners to contact
SHEMAKES KIDS
SHEMAKES YOUNG
SHEMAKES ADULTS
Community activities
Lab projects
Business partnerships
Global
In Bcn
About Gender Vision
DOIT
Key topics
Format and planning
Tips
Potential partners to contact
role models
engagement