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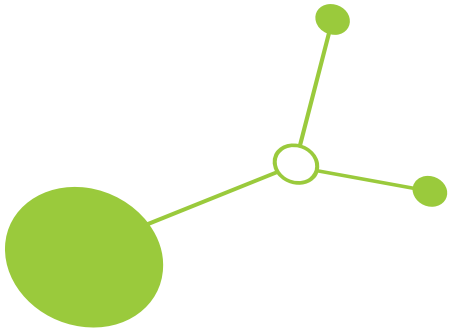
SYMCRAFT

SYMCRAFT PROJECT



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Pilot action report and prototype/digital twin of products from re-use of industrial wastes

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TABLE OF CONTENTS

1. EXECUTIVE SUMMARY 4
2. INTRODUCTION AND BACKGROUND 5
3. DESCRIPTION OF THE PILOT 6
4. METHODOLOGY OF IMPLEMENTATION 8
5. LIST OF POTENTIAL COMPANIES FOR COLLABORATION 10
6. PILOT ACTION 1: ANALYSIS OF THE LOCAL ACTIVITIES 13
7. SUM UP AND MAIN FIGURES FROM THE LOCAL PILOT ACTIONS 19
8. PILOT ACTION 1: TRANSBORDER ACTIVITIES CARRIED OUT 25
9. LIST OF POTENTIAL COLLABORATIONS ESTABLISHED 29
9.1 Sector Agri-Food 30
9.2 Sector Wood&Furniture 36
9.3 Sector Textile 38
10. LESSON LEARNT AND FOLLOWING STEPS 43
11. ANNEXES 48

LIST OF FIGURES

Figures 1: WP2 - Promoting the collaborations and symbiosis between industries and handicraft sectors, pilot action plan - introduction, (presentation, page 6) 7
Figures 2: Overview about the compagnies/institutions from the Agri-Food-sector 10
Figures 3: Overview about the partners from the Textile-sector 11
Figures 4: Overview about the partners from the Wood&Furniture-sector 12
Figures 5: Presentation of biogas fibres in Braunschweig (DE-5) 15
Figures 6: Co-Creation workshop 03.12.2025, Technology Park Ljubljana (SI-2) 17
Figures 7: Co-Creation workshop Wood&Furniture, 03.11.2025, Treviso (IT-1) 19
Figures 8: Meeting in Bratislava 29

Figures 9: MAGAVERDE - Fibers from digestate to paper products (DE-1) 34
Figures 10: hemp leafs (hemp-leafline) for feed-production) (DE-2) 34
Figures 11: coffee ground, mushrooms growing block (HU-1) 35
Figures 12: Bakery product based on residues of pumpkin seed oil production (HU-2) 35
Figures 13: Products based on wooden (IT 5 -left) and polymer material (IT- 4 - right) 37
Figures 14: Products based on fabric scraps (AT 2) 42
Figures 15 An example of a Wool sitting pad from Bela krajina (SI-2) 43
Figures 16 Textile toys (SK-5) 43
Figures 17 Backpacks and bags made from tarpaulins (CZ-4) 43

LIST OF TABLES

Table 1: Description of the steps in PA1 9
Table 2: 7 Co-creation workshops in the Agri-Food-sector 13
Table 3: 9 Co-creation workshops in the Textile-sector 16
Table 4 2 Co-creation workshops in the Wood&Furniture-sector 18
Table 5 The transnational Meetings – Overview 24
Table 6: Overview of companies and materials of collaborations in the Agri-Food sector 30
Table 7: Overview of products and the status of collaborations in the Agri-Food sector 32
Table 8: Overview of companies and materials of collaborations in the Wood&Furniture sector 36
Table 9: Overview of companies and materials of collaborations in the Textile sector 39

1. EXECUTIVE SUMMARY

Pilot Action 1 is part of Work Package 2 (WP2). It aims to test the service portfolio (Act. 2.1) by establishing partnerships between industry and artisans in order to recover residues/waste from production processes and develop new products and services.

Pilot action 1 was prepared and divided into 3 steps:

a) Each Project area (totally 8) will involve 20 SMEs and/or artisans each . **We now have 181 Companies involved**.
b) With the support of a common methodology and the service-portfolio developed at project level (Act 2.1), establishment of tandem collaboration (5 collaborations per area) at local level between artisans and industry to develop the products with the elaboration of feasibility plans; **More than 40 tandems were developed.**
Local workshops at the local level to identify the specific needs and technical expertise of the participating SMEs and contributed to establish the 40 tandems. **18 co-creation workshops carried out.**

c) Thanks to transborder working groups (3 - one for each industrial tropic) and the use of the toolkit, estimated 40 collaborations (5 collaborations per area) will develop or a prototype/digital twin from the re-use/recycling of waste from textile, agri-food and wood&furniture sector by the handicraft sector or a feasibility study. **40 collaborations are established.**

At transborder level, pilot project will also include:

d) Using the SYMCRAFT service portfolio, particularly the tool related to identifying possible opportunities to valorize wastes or residues from industrial production thanks to the cooperation with artisans and Cultural and Creative Industries (CCI).
e) Transnational meetings for each sector to exchange knowledge and define activities and monitoring tools. **Three transnational sets of meetings (wood&furniture; textile; agri-food) took place.**

The activities carried out in the frame of the pilot n.1, both at local and transnational level demonstrate that there are numerous opportunities for waste reduction and a circular economy.
In this process, representatives from ministries, government agencies, chambers of commerce and industry, chambers of skilled crafts and economic development agencies were also involved. Representatives from science and research were also included in many events.

Several topics repeatedly emerged and discussed at the events: access to materials, marketing and sales, models of collaboration, price pressure, staffing and succession planning, legal and bureaucratic hurdles.
In addition, at legal level, there are specific requirements in the sectors. For example food safety regulations, which entails significant limitations and difficulties regarding cooperation.
The next steps are the continuation of pilot actions 2, 3 starting from the partnership established and the prototype/feasibility study implemented:

- Act 2.3: Developing eco-business models for handicraft products/services from industrial waste - Pilot Action n.2
- Act 2.4: Models of cooperation between industry and the handicraft sector to reuse industrial waste - Pilot Action n.3

The assessment of the 3 pilot actions will see the finalization of the SYMCRAFT service portfolio and - as show cases - the 40 partnership developed and further developed thanks to the pilots. Additionally, agreements of cooperation to continue the cooperation between industries and artisans will be signed.

2. INTRODUCTION AND BACKGROUND

The EU project SYMCRAFT aims to promote the circular economy and resource efficiency in the sectors Agri-Food, Textile and Wood&Furniture. To this end, networks between craftspeople and industry – involving science and government agencies – will be established, and tools will be developed to support this goal. By disseminating the results, the project promotes a sustainable economy throughout Central Europe. The German project partners, the Leipzig Environmental Institute (UIL) and Unternehmensberatung und Schulung für den ländlichen Raum GmbH (b & s), are developing innovative approaches and concepts for the Agri-Food sector together with their Hungarian partner, Westpannon Regional and Economic Development Public Nonprofit Ltd. (Westpannon). This includes the reduction and utilization of food production waste, the use of material residues from agricultural production, and the use of renewable raw materials as a substitute for plastics.

The project fits harmoniously into the revised EU Waste Framework Directive (in force from October 16, 2025), which obliges member states to drastically reduce food waste: by 10% in production/processing by 2030. This central set of regulations also forms the basis for waste management, the transition to a circular economy, and influences the handling of renewable raw materials.

To achieve this, the Pilot Action n.1 relies on 2 key project resources: the SYMCRAFT strategy (D.1.3.2), the service portfolio (D.2.1.1), particularly the cooperation tool (developed by project partner T2I). These are integrated into a structured and adaptable framework consisting of interconnected phases:

1. Exploration phase – Early involvement through stakeholder mapping, exploratory interviews, and the data sheet on the reuse of waste materials to identify potential material flows and combinations. These activities have been started within WP1 and further implemented during the pilot action.
2. Initiation phase – thanks to the local workshops organized with industries and artisans, selection of up to five tandems per region, application of the symbiosis readiness level.
3. Concept phase – Development of ideas and following feasibility studies for their implementation and - when possible - prototypes.

Each phase is closely linked to SYMCRAFT's developing pilot projects. This allows the methodology to be tested and further developed in three different sectors (textiles, agri-food, and wood&furniture) and regional contexts. The pilot projects confirm the applicability and impact of the methodology and the Symcraft Portfolio. Additionally, it shows that structured, tool-supported collaboration can trigger new local value chains and pathways for circular innovation. The role of intermediaries, chambers of commerce, innovation centers, and moderators is crucial to this process. They act as facilitators of dialogue, mediators of expertise, and contribute to steering and continuity. Their commitment ensures that the resulting collaborations are not only technically viable, but also socially and institutionally anchored.

In summary, the SYMCRAFT Portfolio offers support for establishing cooperation between industry and skilled trades. It supports both practical implementation and long-term strategies and is based on important European frameworks such as the European Green Deal, the Circular Economy Action Plan, and the strategies for smart specialization. It is a step toward operationalizing industrial symbiosis not through top-down directives, but through joint creativity, structured support, and the strengthening of local actors.

3. DESCRIPTION OF THE PILOT

Pilot Action 1 (PA1, Activity 2.2) is part of Work Package 2 (WP2). Its aim is to test the service portfolio developed in Activity 2.1 by establishing partnerships between industry and craft

businesses. These partnerships will focus on utilizing industrial production residues/waste and developing new products and services, as this also promotes transnational cooperation

To achieve these goals, the following steps will be carried out in PA 1:

a) Establishing partnerships in the partner regions (involving 20 SMEs or industrial companies/institutions per region) and tandem collaborations between artisans and industry at the local level for product development.
b) Co-creation workshops for joint development at the local level to identify the specific needs and technical skills of the participating SMEs on site.
c) Transnational meetings for each of the three sectors to exchange knowledge and define actions and monitoring tools.

d) Development of 40 prototypes/digital twins or feasibility studies (depending on time, resources, and available expertise) as a result of five selected collaborations per pilot area.

Using the tools developed, all partners work in parallel on the tasks, thereby helping to link the zero-waste processes of industry with the creativity and reuse potential of artisans. The UIL acts as the coordinator in this process.

Figures 1: WP2 - Promoting the collaborations and symbiosis between industries and handicraft sectors, pilot action plan - introduction, (presentation, page 6)

4. METHODOLOGY OF IMPLEMENTATION

The approach pursued in SYMCRAFT involves practical flexibility and is highly participatory. It was developed in a joint development process involving all project partners. This approach draws on and integrates the structured guidance of the cooperation tool (developed by the IAGF), the strategic vision defined in the SYMCRAFT strategy (D.1.3.2), and the practical tools presented in the service portfolio (D.2.1.1).

The SYMCRAFT methodology aims to go beyond minimal cooperation and promote genuine collaboration, in which players from industry and trade not only share resources or exchange materials, but also actively participate in the joint development of new solutions, value chains, and market offerings. This change requires more than just the alignment of interests: it demands trust, transparency, and structured moderation, supported by instruments and mediators capable of translating different approaches, working methods, and cultures into coherent courses of action.

The methodology is strongly aligned with the overall work package logic of the project and is intended to support the implementation of Pilots 1, 2, and 3. The Cooperation Tool developed by IAGF serves as the backbone of this methodology and is articulated through four consecutive and interlinked phases: the Exploratory Phase, Initiating Phase, Concept Phase, and Realisation Phase. These phases map closely to the deliverables and practical actions of the project and are described in detail in the following sections.

One of the specific tasks in PA1 is for the partners to further develop the contacts established in Work Package 1 with and between SMEs and industrial companies. The task of the UIL (PP10) is to coordinate the PA1 activities and to support these processes and to collect and evaluate the necessary data in accordance with the above task.

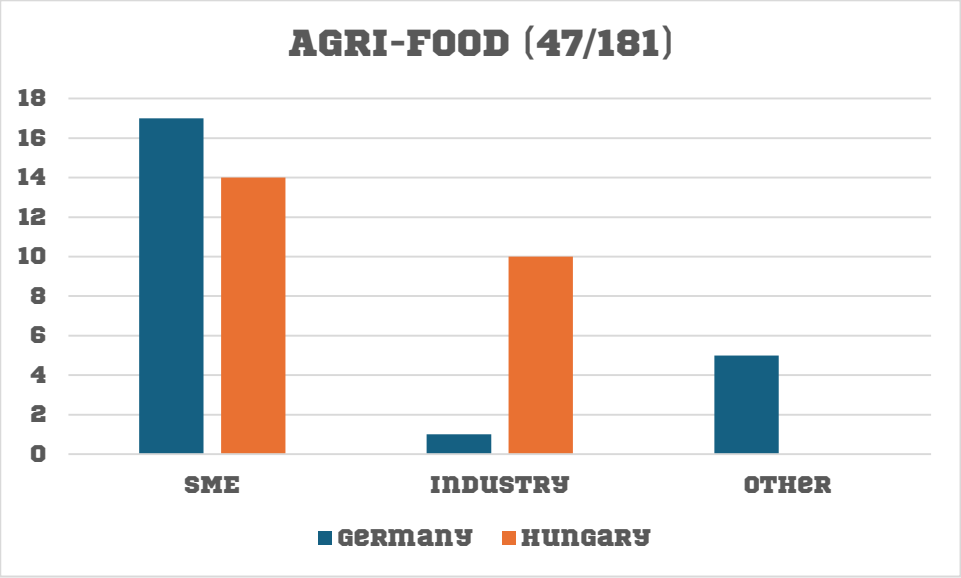
To this end, appropriate data collection tools must be designed based on the task at hand:

Table 1: Description of the steps in PA1

Number	Tasks	Developed tools and content
a	Establishment of partnerships in the partner regions (involving 20 SMEs or industrial companies/Institutions per region)	**List of companies and institutions involved** with a description of the companies/Institutions (SME, industry, other), the material/offer (offer, request, cooperation **List of potential partnerships**
b	Co-Creation Workshops	**List co-creation workshops** and **Template co-creation workshops** for describing the joint development of partnerships at the local level, identifying specific needs and technical skills of the participating SMEs
c	Transnational meetings per sector (Agri-Food, Textiles, Wood&Furniture)	**Template for transnational meetings** for describing the workshops, knowledge exchange, and defining measures
d	Development of 40 prototypes/digital twins or feasibility studies (5 per region)	**List of collaborations** with explanation of whether prototypes/digital twins or feasibility studies

5. LIST OF POTENTIAL COMPANIES FOR COLLABORATION

All partners have networks. In the previous reporting periods, contacts were established or further developed with companies/Institutions who are relevant to the three sectors covered by SYMCRAFT (Agri-Food, Textiles, Wood&Furniture). A total of 181 stakeholders were recorded, most of whom come from the small and medium-sized enterprise sector (according to the EU definition), but mainly offer industrially produced waste materials (except in the agricultural sector). Below are the overviews of the three sectors.

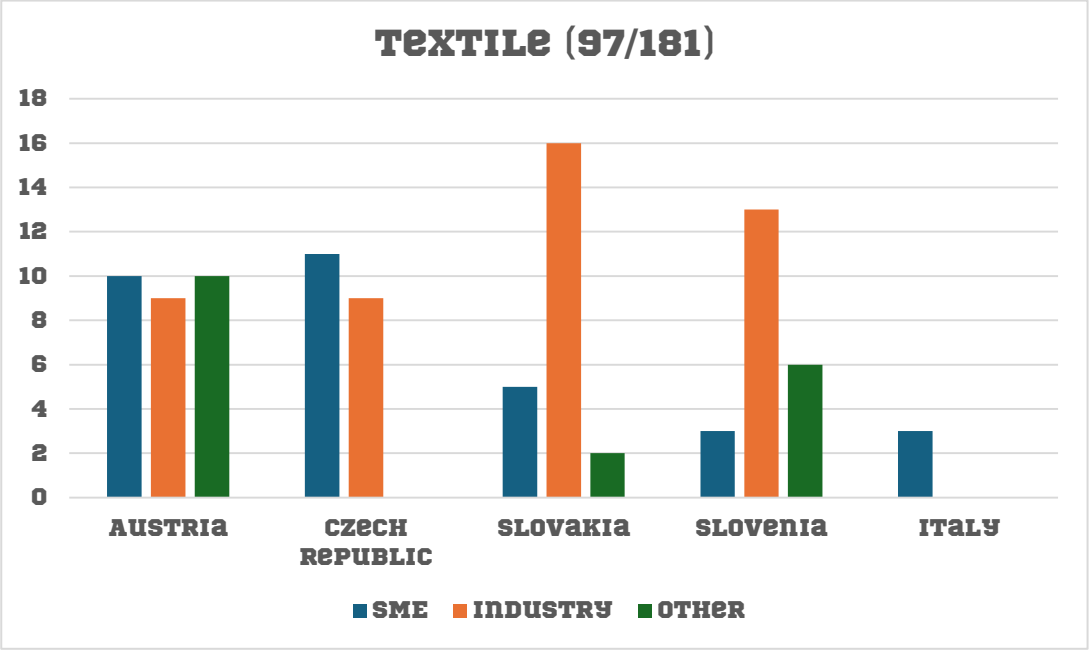


Figures 2: Overview about the companies/institutions from the Agri-Food-sector, Others: Research institute, NGO, state owned enterprise

47 of the 181 partners come from the Agri-Food sector. Examples of waste materials offered or requested include:

- Fibers obtained from fermented residues in agricultural biogas plants
- Fiber and straw residues from the agricultural production of flax, hemp, grain etc.
- Residues from food production
  - Cherry pits, pumpkin seeds, etc.
  - Pomace from apple juice production
  - Spent grain
  - Egg shells
- Sheepwool, horse manure, horsehair
- Coffee grounds

Some companies offered engineering services such as consulting, partner search, machine development etc.

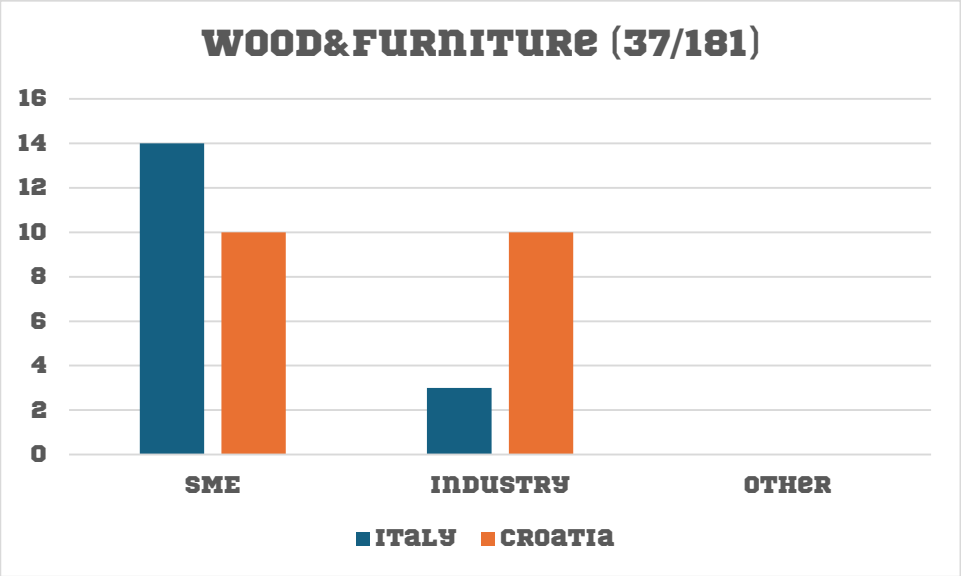


Figures 3: Overview about the partners from the Textile-sector,
Others: Research institute, NGO, individuals, wool producers

Most of the SYMCRAFT-companies/institutions- 97 of the 181 - were from the Textile sector. Examples of waste materials offered or requested include:

- Residual materials from textile production, both from natural and synthetic fibers
- Wool residues or cotton from agricultural production
- Residues from the recycling of used textiles and leather goods

Some companies, mostly individuals, offered design or technical development services, for example.



Figures 4: Overview about the partners from the Wood&Furniture-sector

37 of the 181 companies/Institutions belong to the Wood&Furniture sector. Examples of waste materials offered or requested include:

- solid wood offcuts and end pieces, irregular wood fragments,
- wood veneer scraps, sawdust, wood shavings, wood dust,
- particle board, MDF and plywood offcuts, defective or obsolete boards,
- tree bark, branches and twigs,
- wooden pallets, crates and other protective wooden packaging elements, but also
- textile.
- Marble powder, glass, glass fragments, ceramic bottom ash
- used industrial gloves

Some companies offered design or technical development services for producing high-quality furniture for work, hospitality and residential spaces.

6. PILOT ACTION 1: ANALYSIS OF THE LOCAL ACTIVITIES

In addition to personal discussions and online meetings, another important activities was the co-creation workshops, all of which took place in person.

The co-creation workshops at the local level served the following purposes:

- to provide information about the SYMCRAFT project
- to define residual materials and generate ideas for new products
- to establish and strengthen potential partnerships between the owners of the residual materials and potential users
- to identify the specific needs and technical capabilities of the partners involved

Table 2: 7 Co-creation workshops in the Agri-Food-sector

Area	Number	Date, Time, Duration	Location	Title	Participants
DE PP09+ PP10	DE-1	17. 06.2025, 10:00 - 18:00 (8 h)	Fraunhofer IKTS, Winterbergstraße 28, 01277 Dresden	3. AbonoCARE -Conference	79
DE PP09+ PP10	DE-2	13.08.2025, 10:30 - 16:00 (5,5 h)	FUSE GmbH, 04442 Zwenkau, OT Mausitz Nr. 14, Littdorf	9. AgrarTreffen - Fiber crop harvest 2025	86
DE PP09+ PP10	DE-3	08.09.2025, 15:00 - 18:00 (3h)	Leipziger Str. 81, 04178 Leipzig, b&s	Co-creation workshop mushrooms	6
DE PP09+ PP10	DE-4	10.09.2025, 9:00 - 11:30 (2,5 h)	Limbach-Oberfrohna	Co-creation Workshop - hemp with Valere GmbH,	8

Area	Number	Date, Time, Duration	Location	Title	Participants
DE PP09+ PP10	DE-5	16.09.2025, 10.00 – 16.30 (6,5 h)	Johann Heinrich von Thünen-Instituts in Braunschweig (Bundesallee 50, 38116 Braunschweig		95
DE PP09+ PP10	DE-6	03.12.2025, 9:30 - 14:00 (4,5h)	Kluge GmbH, Am Wasserwerk 8-10, 02699 Königswartha	Co-creation workshop: Use of bio-based residues and natural fiber-based circular economy	18
HU PP05	HU-1	05.11.2025 (9:00-14:00)	Vasvár	SYMCRAFT - Co-creation workshop	25

In the two areas (Hungary and Germany) 7 co-creation workshops were carried out. In the workshops DE-1 and DE-5 Representatives from business, politics, and science took place in both conferences. Participants focused on the development and industrial scaling of value chains from organic waste from agriculture. The motto of the event on June 17, 2025, at Fraunhofer IKTS was: “From waste to high-quality product: Ensuring that the most valuable materials do not end up in the trash.”

The other workshops were dominated by representatives of agricultural businesses and product processors. However, employees from regional authorities and ministries were also present (industry, science, chamber of commerce etc.).

The Hungarian conference report describes experiences that also apply to the other workshops and accurately reflect the participants' opinions:

“- from artisan (and agriculture - Addition by the author) side, similarly to previous experiences, there is a relatively high interest towards cooperations. They are open to work together, to try out new things/materials, figure out new products, and develop their

activities. They emphasized that they cannot exactly always define their own needs, if they have no information about the availability of by-products, residuals in the industrial sector.

- from the industrial side: we got an insight into the operations of some companies from this perspective – thanks to one participant representing a nearby firm from the dairy industry dealing with production of wide range of dairy products (pasteurized milk, sour cream, kefir, yogurt, cottage cheese, cheese, etc.). With specific regard to the whey, as residual material/by-product generated over the course of their production. (Some artisans showed interest towards this material). Whey is generated during the production of cottage cheese and cheese, then a certain amount of this primary whey is re-used over the course of ricotta cheese production, which results in secondary whey. Most of the residual whey that cannot be recycled internally, it goes to local, smaller farmers with livestock, and they can use it as feed (for pigs). But since this is a low value-added product, they are generally open to other options. "

Figures 5: Presentation of biogas fibres in Braunschweig (DE-5)

Table 3: 9 Co-creation workshops in the Textile-sector

Area	Number	Date, Time, Duration	Location	Title	Participants
AT PP08+ PP11	AT-1 till 3	18.07 - 20.07 2025	Textile Center Haslach, Haslach an der Mühl	ETN summer jumble	48
CZ PP03	CZ-1	24.09.2025, 10.30 - 17.30 (7 h)	Vavi - Knoflík Company, Pod Hrabicemi, 385 01, Vimperk	Textile waste exchange	25
SI PP07	SI-1	17.11.25 from 12.00 to 17.30 (5,5 h)	Center Rog	The first SYMCRAFT workshop	ca. 20
SI PP07	SI-2	3.12.2025 from 16.00 to 18.00 (2 h)	Technology Park Ljubljana	The follow up SYMCRAFT workshop	ca. 20
SI PP07	SI-3	21.1.2026 from 12.00 to 17.30 (5,5 h)	Center Rog	The second SYMCRAFT workshop	ca. 20
SK PP04	SK-1	21.11.2025, 17.00 - 20.00 (3h)	Moravské Lieskové	Zero-Waste Pattern Making with Lenka Kriva	18, mainly creative people
SK PP04	SK-2	11.12.2025, 9.00-11.00 (2 h)	Trenčín	HIDDEN TREASURES OF OUR COMPANIES	20

In the four areas 9 co-creation workshops took place. The workshop participants came from a wide range of economic sectors, for example:

- Agricultural businesses (sheep farmers)
- Manufacturers of textiles and leather (natural and/or synthetic fibers, shoe manufacturers)
- Designers of new products
- Government officials, representatives of associations

These presentations opened discussions around key SYMCRAFT topics, including sustainable textile production, the role of craftsmanship within circular economies, upcycling strategies, and the accessibility of industrial production waste.

Feedback on the SYMCRAFT concept and the initial progress of the project was overwhelmingly positive. Discussions revealed considerable interest in the creative reuse of textile waste and highlighted its potential for developing new products. At the same time, material availability was identified as a key challenge. Production waste is often not visible to artists and designers, nor is it recognized as a potential resource. Even when individual creatives proactively approach companies, the communication and logistics involved in small and irregular quantities of waste materials can be unattractive to production companies. Therefore, the idea of a centralized collection and distribution structure for production waste was suggested and discussed several times as a possible solution.

Figures 6: Co-Creation workshop 03.12.2025, Technology Park Ljubljana (SI-2)

One of the two workshops in the sector of Wood&Furniture, the all-day co-creation workshop held at the Faculty of Forestry and Wood Technology in Zagreb brought together representatives of large manufacturing companies, designers, artisans, and other relevant stakeholders with the aim of exploring ways to transform industrial material residues into valuable resources. The focus of the event was on product design development and the identification of potential collaborative business models grounded in circular economy principles.

The second workshop was held in Italy. The "Da scarto a risorsa" co-creation workshop took place in Treviso on 3 November 2025, involving over 50 participants including SMEs, artisans and designers. The event fostered matchmaking and co-design activities to explore innovative reuse of industrial waste within the SYMCRAFT project framework.

Table 4: 2 Co-creation workshops in the Wood&Furniture-sector

Area	Number	Date, Time, Duration	Location	Title	Participants
HR PP06	HR-1	15.01.2026, all day event	Faculty of Forestry and Wood Technology in Zagreb	Workshop/Product design/Business model development	ca. 30
IT LP01+PP02	IT-1	03/11/2026 till 14.00 to 19.00	Piazza delle Istituzioni, 34, 31100 Treviso TV	Da scarto a risorsa	42

Figures 7: Co-Creation workshop Furniture, 03.11.2025, Treviso (IT-1)

7. SUM UP AND MAIN FIGURES FROM THE LOCAL PILOT ACTIONS

The main topics in the workshops and other pilot actions were the following:

1. Regarding the industrial players: available residual materials, by-product management in practice, circular practices they are applying, openness and possibilities to cooperate with SMEs/artisans.
2. Regarding artisans: what and how they are producing, material needs they could utilize, circular and cooperation practices/experiences in the past.
3. Common points: pros and cons regarding possible cooperations

The organizers and participants repeatedly noted the following in the workshops:

1. The events offer the opportunity to make new contacts and collaborate with other industry experts.
2. The opportunity to exchange experiences and gain inspiration for innovative and circular projects.
3. An overview of current legislative changes and their impact on your business.
4. Tools to transform waste into a valuable resource and thus contribute to reducing environmental impact.

5. The events offer the chance to make the respective sector more sustainable and generate new innovations.

In all sectors and at numerous workshops, the opportunities presented by **platform development** were discussed. The following ideas and suggestions were raised:

- The idea of a centralized collection and distribution structure for production waste as a potential solution;
- Establishing a platform for material exchange, particularly for production residues, to better connect industry with designers and craftspeople;
- Utilizing public or targeted tenders to provide creatives with access to surplus materials;
- Material donations (organized via platforms) or symbolic pricing models as effective instruments for promoting circular economy practices;
- The legal possibilities and obstacles to procuring residual materials should also be identified.

Another important topic was the **organization and opportunities for collaboration**. Many participants emphasized that it is every company's natural goal to manage residues, by-products, and waste as effectively as possible. The first step is avoidance, the second is reuse within the company. Seeking solutions outside the company is only the third approach.

The event demonstrated significant potential for pilot collaborations, limited-edition product runs, and socially beneficial projects. The following ideas for forms of collaboration were discussed:

- Bottom-up models, in which designers and craftspeople publicly communicate their material needs, thus enabling more efficient communication with industry.
- To establish new clusters or strengthen existing centers, with a greater focus on networking between industry and creative professionals.
- Participants frequently expressed strong interest in collaborative models where designers develop products that can be integrated into existing industrial technologies.
- As a practical next step, factory visits and on-site exchanges were suggested.
- Exchanges between suppliers and craftspeople, which can identify specific technical requirements and skills needed by local SMEs. These include material processing techniques, quality and safety regulations, logistical considerations, and the compatibility between industrial waste streams and artisanal production.

Other **general problems** that were raised by frequently included:

- Intense price pressure from manufacturers in low-wage countries. This has led to a long-term decline in, for example, traditional clothing production and employment. To remain competitive, companies must focus on specialization, high-quality products, niche markets, and technologically advanced textiles, but this transformation requires investment and strategic repositioning.
- Human capital issues: There is a shortage of skilled workers, especially those with technical and digital skills. As production becomes increasingly automated and digitized, companies need employees with knowledge of advanced machinery, information systems, and sustainable production methods. However, due to the industry's traditional image, it can be difficult to attract younger generations to careers in sectors such as the textile industry.

In addition to the aspects mentioned by all sectors, there were also a number of specific topics.

Specific topics in the sectors Wood&Furniture and Agri-Food:

- The participants further noted that the current legal and regulatory framework does not provide sufficient incentives for the sharing of industrial waste, highlighting the need for potential policy adjustments.

Specific topics in the sector Agri-Food:

There are a number of other networking opportunities/examples in this area:

- Using the services of consultants and consulting firms can improve companies' situations, also in conjunction with applying for financial support for worthwhile projects.
- For example, the Saxon Economic Development Agency offers a wide range of support services such as business angels, financing, and partnership assistance.
- Initiating cross-sector partnerships, such as between the catering and packaging industries, is crucial. This is the only way to establish secure supply and trade relationships.
- The looking for partners to exchange the residual materials

It's more difficult to reach and involve larger industrial companies. This workshop format is probably not particularly suitable for them. However, this is industry-specific; the agricultural and food sector is a more challenging field in this respect, while the textile industry offers much more scope for collaboration.

Further risks in the agricultural and food industry:

- There is a very strict legal environment, including food safety regulations, which imposes significant restrictions and difficulties regarding cooperation. This is especially true when human consumption is the ultimate goal of a new product idea.
- Differences between supply and demand in terms of quantity: There can be large discrepancies between the amount of residual materials generated (during a specific period – harvest time) and the quantity that the artisan needs and can utilize. It is uncertain whether this is profitable for both parties.
- Logistics-related problems, transportation: Materials must be transported and stored, etc.
- Consistency issues ((the quality of agricultural products varies depending on the year and location)
- Many activities focus on plant-based products. Residues of animal origin are subject to additional hygiene requirements, which sometimes make alternative uses difficult or impossible.
- Often, residual materials are used for energy recovery.
- Smaller and medium-sized businesses often have more problems implementing useful solutions for recycling than larger ones.
- Residual materials in the agri-food sector are a very sensitive area for companies. Questionnaires like those designed in Symcraft partially address this sensitive area. Data protection and data security play a crucial role for companies in this context. Therefore, some of the information requested in Symcraft will only be available in a limited or anonymized form from the companies' perspective.

Specific topics in the sector Textile:

The following statements were made regarding the textile industry:

- Designers and craftspeople need suitable workspaces and machinery. Even in artisanal and small-batch production, access to specialized equipment is often essential and can

involve considerable costs. In this context, shared workshops and collective production infrastructures were discussed as relevant support models.

- Craftspeople and designers showed more motivation for eco-design and innovation using residual materials than companies in the textile industry.
- Another conclusion is that professional workshop facilitation is crucial for the successful development of innovative prototypes, ensuring that participants demonstrate interest and motivation for collaborating on innovative ideas and prototypes using residual materials from the textile industry.
- One of the main problems is environmental sustainability. The amount of textile waste is increasing, while systems for separate collection, reuse, and recycling are still underdeveloped. At the same time, textile production contributes to environmental pollution through water consumption, chemical use, and microplastic pollution. New European Union regulations regarding the circular economy and extended producer responsibility are causing additional compliance costs and require companies to adapt their production and product design processes.
- Another important issue, for example in the Slovenian textile industry, is its structure. The Slovenian textile sector is dominated by small and medium-sized enterprises (SMEs), which often lack the financial strength and scale to compete globally. Limited investment capacity restricts opportunities for research, development, and technological modernization. While cooperation between companies and research institutions is improving, it is still insufficient to drive strong innovation, particularly in higher-value segments such as technical and smart textiles.
- Consumer behavior influences the development of the industry. The dominance of fast fashion leads to high consumption of inexpensive, short-lived garments, which continues to decline demand for durable, locally produced textiles, despite growing awareness of sustainability.
- Challenges facing the Slovenian textile industry include a weak circular economy and environmental impact, limited scale and innovation capacity, intense global competition, a shortage of skilled workers, and consumption habits shaped by fast fashion. Long-term competitiveness will depend on digital transformation, sustainable production models, innovations in technical textiles, and greater integration into European value chains.

In summary, it can be stated that artisans and designers played a central role, supporting the development of potential new products by transforming industrial constraints into feasible and creative concepts. Working in mixed groups, participants used the digital and AI-based

tool SYMCRAFT to develop initial ideas and micro-concepts based on real-world materials, industrial quantities, and production limitations.

At the same time, the workshops enabled the identification of recurring industry-specific challenges, such as regulatory issues and questions of waste classification, material variability, scalability limits, and the alignment of industrial supply volumes with artisanal production capacities. These insights provided valuable input for the subsequent phases of the SYMCRAFT project, including prototyping, business model development, and legal assessment of selected collaborations.

Overall, the workshop demonstrated the effectiveness of co-creation methods in bridging the gap between industry and artisanal practices, while simultaneously delivering concrete knowledge and actionable results for promoting circular economy practices at the local and sectoral levels.

The key findings and insights are:

- Clear identification of the specific technical requirements and capabilities that local SMEs need, particularly in the areas of material treatment, conversion processes, and compliance.
- Confirmation of the strategic role of artisans in transforming industrial waste into high-quality, design-oriented products.
- Development of numerous potential new products and reuse concepts based on real-world materials and industrial constraints.
- Identification of critical issues across various sectors, including logistics, regulatory aspects, material variability, and scalability challenges.

Key recommendations include:

- Supporting SMEs in recording and classifying reusable waste streams;
- Strengthening technical cooperation between suppliers and tradespeople;
- Early consideration of regulatory and legal aspects in the cooperation process;
- Integrating digital and AI-based tools and checklists to improve partner matching and concept development.

8. Pilot Action 1: TRANSBORDER ACTIVITIES CARRIED OUT

Transnational meetings have taken place and continue to take place in all three sectors, even every two months in the textile sector. The following table provides an overview of these events.

Table 5: The transnational Meetings - Overview

Area	Date, Time	Location	Participants	Content short
AT PP08+ PP11, Textile	series started in June 2025 and is still ongoing, every two months	online	PP08-IAGF, PP07-TPLJ, PP04-SOPK, PP03-JHK; PP11-TZH	The discussions focused on the regulatory, material, and practical aspects of textile waste and the circular economy. In parallel, the challenges of accessing production waste were discussed, such as limited transparency regarding available materials, logistical constraints, and communication gaps between industry and creative professionals.
HU PP05, Agri-Food	24.11.2025 (13:00-15:00)	online	8 (incl. PP09, PP10, AP)	Present and discuss the outcomes of local co-creation workshops and the experiences with stakeholder involvement in the two countries, in order to advance in the identification of viable industry–craft collaborations.

Area	Date, Time	Location	Participants	Content short
IT LP01+ PP02, Furni-ture	03.11.2026 (14:00 - 19:00)	Piazza delle Istituzioni , 34, 31100 Treviso TV	>50 (including supplier companies , craft enterprise s, designers and facilitators)	The workshop was designed to foster structured collaboration between SMEs, artisans and designers, with the aim of identifying concrete opportunities for the reuse and valorisation of industrial waste within a circular economy framework.

A) Specific Problem Situations in the Textile Sector

- The involved partners identified that engagement was difficult and different for each project area. Some partners had more problems engaging the industry companies, some partners were struggling to get artisans involved.
- The interest to find solutions for the textile waste was there however, as in 2025 the EU Waste Framework Directive (Directive 2008/98/EC) was amended with an additional Mandatory Extended Producer Responsibility (EPR) for Textiles. This means that producers of textile materials must bear the costs of collection, sorting, recycling, and reporting for the waste associated with their products.
- At the same time it was found in all project areas that access to materials emerged as a key challenge. Production waste is rarely visible or recognized by artisans and designers as a potential resource. Even when creatives reach out to companies proactively, the communication and logistics required to handle small, irregular waste streams are often perceived as too time-consuming and inefficient for production firms to take on.
- Therefore, the role of the project partners as intermediaries cannot be neglected. The intermediaries are essential to overcome the obstacle of accessing the waste material of the industry companies in order to help establish cooperations between the industry companies and artisans.

Overall, the transnational workshops and transnational exchange in the **Textile sector** show that while motivation to tackle textile waste is rising—especially due to the EU's

strengthened EPR obligations—real progress is still constrained by practical barriers: uneven stakeholder engagement and, above all, poor visibility and cumbersome logistics for small, irregular waste streams. As a result, partnerships are unlikely to form organically, and intermediaries (project partners) become a decisive success factor for translating regulatory pressure into workable collaborations between industry and artisans/designers.

B) Specific Situations in the Wood&Furniture Sector

The discussions focused on the application of circular economy strategies within craft and SME contexts, with particular attention to:

- technical and qualitative characteristics of industrial waste streams;
- material safety, processing requirements and consistency issues;
- regulatory and waste classification constraints;
- collaborative models between industry, artisans and designers;
- early-stage evaluation of feasibility and scalability of reuse concepts.

Special emphasis was placed on the role of artisans as key intermediaries capable of translating industrial constraints into feasible, design-driven solutions.

The workshop confirmed the effectiveness of co-creation activities in bridging industry and craftsmanship within circular economy frameworks, generating concrete and structured collaboration pathways. A key result of the process was the establishment of 22 industrial symbiosis groups, involving all participating SMEs and artisans, each of which developed a Business Model Canvas to structure the emerging reuse concepts from a technical, economic and organizational perspective.

Overall, the workshop demonstrated that integrating co-creation methodologies with digital and AI-based tools enhances matchmaking, accelerates concept development and supports a structured transition from ideation to piloting. Key recommendations include supporting SMEs in mapping and classifying reusable waste streams, strengthening technical facilitation between suppliers and artisans, and addressing regulatory and legal aspects early in the collaboration process.

C) Specific Situations in the Agri-Food Sector

The workshop combined short presentations with a moderated discussion. Presentations provided a structured overview of national experiences and local results, including the

stakeholder involvement, the types of industrial by-products mapped, the practicalities of collection and pre-treatment, and the current maturity of collaboration ideas (from early leads to already agreed tandems).

The discussion focused on feasibility aspects that are particularly relevant in the agri-food sector: hygiene and food-safety requirements (especially for materials of animal origin), availability and consistency of supply, quality parameters and potential contamination risks, as well as logistics (storage, packaging, transport costs and responsibilities). Participants also reflected on the mismatch between industrial quantities and the typically smaller demand of artisans and micro-SMEs, and on data sensitivity when companies describe their material flows.

Overall, partners confirmed that Agri-Food offers relevant circular-economy opportunities, but the number and significance of limiting factors are high, therefore these types of collaborations in agri-food require careful screening of regulatory constraints and practical conditions.

Specific Problem Situations in the Agri-Food Sector

Many activities focus on plant-based products. Residues of animal origin are subject to additional hygiene requirements, which sometimes make alternative uses difficult or impossible.

- Often, residual materials are used for energy recovery.
- Smaller and medium-sized businesses often have more problems implementing useful solutions for recycling than larger ones.
- Residual materials in the Agri-Food sector are a very sensitive area for companies. Questionnaires like those designed in Symcraft partially address this sensitive area. Data protection and data security play a crucial role for companies in this context. Therefore, some of the information requested in Symcraft will only be available in a limited or anonymized form from the companies' perspective.

All in all, the meeting helped to align expectations and to define concrete information that needs to be collected at the local level before moving towards feasibility plans and prototyping.

Based on the shared experiences, the partners recommend focusing on residual streams that are available in a stable quality, manageable in smaller batches, and feasible to store and transport without disproportionate costs. In practice, small and medium-sized industrial actors often appear as the most realistic partners for pilot collaborations, while very large companies may require different engagement formats and stronger incentives.

9. LIST OF POTENTIAL COLLABORATIONS ESTABLISHED

The meeting in Bratislava, on February 10th and 11th, 2026 (see agenda in the Annexes), served to exchange information on the results and activities of WP2. This exchange had a transnational dimension and aimed to:

- Strengthen cross-border networking,
- Transfer of knowledge and resources (exchange of best practices, legal and bureaucratic specifics, and technologies),
- Develop and promote intercultural competence (improving understanding of different values, norms, and approaches).

This meeting is of great importance for the further development and implementation of the pilot project. It creates the conditions for harmonizing the different approaches to the utilization of residual materials and increases understanding between the transnational partners.

First, the preparatory work for the three pilot activities was presented by the responsible partners (Activity 2.1). The main part of the first day consisted of presentations of the 5 pilot projects from each of the 8 countries participating in SYMCRAFT, a presentation of the current status of pilot project 1 (PA1), and a discussion about it. The next presentations covered the progress in the two subsequent pilot actions 2 and 3 and the work in the final WP3 (Enhance industrial symbiosis with the support of handicraft sectors).

Figures 8: Meeting in Bratislava

9.1 Sector Agri-Food

The following table provides an overview of the partners involved and the materials used.

Table 6: Overview of companies and materials of collaborations in the Agri-Food sector

Country	Residual material/name of the collaboration	Company 1	Company 2	further cooperation partners
DE-1	MAGAVERDE - Fibers from digestate to paper products	Biomethan Produktion Ottersberg GmbH (industry)	Sächsisches Textil-forschungsinstitut e.V. (non-profit research institute - other)	yes
DE-2	hemp leafs, hemp shives, Natural fiber, dust, organic or conventional (hemp-leafline - feedproduction)	FUSE GmbH (SME, start up)	Valere agro GmbH (SME)	
DE-3	several substrates with biological standards (Coffee grounds, grain husks, brewer's grains, straw, and so on)	start up for growing biological mushrooms (other)	firms, which have Coffee grounds, grain husks, brewer's grains, straw, and so on (SME)	yes
DE-4	HGM - fibres from digestate to peat substitute products	Biomethan Produktion Ottersberg GmbH (industy)	Labesa Service & Management, Pritzwalk (SME)	yes
DE-5	Hempdust for energy	Hanffaser Uckermark e.G. (SME)	Sachsen-Leinen e.V. (NGO- other)	
HU-1	coffee ground, **mushrooms growing block**	Kultúr Kamra Kft. (industry - SME)	Kalapka Kézműves Gombafarm (SME)	yes
HU-2	pumpkin seed pulp / cake (leftover after pressing), **Bakery product with pumpkin seed press cake**	Tök-jó Porta (industry - SME)	Édes Vidék Cukrászműhely (SME)	yes
HU-3	leftover straw, **Bagged straw mulch**	Hegypásztor Kör (industry - SME)	Harmónia Ökokert (SME)	yes

Country	Residual material/name of the collaboration	Company 1	Company 2	further cooperation partners
HU-4	fruit peels - **Cherry pit pillow**	Birkás Pálinka Kft. (industry - SME)	Steierlein Mária e.v (multi-skilled artisan - SME)	yes
HU-5	leftover wool felt - **Do it yourself - animal package**	Multifelt Factory Kft. (industry - SME)	Horváth Dorina e.v. (SME)	yes

The majority of collaborations involve more than two partners. Of the 20 named partners, 10 are SMEs/artisans, 7 partners possess industrially produced waste materials, 2 are NGOs, and one is a startup.

The waste materials include a wide range of materials with organic or conventional quality, most of them are plant-based:

- Fibers from digestate of a biogas process
- Fibers from hemp, hempleaves, hempdust, hemp shives, Natural fiber (The whole plant can be used!!!)
- Leftover straw, grain husks
- Fruit peels, pumpkin seeds, cherry pits
- Coffee grounds, brewer's grains
- Leftover wool felt

Animal materials are used less frequently. This is mainly due to the increased hygiene and legal requirements already mentioned in Chapter 8, which increase processing costs. For example, eggshells (for lime addition) intended for mushroom production could no longer be used because of the additional high-temperature heating required (due to the risk of salmonella).

Table 7: Overview of products and the status of collaborations in the Agri-Food sector

Country	Residual material/name of the collaboration	Company 1	Typ of collaboration (prototype/digital twin/feasibility plan) - Status
DE-1	MAGAVERDE - Fibers from digestate to **--> paper products**	Biomethan Produktion Ottersberg GmbH (industy)	cooperation planning I/2026, technical and financial preparation II-IV/2026, sample production and testing I-III/2027
DE-2	hemp leafs, hemp shives, Natural fiber, dust, organic or conventional (hemp-leafline) **--> feedproduction**	FUSE GmbH (SME, start up)	cooperation planning, testing 03-06/2025, technical preparation (special machines) 01-06/2026, sample production and testing 07-2026/03-2027, business plan 02/2027
DE-3	several substrates with biological standards (Coffee grounds, grain husks, brewer's grains, straw, and so on) **--> mushrooms**	start up for growing biological **mushrooms** (other)	initial discussion 06/2025, testing material and prototypes 09/2025, business plan 08/2025, search for production site since 09/2025
DE-4	HGM - fibres from digestate to **--> peat substitute products**	Biomethan Produktion Ottersberg GmbH (industy)	sample products testing and certification 1-12/2025, acquisition of initial sample customers for testing, start contracts for production and trading 2026/2027
DE-5	Hempdust for **--> energy**	Hanffaser Uckermark e.G. (SME)	looking for industrial partners 10/2025-1/2026, cooperation planning 3/2026-12/2026, sample production and testing 1/2027-2/2028
HU-1	coffee ground, --> **mushrooms growing block**	Kultúr Kamra Kft. (industry - SME)	providing missing material 02/2026, finalization business model 03/2026
HU-2	pumpkin seed pulp / cake (leftover after pressing), **--> Bakery product with pumpkin seed press cake**	Tök-jó Porta (industry - SME)	providing missing material 02/2026, finalization business model 03/2026
HU-3	leftover straw, -->**Bagged straw mulch**	Hegypásztor Kör (industry - SME)	providing missing material 02/2026, finalization business model 03/2026
HU-4	fruit peels **--> Cherry pit pillow**	Birkás Pálinka Kft. (industry - SME)	providing missing material 02/2026, finalization business model 03/2026

Country	Residual material/name of the collaboration	Company 1	Typ of collaboration (prototype/digital twin/feasibility plan) - Status
HU-5	leftover wool felt - **Do it yourself --> animal package**	Multifelt Factory Kft. (industry - SME)	providing missing material 02/2026, finalization business model 03/2026

The owners of the residual materials strive for the highest possible quality use of these materials. As described in Chapter 8, many boundary conditions must be considered to achieve this high efficiency. Of the 10 collaborations examined here, only one residual material (pumpkin seeds) is used directly in food production (baked goods). Three other residual materials are used either indirectly in food production or in agriculture or animal husbandry:

- Animal feed production
- Mushroom production (two instances: in transportable, purchasable packages or in a hall/building)
- Peat substitute products (very sustainable)
- Straw mulch
- Bedding (animal package)

The other three uses include:

- Papermaking
- Cherry pit pillows
- Energy generation

Table 6 also provides information on the current status of the collaborations and the next steps. The earliest possible start date for the partnerships is early 2025. The current status of the partnerships is as follows:

- business plan available or in progress **6 times** (5 in progress, 3/2026 finished)
- collaboration in progress, technical, financial preparation **4 times**

All of the collaborations have prototypes. In the following some examples of the prototypes in the Agri-Food sector will be briefly presented.

Figures 9: MAGAVERDE - Fibers from digestate to paper products (DE-1)

Figures 10: hemp leafs (hemp-leafline) for feed-production) (DE-2)

Figures 11: coffee ground, mushrooms growing block (HU-1)

Test production is done. Approx. 100 g of pumpkin seed press cake flour is needed to produce 1 kg of dough.

Figures 12: Bakery product based on residues of pumpkin seed oil production (HU-2)

9.2 Sector Wood&Furniture

The following table provides an overview of the partners involved and the materials used.

Table 8: Overview of Companies and materials of collaborations in the Wood&Furniture sector

Country-Number	Residual material/name of the collaboration	Company 1	Company 2	further cooperation partners
HR-1	Leftover wood, like solid wood offcuts and end pieces, irregular wood fragments, wood veneer scraps and other → **wooden flower vase**	Prima namještaj/Industry	Armano Linta (SME, artisan)	
HR-2	laser-cut laminated wood (plywood) - → **sculptural fruit bowl**	Prostoria d.o.o (Industry)	DIEDRA d.o.o (SME)	
HR-3	solid wood offcuts and end pieces, irregular wood fragments etc.-→ **candle holder**	Era grupa (Industry)	A1 format (SME, artisan)	
HR-4	Leftover wood materials -→ **lace on wood**	Prostoria d.o.o (Industry)	MERANCA (SME)	
HR-5	Leftover wood or thicker cut veneer - → **Jar of honey**	Stolarija Vuljanic (craft)	Bagrem-Studio (artisan –SME)	
IT-1	Wood offcuts, veneer scraps	Arper (SME)	Arbos (SME)	
IT-2	wood offcuts, used industrial gloves, glass, **Hand to bag**	Elecrolux (SME)	Pavan Woodworks (Artisan - SME)	
IT-3	Marble powder, glass fragments, ceramic bottom ash	MAARMO (SME)	Fenix Ceramics (SME)	yes
IT-4	Nylon and polycarbonate scraps, **Random light**	Thelios (SME)	TE.RA. Desig (SME)	yes
IT-5	Wood processing residues	PROFILEGNO (SME)	Arte Brotto (SME)	yes

The majority of collaborations involve more than two partners. Of the 20 named partners, 15 are SMEs/artisans, 5 partners possess industrially produced waste materials.

The waste materials include a wide range of wooden materials. Other materials are:

- Used industrial gloves,
- Glass, marble powder, glass fragments, ceramic bottom ash
- Nylon and polycarbonate scraps

The wide range of wood-like and other materials also results in a great variety of possible products, for example:

- Luxury notebooks, stationery covers, small design objects
- Wooden toys for children made from scrap wood
- "RandomLight" panels, lighting elements, design installations (made from Nylon and polycarbonate scraps)
- Composite panels, design surfaces, collectible objects (made from glass, Marble powder, glass fragments, ceramic bottom ash)
- Bags, backpacks, accessories, CSR design products (made from wood offcuts, used industrial gloves, glass)

In the presentations in Bratislava the partners also provided information on the current status of the collaborations and the next steps. The earliest possible start date for the partnerships is early 2025. The current status of the partnerships is as follows:

- business plan available or in progress **5 times**
- business plans currently under development, **5 times**

Half of the collaborations have prototypes. In the other collaborations, they will be ready soon. Now some examples of the prototypes in the furniture sector will be briefly presented.

Figures 13: Products based on wooden (IT 5 -left) and polymer material (IT- 4 - right)

9.3 Sector Textile

The following table provides an overview of the partners involved and the materials used.

Like in the other sectors the majority of collaborations involve more than two partners. Of the 40 named partners, 21 are SMEs/artisans, 2 partners possess industrially produced waste materials, 9 are designers, 2 sheep breeders, 6 NGOs./Universities/ Associations.

The textile residuals include a wide range of materials. It may have been made from natural origin (cotton, linen, wool - weaving selvedges, scraps or shirts) or synthetic fibers (polyester etc.) or leather.

Table 9: Overview of Companies and materials of collaborations in the Textile sector

Country-Number	Residual material/name of the collaboration	Company 1	Company 2	further cooperation partners
AT-1	weaving selvedges (cotton) **decorative material**	Steiner GmbH & Co KG (SME)	Magdalena Orland (material researcher and textile designer - other)	Yes
AT-2	Linen, Cotton (scraps)	Leinenweberei Vieböck GmbH (SME	Hutmode Biester (other)	
AT-3	weaving selvedges (cotton)	Rechberger Michael GmbH (SME)	Studio Petersen/ Boissel (textile designer and material researcher - SME)	
AT-4	motorcycle garments, weaving selvedges (cotton, linen)	Grötzmeier GmbH (SME)	Mia Trotz (fashion designer - other)	
AT-5	weaving selvedges (linen)	Rechberger Michael GmbH (SME)	Gerald Brandstätter (fashion designer - other)	
CZ-1	travel sport jacket "Som s Tebou", Thermal waterproof, Polyester (PES) - the main component	Andrea Mesíková (fashion designer - other)	KALAS Sportswear, s.r.o. (SME)	Yes
CZ-2	most commonly cotton, cotton-polyester blends (small textile offcuts and scraps)	Spolek Slunečnice (NGO - other)	Vavi, s. r. o. (SME)	Yes

Country-Number	Residual material/name of the collaboration	Company 1	Company 2	further cooperation partners
CZ-3	shirts and their remnants, shirting fabric, materials necessary for shirt production, lace, buttons, sleeves, denim, and more	Kamila Vodochodská - Re-think Fashion (fashion designer - other)	Vavi, s. r. o. (SME)	Yes
CZ-4	Backpacks and bags made from tarpaulins, fabric with a polyester (PES) core coated with a layer of PVC	Plachty Tábor (SME)	Kabinet CB - cirkularni dum, z.s. (environmental social enterprise - SME)	Yes
CZ-5	Jute products - tablecloth, small bags for vegetable (jute coffee bags)	Kolda Coffee s.r.o. (SME)	Kabinet CB - cirkulární dům, z. s. (SME)	Yes
SI-1	Post consumer material - used working clothes of Lindstrom, **Working uniforms or children clothes**	Etri - Lindstrom (SME)	Nika Ravnik (Fashion deigner - SME)	Yes
SI-2	Wool residual from cutting sheep, **The wool sitting pad**	Assotiation of sheep breeders of Kamnik (others)	Collaboration of Slovenian craft makers, Zdenka Žavbi, Kresna Dora Valečič (other)	Yes
SI-3	Residual felt from the design and crafted slippers, **Mobile sustainable textile workshop**	Ursanina/possibly Filc and Donar (SME)	Possible collaborations with Slovenina crafters makers and designers (Leonora Jakovljević)(fashion designer - other)	Yes

Country-Number	Residual material/name of the collaboration	Company 1	Company 2	further cooperation partners
SI-4	Wool residual from cutting sheep, **Facade/insulation from the recycled textile and wool**	Assotiation of sheep breeders of Kamnik (others)	Zavod Knof, Post consumer material - differen mixedt materials (Private social institute - other)	Yes
SI-5	Post consumer mixed material collected, **Upcycling of post-consumer clothes**	CPU Slovenske Konjice (SME)	Faculty of Design (other)	Yes
SK-1	leftovers of ropes from shipbuilding industry - **Art works**	Gleistein Slovakia, s.r.o. (industry - SME)	Lucia Horňáková - Slovakia based visual artist and teacher(other)	Yes
SK-2	residual textile, leather - **Zero waste bags** deadstock textile	NEHERA (industry - SME) slovak design, production, and retail of wide range of textile and leather products	SFC (NGO - other)	Yes
SK-3	woven fabric edges - **Hand woven carpets**	Áčko Ružomberok, a.s.(slovak manufacturer of wide range of textile products) (Industry)	Slušnák koberčeky (SME)	Yes
SK-4	various fabric scraps, waste pieces of thread, scraps from socks, **Fashion and accessories**	WINER (industry) socks manufacturer	Juliána Brnáková (fashion designer)	Yes
SK-5	textile scraps, **Textile toys**	LAPAJko (SME) Mara Bara (SME)	JABORCA (other)	Yes

The wide range of textile materials also results in a great variety of possible products, as you can see in the table above. We can find for example:

- decorative materials for the home and art works
- carpets (Hand woven)
- textile toys
- Fashion and accessories
- waste bags

In the presentations in Bratislava the partners also provided information on the current status of the collaborations and the next steps. The current status of the all partnerships is as follows:

- business plan available or in progress **20 times**

All of the collaborations have prototypes. Some examples of the prototypes in the textile sector will be briefly presented.

Figures 14: Products based on fabric scraps (AT 2)

Figures 15 An example of a Wool sitting pad from Bela krajina (SI-2)

Figures 16 Textile toys (SK-5)

Figures 17 Backpacks and bags made from tarpaulins (CZ-4)

10. LESSON LEARNT AND FOLLOWING STEPS

The transnational workshops, co-creation workshops, and the work on and with the partnerships and transnational exchange demonstrate that there are numerous opportunities for waste reduction and a circular economy. While the motivation to reduce waste, for example textile waste, is increasing—particularly due to the EU's stricter EPR obligations—actual progress continues to be hampered by practical obstacles: uneven stakeholder engagement and, above all, a lack of transparency and complex logistics for small, irregular waste streams. Therefore, it is unlikely that partnerships will form spontaneously, and intermediaries (project partners) become a crucial success factor in translating regulatory pressure into practical collaborations between industry and artisans/designers.

Several topics repeatedly emerged and discussed at the events:

- Access to materials
- Marketing and sales
- Models of collaboration
- Price pressure
- Staffing and succession planning
- Legal, hygiene, and bureaucratic hurdles

At first, It became clear in all project areas that access to **materials** is a key challenge. Suggestions were made in the various formats and sectors to address this:

- Idea of a centralized collection and distribution structure for production waste (residual material exchange)
- Establishing a platform for material exchange, especially for production residues, to better connect industry with designers and craftspeople
- Utilizing public or targeted tenders to enable creatives to access surplus materials
- Material donations (organized via platforms) or symbolic pricing models as effective instruments for promoting circular economy practices
- This also involves identifying the legal opportunities and obstacles to procuring residual materials

In all sectors and at many events, **questions regarding sales and marketing** were raised. Several aspects came to the fore:

- The establishment of a viable business model is necessary (e.g., sales and marketing). Concerns were raised that these requirements could be difficult for small, independent craft businesses to meet. The limited number of best-practice examples in the textile sector, where handcrafted products made from industrial waste materials are successfully manufactured and marketed, was seen as confirmation of this challenge.
- Open questions identified included sales and market access, particularly regarding whether products developed by designers can be integrated into the sales or advertising channels of large manufacturers.

Another important topic was **organization and opportunities for collaboration**. Many participants emphasized that it is every company's natural ambition to manage the issue of residues, by-products, and waste as effectively as possible. The first step is avoidance, the

second step is reuse within the company (internally). Seeking solutions outside the company is only the next step. The following points were also addressed:

- The event demonstrated significant potential for pilot collaborations, limited-edition product series, and socially beneficial projects. The following ideas for forms of collaboration were discussed:
- Bottom-up models, in which designers and craftspeople publicly communicate their material needs, thus enabling more efficient communication with industry.
- Establishing new clusters or strengthening existing centers, with a greater focus on networking between industry and creative professionals.
- Participants frequently expressed great interest in collaborative models where designers develop products that can be integrated into existing industrial technologies.
- As a practical next step, factory visits and on-site exchanges were suggested.

Other general problems that were raised by many participants included:

- Intense **price pressure** from manufacturers in low-wage countries. This has led to a long-term decline in traditional clothing production and employment, for example. To remain competitive, companies must focus on specialization, high-quality products, niche markets, and technologically advanced textiles, but this transformation requires investment and strategic repositioning.
- **Human capital issues**: There is a shortage of skilled workers, particularly those with technical and digital skills. As production becomes increasingly automated and digitized, companies need employees with knowledge of advanced machinery, information systems, and sustainable production methods. However, due to the industry's traditional image, it can be difficult to attract younger generations to careers in sectors like the textile industry.

In addition to the aspects mentioned by all sectors, there were also a number of specific topics.

Specific topics in the sector Agri-Food:

There are a number of other networking opportunities/examples in this area:

- Using the services of consultants and consulting firms can improve companies' situations, also in conjunction with applying for financial support for worthwhile projects.

- For example, the Saxon Economic Development Agency offers a wide range of support services such as business angels, financing, and partnership assistance.
- Initiating cross-sector partnerships, such as between the catering and packaging industries, is crucial. This is the only way to establish secure supply and trade relationships.
- Waste Exchanges

Further risks in the agricultural and food industry:

- There is a very strict legal environment, including food safety regulations, which imposes significant restrictions and difficulties regarding cooperation. This is especially true when human consumption is the ultimate goal of a new product idea.
- Differences between supply and demand in terms of quantity: There can be large discrepancies between the amount of residual materials generated (during a specific period – harvest time) and the quantity that the artisan needs and can utilize. It is uncertain whether this is profitable for both parties.
- Logistics-related problems, transportation: Materials must be transported and stored, etc.
- Consistency issues
- Many activities focus on plant-based products. Residues of animal origin are subject to additional hygiene requirements, which sometimes make alternative uses difficult or impossible.
- Often, residual materials are used for energy recovery.
- Smaller and medium-sized businesses often have more problems implementing useful solutions for recycling than larger ones.
- Residual materials in the Agri-Food sector are a very sensitive area for companies. Questionnaires like those designed in Symcraft partially address this sensitive area. Data protection and data security play a crucial role for companies in this context. Therefore, some of the information requested in Symcraft will only be available in a limited or anonymized form from the companies' perspective.

Specific Problem Situations in the Textile Sector

- The involved partners identified that engagement was difficult and different for each project area. Some partners had more problems engaging the industry companies, some partners were struggling to get artisans involved.

- The interest to find solutions for the textile waste was there however, as in 2025 the EU Waste Framework Directive (Directive 2008/98/EC) was amended with an additional Mandatory Extended Producer Responsibility (EPR) for Textiles. This means that producers of textile materials must bear the costs of collection, sorting, recycling, and reporting for the waste associated with their products.
- At the same time it was found in all project areas that access to materials emerged as a key challenge. Production waste is rarely visible or recognized by artisans and designers as a potential resource. Even when creatives reach out to companies proactively, the communication and logistics required to handle small, irregular waste streams are often perceived as too time-consuming and inefficient for production firms to take on.
- Therefore, the role of the project partners as intermediaries cannot be neglected. The intermediaries are essential to overcome the obstacle of accessing the waste material of the industry companies in order to help establish cooperations between the industry companies and artisans.

The next steps are the continuation of pilot actions 2, 3, and 4.

- Activity 2.3 Pilot action n.2 - Developing eco-business models for handicraft products/services from industrial waste
- Activity 2.4 Pilot action n.3 - Models of cooperation between industry and the handicraft sector to reuse industrial waste
- Activity 2.5 Communication

11. ANNEXES

1. **Meeting in Bratislava (February 10th and 11th, 2026) -agenda**

2. **40 collaborations**

   2.1. 10 Agri-Food collaborations

   2.2. 10 Wood&Furniture collaborations

   2.3. 20 Textile collaborations