

THE DANUBE GOES CIRCULAR

Small and medium-sized enterprises
in transition
to circular economy



A stream of cooperation
Project cofunded by European Union
Funds (ERDF, IPA)

 **Interreg** 
Danube Transnational Programme
MOVECO

Cover graphic

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Disclaimer:

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About the MOVECO project

“Your trash is my treasure”

Sixteen partners from ten countries along the Danube River have been fulfilling the above motto by implementing the EU co-funded project **MOVECO – Mobilising Institutional Learning for Better Exploitation of Research and Innovation for the Circular Economy**. Various organisations including business support organisations and research bodies, ministries, NGOs, chambers and clusters have started to foster transnational cooperation across businesses and research organisations through several piloting activities.

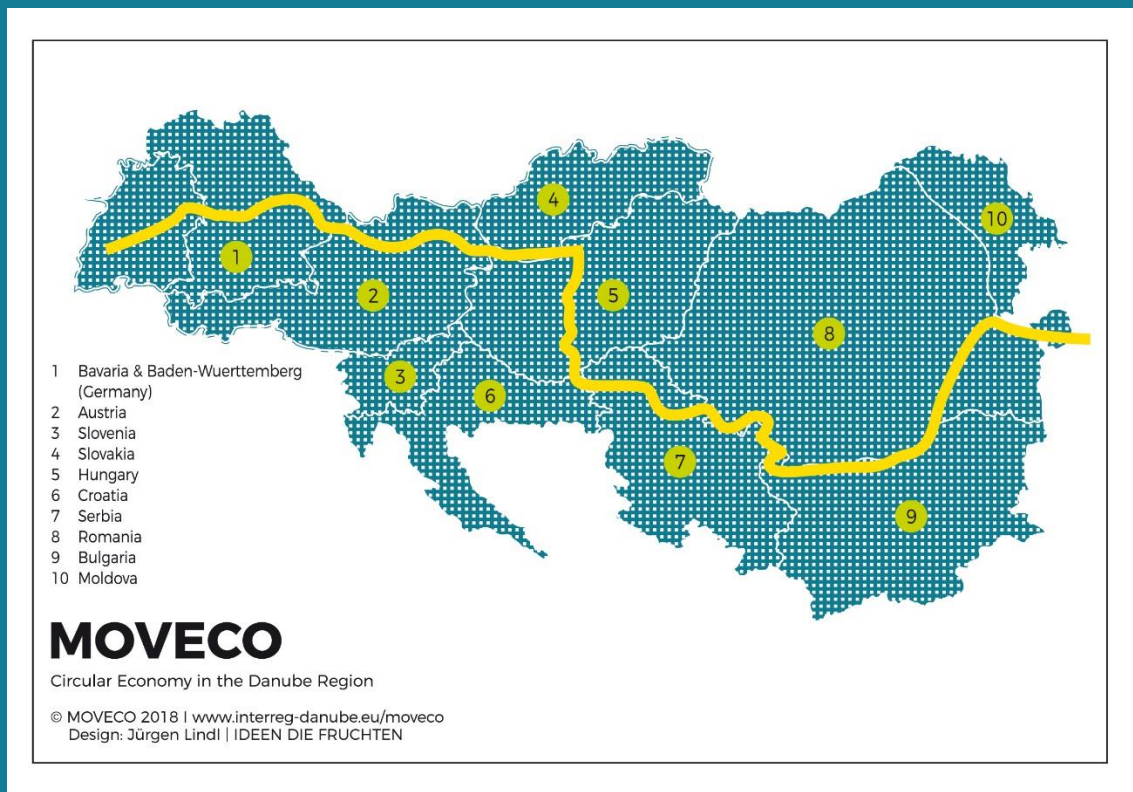


Figure 1: Geographical area of DTP countries

We recognise the importance of the circular economy for a future sustainable society. Although gaining considerable attention at both the European and national level, there is still a lack of accessible tools, opportunities, support services and capital, particularly for small and medium-sized enterprises. They may experience difficulties and fall behind during the already running circular transition. However, there is also a great opportunity to be explored, hidden in new business models and customers. The MOVECO project aims to uncover these opportunities and help SMEs to understand and apply the circular approach in their day-to-day operation.



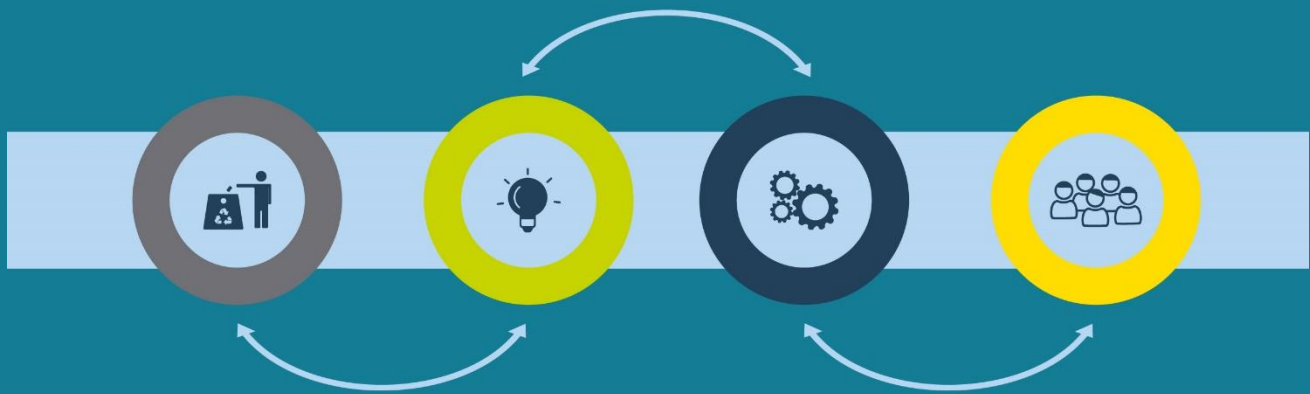
Under the framework of the Danube Transnational Programme, MOVECO is an Interreg project, co-funded by the European Regional Development Fund (ERDF) and the Instrument for Pre-Accession Assistance (IPA). The project duration is 12/2016–08/2019.

www.interreg-danube.eu/moveco

About the activity

As Freek Van Eijk, a Dutch circular expert from Holland Circular Hotspot, says *“In a circular Economy the challenge might, however, be 20% about technological innovation and 80% about social innovation connected to culture, awareness, trust and coalition building.”* Thus, establishing cooperation across industries and value chains in the form of innovation, design, marketing or knowledge sharing projects may play a significant role in the acceleration of circular transition. We took this fact seriously during our project activities.

The MOVECO project contributed by creating opportunities for partnerships. During the piloting of the MOVECO circular tools, partner organisations have been testing a range of new collaboration and match-making formats². As result of these activities, we managed to get in total 206 SMEs from the Danube region countries who want to engage in new green partnerships with public or private research and innovation partners to make their business activity more resource-efficient.



These companies expressed their interest by completing and signing the **Expression of Interest form** (Eoi, also attached at the end of report). The organisation filled in its profile, declared a type and area of interest and also chose a national or transnational level of collaboration. The companies could choose who they wanted to work with – R&D oriented companies or institutions, a new or innovative value chain, consortium for a research project, a public-private partnership or other.

The MOVECO project team proposed five main areas of circular cooperation:

- **Product design:** The circular economy principles demand that products be kept valuable as long as possible. The possible cooperation may be focused on redesign strategies or guidelines which would make the product features and materials recoverable, repairable and recyclable. Refurbishing and longer product life span are also the subject of design. At the same time, product design should preserve the properties and use comfort for customers.
- **Plastics with higher recyclability:** Plastic recycling is a hot topic, as demonstrated by the discussion on the European strategy for plastics. Recycling does not begin with collection but rather with design. Composite materials or materials with the presence of

¹ Read more on <https://www.linkedin.com/pulse/scaling-up-circular-cities-freek-van-eijk/>

² Find more about this activity in the report – The Danube goes circular -

undesirable additives lower the value and profitability of the recycling process. Bio-based plastics may cause complications in plastic collection. Improving the design will help producers and distributors to adapt to stricter legislative conditions and waste management objectives.

- **Extraction and recyclability of critical, conflict and rare earth elements:** Europe is highly dependent on imports of minerals – it imports up to 60% of fossil fuel and metal resources. At the same time, the EU has listed 20 critical minerals. These elements are subject to price volatility and security of supplies, mainly in electronic industries.
- **Dematerialisation:** We can deliver the same product or service using a percentage or none of the material. Thanks to the optimisation of the resource and energy use, tools/product sharing and servitisation, the companies as well as users can save money, time and the environment.
- **Digitalisation, software update:** Tracking resource use or waste production in companies and cities can optimise the processes and deliver better insights into material flow. Digitalisation, online platforms and smart technologies can strengthen connections between supply-chain actors and bring transparency to municipalities.
- **Other:** Companies could design their own desired type of cooperation

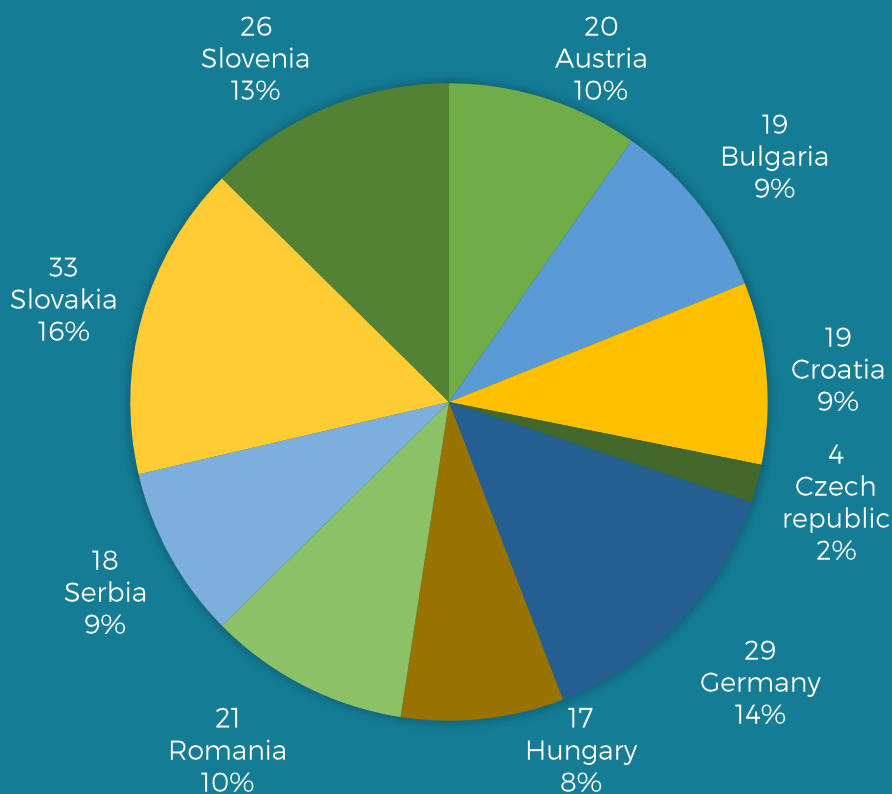
The forms were collected by MOVECO partners who began to seek a suitable partner organisation in order to meet the companies' interests and expectations. Several companies have been also registered in the Virtual marketplace on the Danube goes circular platform (<https://danube-goes-circular.eu/>), so they could effectively search for potential customers for their waste materials, by-products, and used or circular products, as well as circular service.

The main **target group** were small and medium-sized companies (SMEs) and start-ups, however several other types of organisations such as non-profits or bigger companies were also reached and were interested in the activity. The next section presents interesting data that we extracted from the collected forms.

Activity output and statistical data

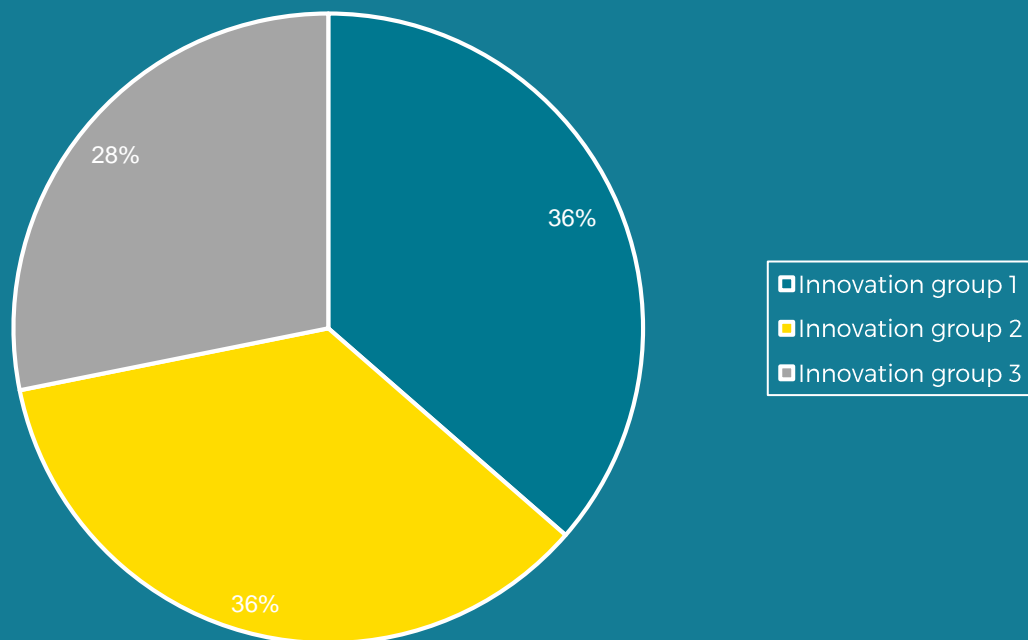
The MOVECO consortium managed to obtain in total 216 signed forms of expressions of interest, out of which 206 were signed by SMEs or start-ups. The 10 partner countries where the form collection took place are divided into three innovation groups according to the Eco-innovation performance³. The first innovation group – eco-innovation leaders including Germany, Austria and Slovenia, collected 75 Expressions of Interest (Eols). Slovakia, Croatia, Hungary and Czech Republic, with average eco-innovation performance, contributed 73 Eols. The third innovation group – Romania, Bulgaria and Serbia – managed to collect Eols from 58 companies.

Figure 2: Number of Expressions of Interest collected per country



³ Find out more at https://ec.europa.eu/environment/ecoap/indicators/index_en

Figure 3: Number of Expressions of Interest collected per Innovation group



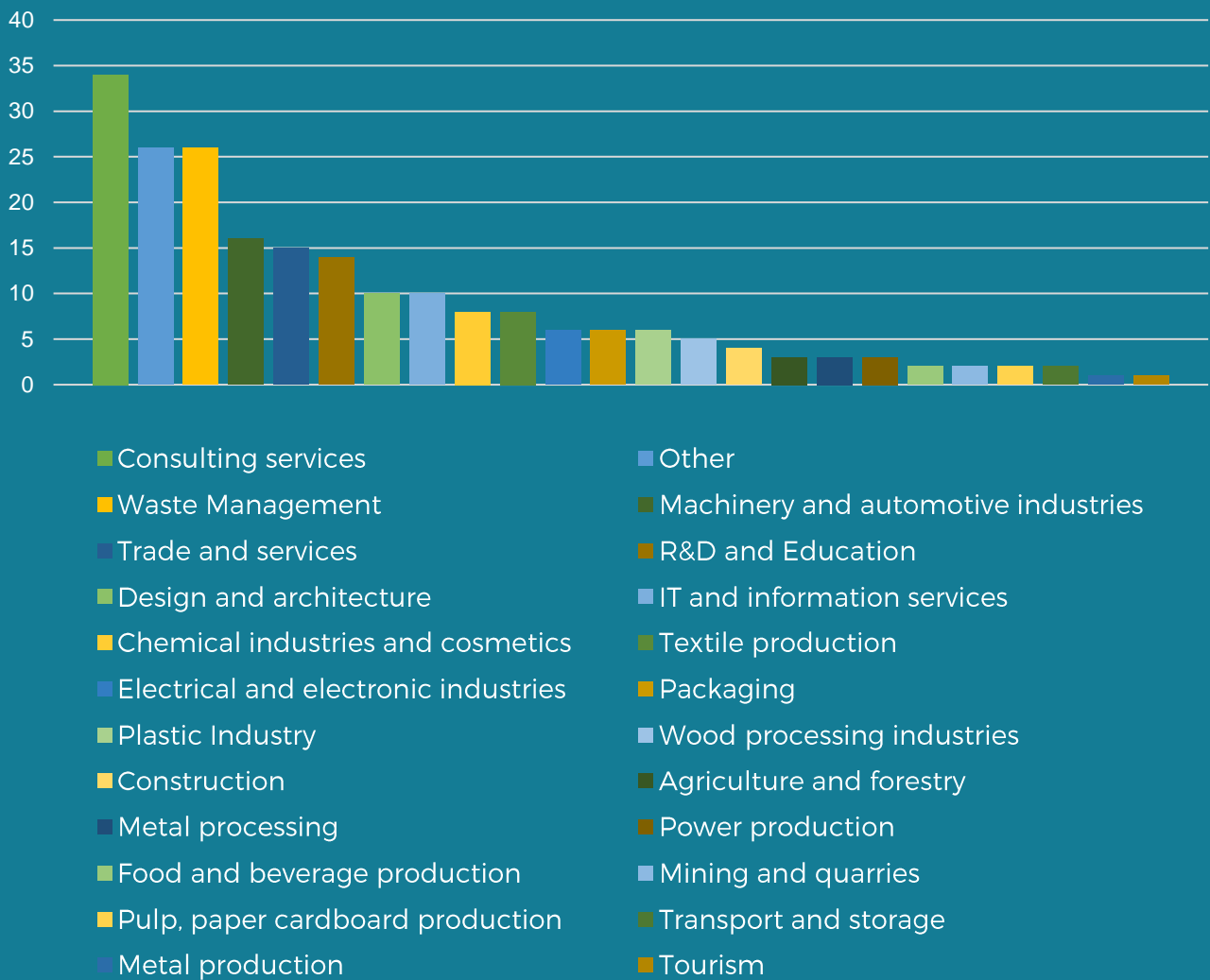
The process of obtaining the Expressions of Interest is not as easy as it might seem. In general, establishing cooperation requires time; companies need to know each other and require some degree of private communication. It was therefore difficult to obtain a signed document in a short period. In Slovakia, piloting events focused on collaboration and financial tools with the increased participation of different organisations enabled such links to be established much more effectively. Bulgarian partner also confirms that the collection of EoI was easier during events after which the companies had acquired some general information about the project. In the case of Serbia, SMEs are reserved regarding receiving consultations about how to run their own business. They see potential in innovations based on circular economy design and production but are still concerned about the possibility of investing in changes in the existing business processes. There are real needs and desires for collaboration in Romania, however the development in this direction is slow.

Therefore, the final amount of EoI reflects these experiences.

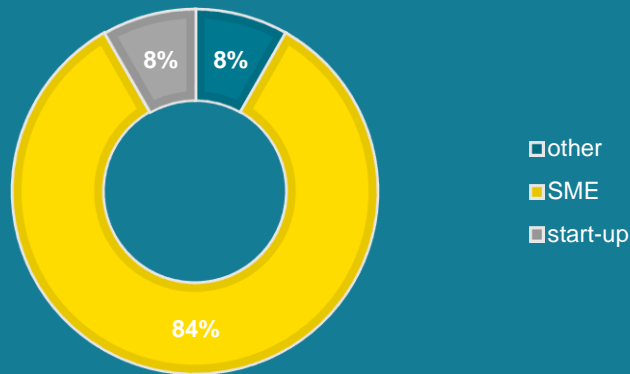
Sectoral breakdown – field of activity

Most companies (34) have listed consulting services as their main field of activity. Waste management comes second (27), followed by the machinery or automotive industries (16) and trade and services (15). A large number of companies reported other activities (26) which we have filtered out to improve the chart's readability. On the other hand, the least-mentioned fields were tourism and metal production.

Figure 4: Expressions of Interest according by the field of activity



5: Expressions of Interest by the type of company

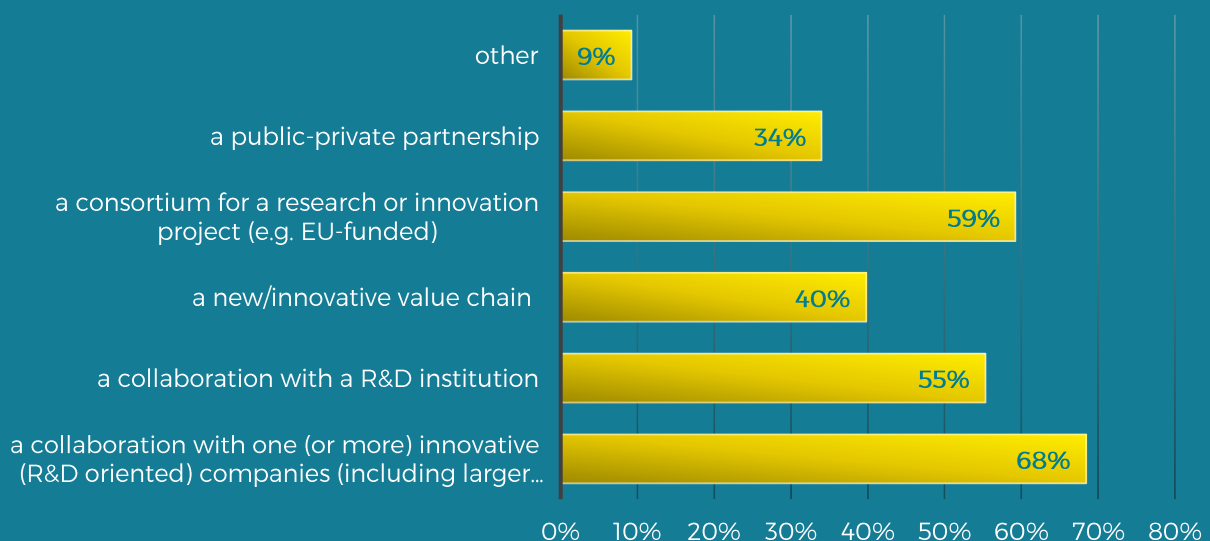


Most of the companies (84%) were **small and medium-sized**, which were the project’s primary focus group during the circular tools piloting events. Eleven percent of the approached organisations stated other type, among others public research institutes, corporations and big companies, and non-profit organisations etc. carrying out economic activities.

Type of collaboration companies are interested in

When it comes to the type of collaboration the companies involved in the MOVECO project were interested in, most companies were interested in collaboration with one more innovative (R&D oriented) company (69 %) and entering new/innovative value chains. More than 50% of the companies were also interested in collaboration with a consortium for a research or innovative project or an R&D institution. Only 73 of the companies were interested in public-private partnerships. Some companies also mentioned other types of collaboration, e.g. collaboration with investors.

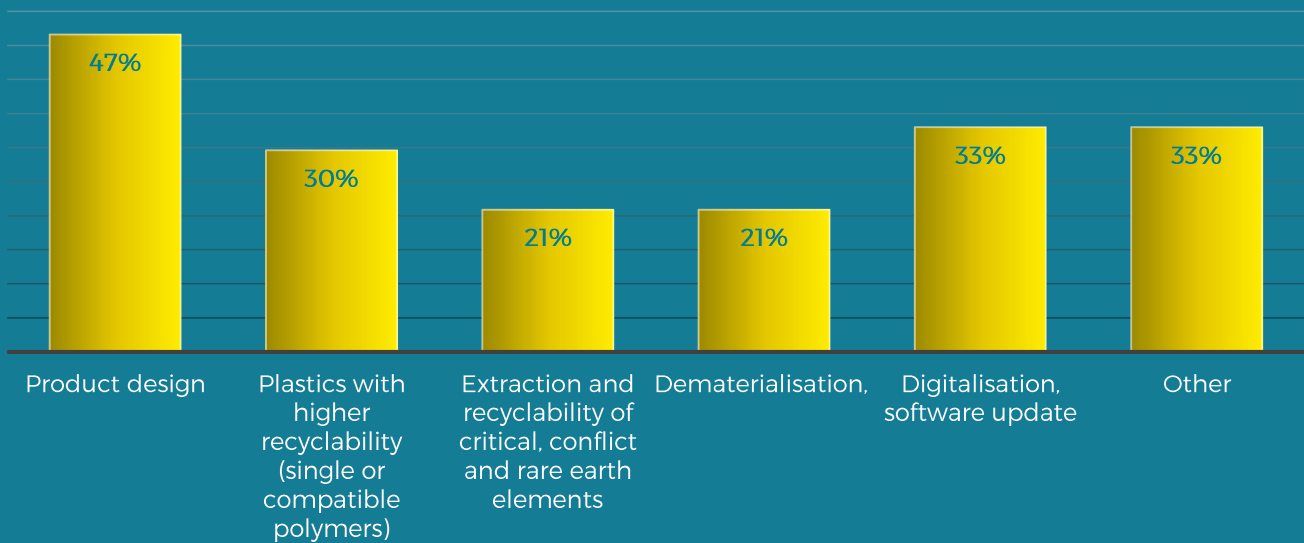
Figure 6: Type of collaboration companies are interested in



Areas of collaboration

Forty-seven percent of the companies were interested in product design, more than 30% of the companies were interested also in the field of digitalisation and software update. The fact that plastics have attracted considerable interest is also confirmed by the fact that a high number of the companies providing the EOIs indicated their interest in collaboration, focusing on plastics with higher recyclability. Dematerialisation and extraction and recyclability of critical and rare earth elements were attractive for 21% of the companies. Other areas such as bioeconomy or resource and energy efficiency were also proposed.

Figure 7: Areas of collaboration companies were interested in

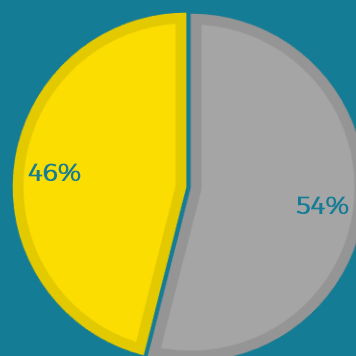


Level of collaboration breakdown

As for the level of collaboration, more companies were interested in transnational collaboration, however, the difference is not significant.

Figure 8: Level of collaboration companies were interested in

■ National or regional level ■ Transnational level (Danube Region)

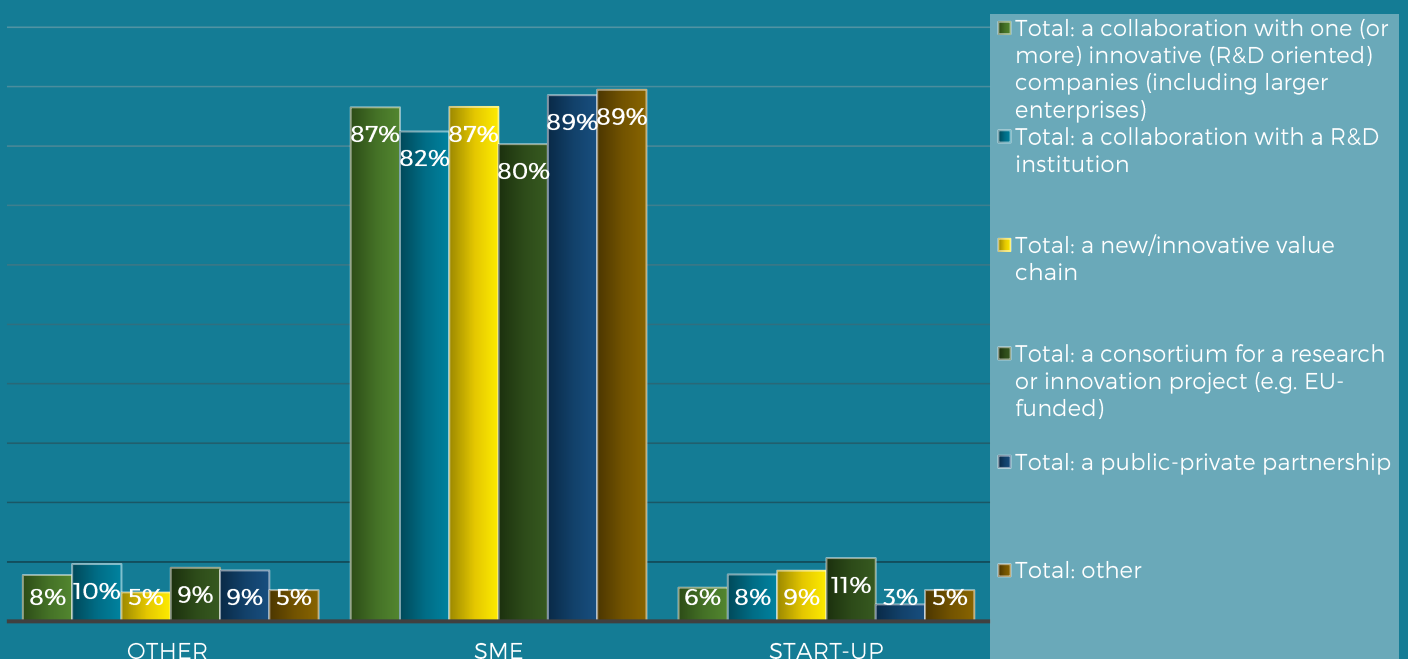


Preferences of different type of companies in collaboration with other institutions

The following graphic shows the differences between different categories of companies (SMEs, start-ups, others) and their interest in collaborations with various types of organisations. Two categories (start-ups and other) represent only a small part of the companies.

As the figure below indicates, there are no significant differences between the interests of types of organisations concerning the type of collaboration. However, the number of start-ups and other type of companies was too low to compare and draw conclusions for these two groups.

Figure 9: Preferences of different types of companies in various types of collaboration

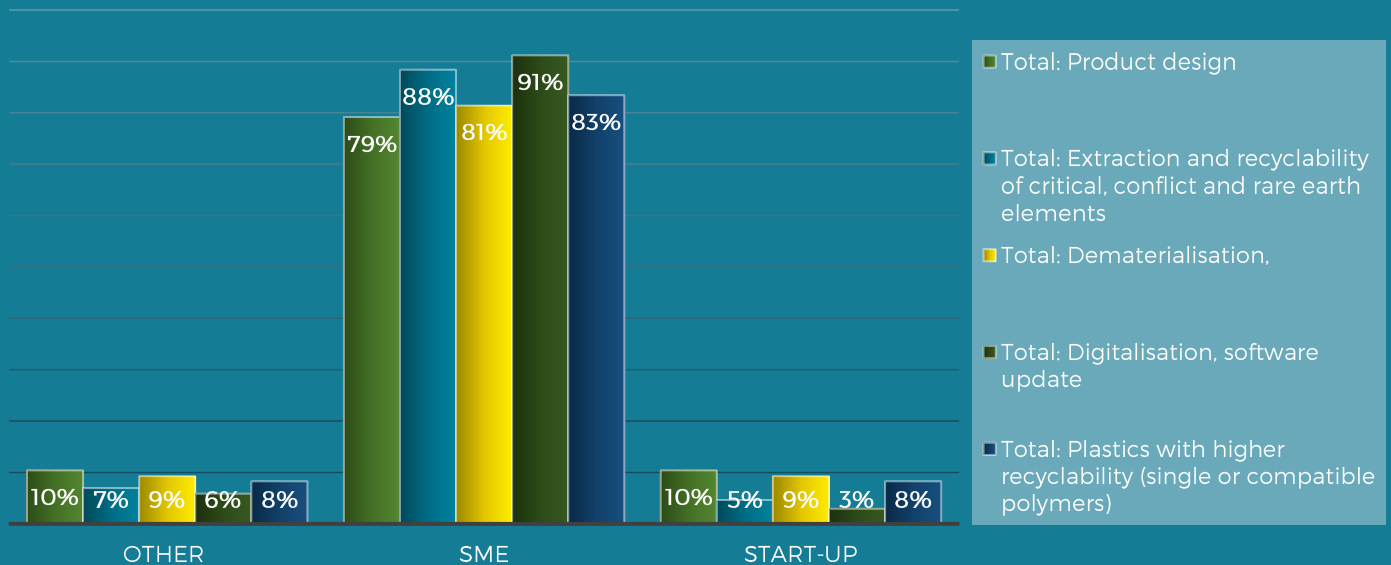


Preferences of different types of companies in areas of collaboration

Similarly, the category of company does not seem to affect the interest of companies in various areas of collaboration. In the case of SMEs, the interest in collaboration in the areas of digitalisation and software update was 87%, followed by extraction and recyclability of critical, conflict and rare earth elements (84%), plastics with recyclability (81%) product design (77%), dematerialisation (78%).

As mentioned above, the number of start-ups and other type of organisations was too low to draw conclusions regarding their interest in the proposed areas of collaborations.

Figure 10: Preferences of different type of companies in various areas of collaboration



Preferences of companies in Innovation groups

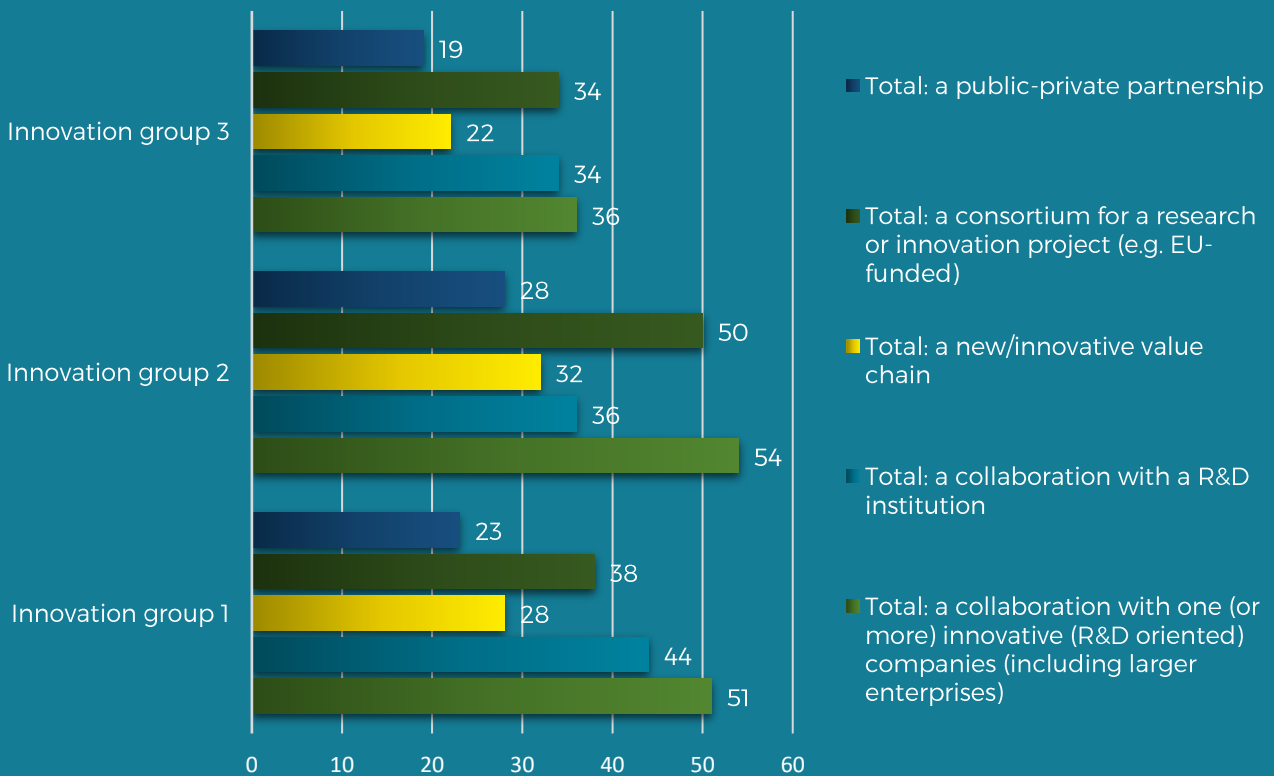
Slight differences between the preferences of companies are evident among the Innovation groups. In the next section we provide an overview of companies' preferences in each Innovation group.

Type of collaboration

When comparing the interests of companies in the type of collaboration, the preferences of companies from Innovation groups 1 and 2 seem to be very similar. In general, collaboration with innovative companies, R&D institutions and a consortium for a research or innovation project (e.g. EU funded) were the most frequent types of institutions selected for collaboration. On the other hand, the public-private partnerships seem to be the least attractive type of collaboration for companies in Innovation groups 1 and 2.

The results in Innovation group 3 indicate a higher interest of companies in collaboration within public-private partnerships. Other types of institutions were selected for collaboration by approximately 60% of companies. Collaboration with a consortium for a research or innovation project (e.g. EU funded) seems to be the least popular form of collaboration in this Innovation group.

Figure 11: Preferences of companies in the type of collaboration – all Innovation groups



Approximately 70% of the companies in Innovation groups 1 and 2 were interested in collaboration with one (or more) innovative (R&D oriented) company. Companies in Innovation group 1 then preferred collaboration with an R&D institution (59%), a consortium for a research or innovation projects (51%), entering a new value chain (37%) or a public private partnership (31%).

A similar number of companies in Innovation group 2 declared their interest in collaboration with a consortium for research or innovation project (68%), followed by the R&D institutions (49%), entering a new value chain (44%) or a public private partnership (38%).

A high number of companies in Innovation group 3 indicated their interest in collaboration with one or more of an innovative (R&D oriented) company (63%). A similar proportion of the companies then declared interest in collaboration with an R&D institution, and a consortium for a research or innovation project (approximately 60%). Collaboration within new / innovative value chains and public-private partnerships was chosen by about one third of the companies. Companies also declared their interest in collaboration with other types of organisations (e.g. investors).

Figure 12: Preferences of companies in the type of collaboration - Innovation group 1 in %

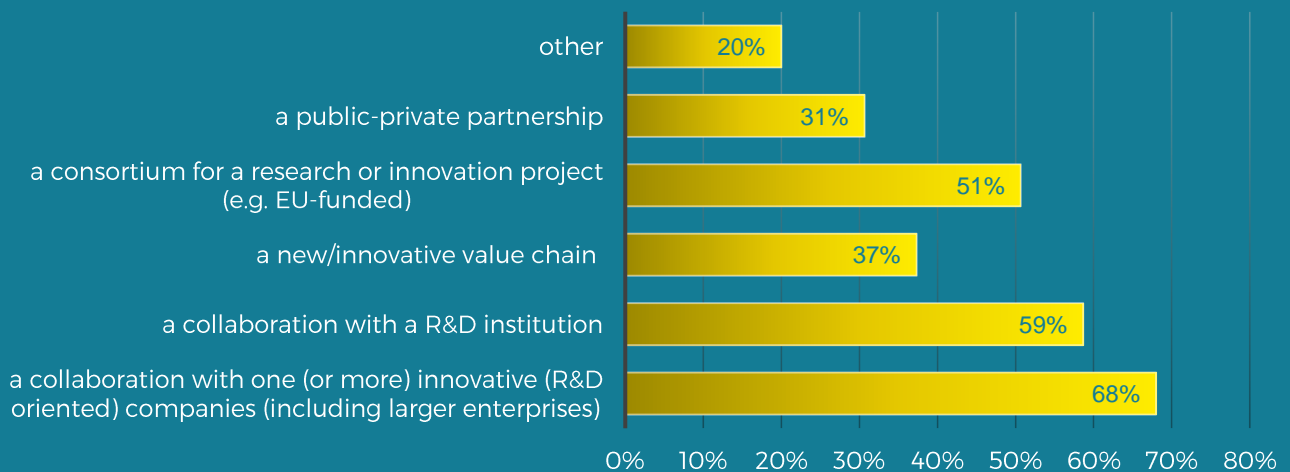


Figure 13: Preferences of companies in the type of collaboration - Innovation group 2 in %

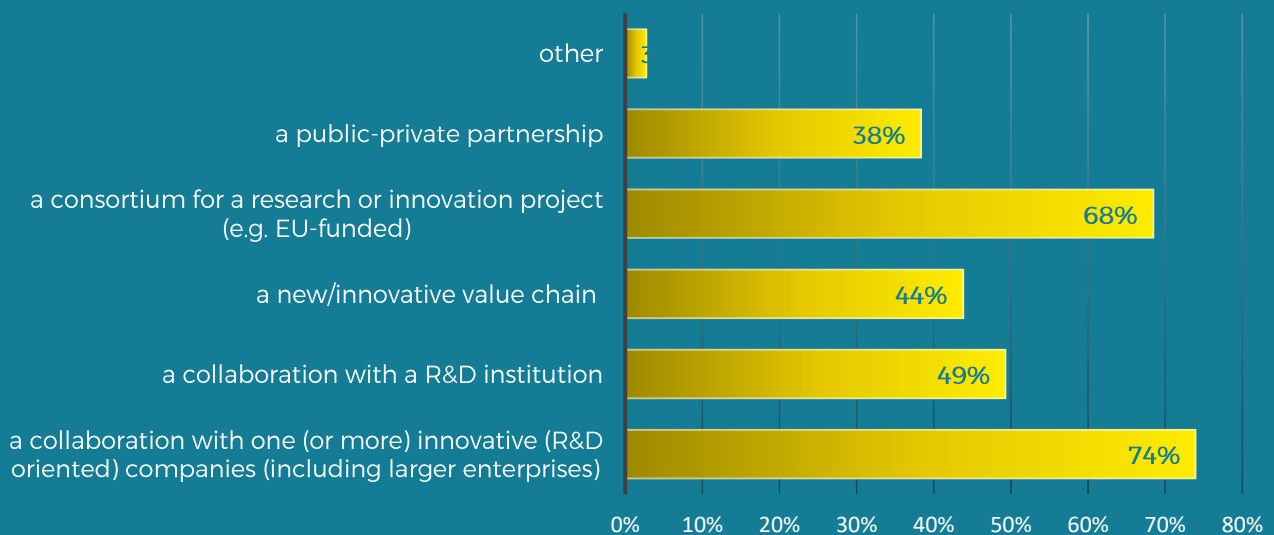
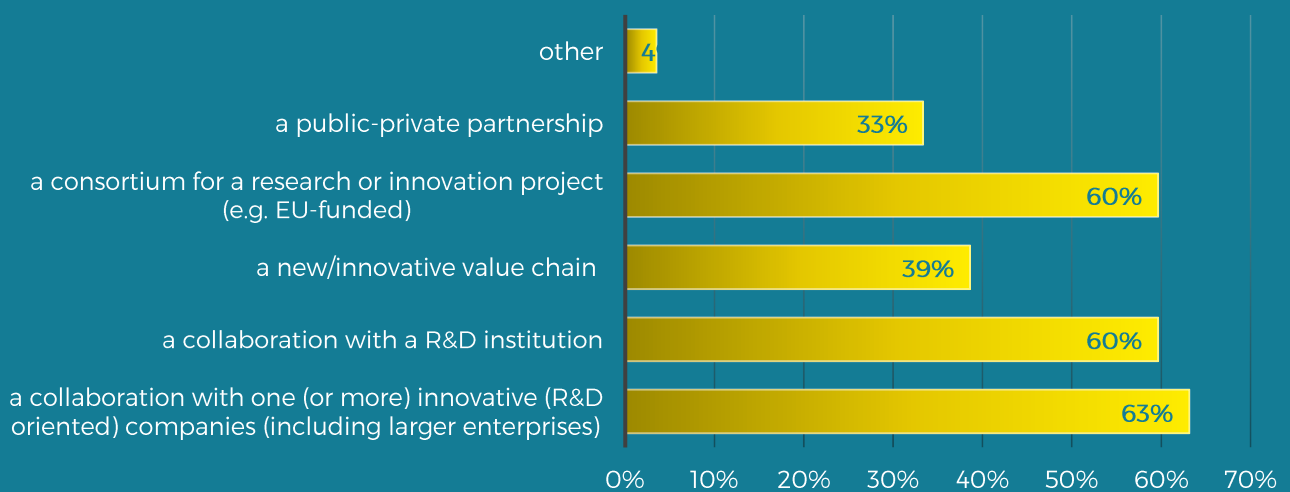


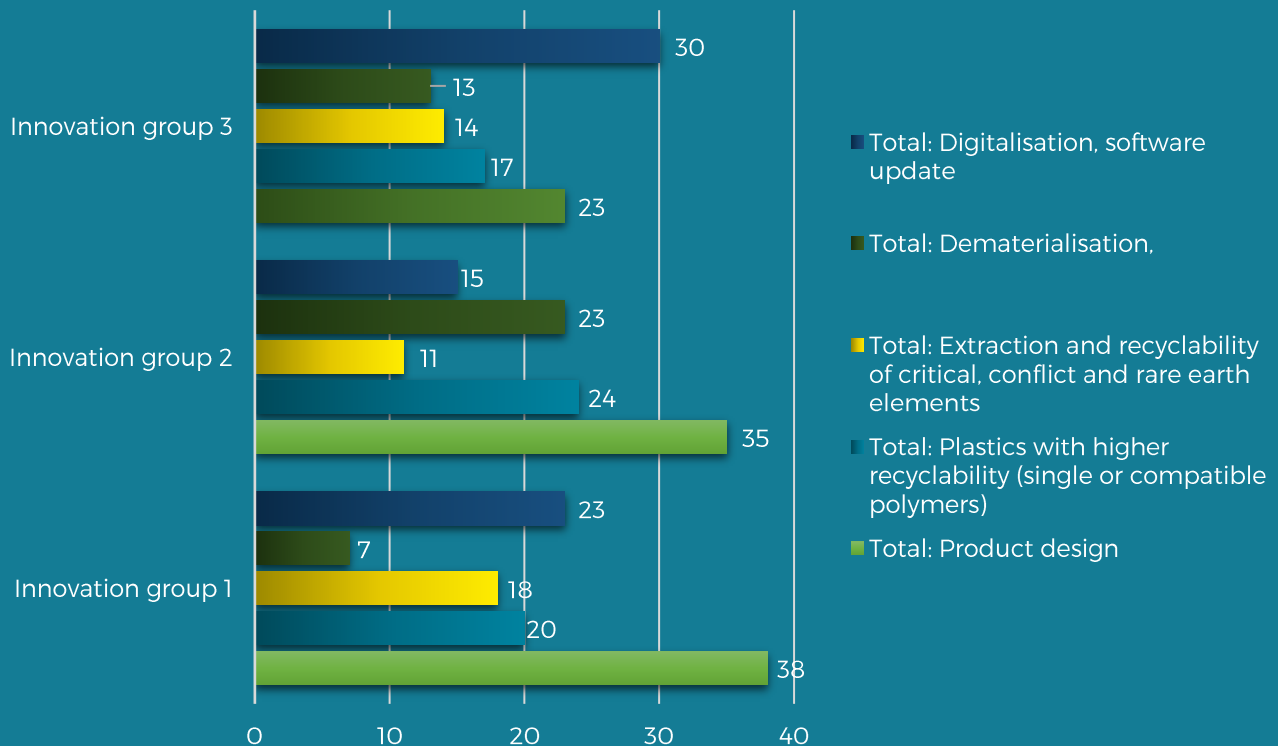
Figure 14: Preferences of companies in the type of collaboration - Innovation group 3 in %



Area of collaboration

When comparing the preferences of companies in the area of collaboration, the preferences of companies from Innovation groups vary more significantly.

Figure 15: Preferences of companies in the area of collaboration – all Innovation groups



Companies in Innovation group 1 were interested in collaboration focusing on product design (51%). Plastics with higher recyclability was selected by 27% of companies, extraction and recyclability of critical, conflict and rare earth elements by 24%, dematerialisation by 9% and digitalisation software update by 31%. Other areas (51%) included resource and energy efficiency or bioeconomy.

In the case of Innovation group 2, almost half of the companies declared their interest in product design (48%). Collaboration focusing on plastics with higher recyclability was selected by 33% of companies, followed by dematerialisation (31%), digitalisation and software updates (23%), and extraction and recyclability of critical, conflict and rare earth elements (16%). Other areas included, for example, bioeconomy or waste water treatment.

More than a half of companies in the innovation group 3 were interested in collaboration in the area digitalisation, software updates (53%), followed by product design (40%), plastics with higher recyclability (30%), extraction and recyclability of critical, conflict and rare earth elements (25%), and dematerialisation (23%). Other areas were indicated by 26% of companies.

Figure 16: Preferences of companies in the area of collaboration - Innovation group 1 in %

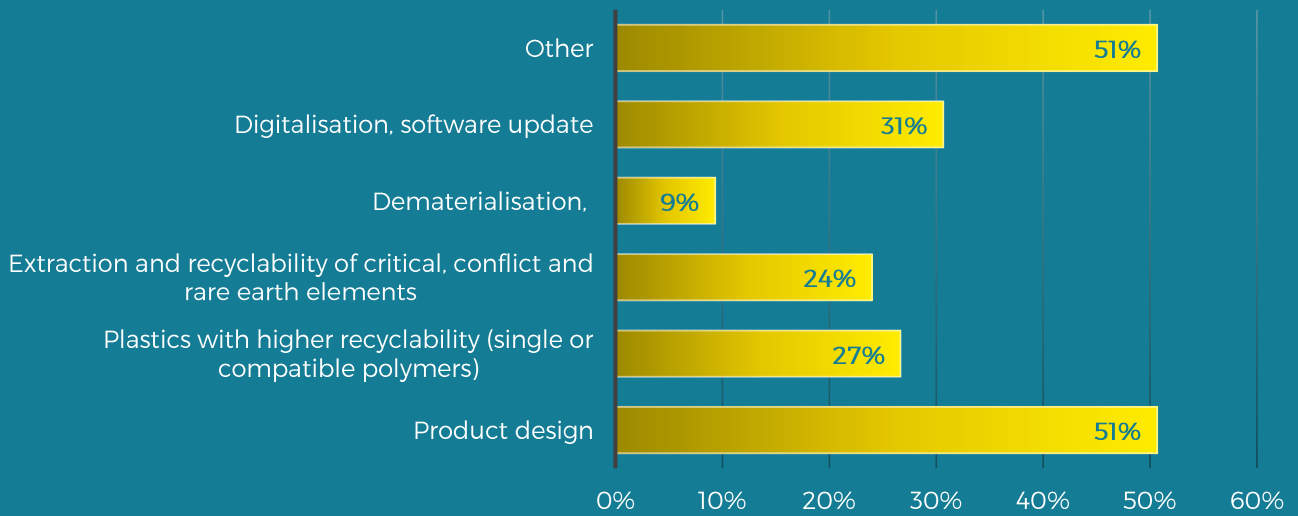


Figure 17: Preferences of companies in the area of collaboration - Innovation group 2 in %

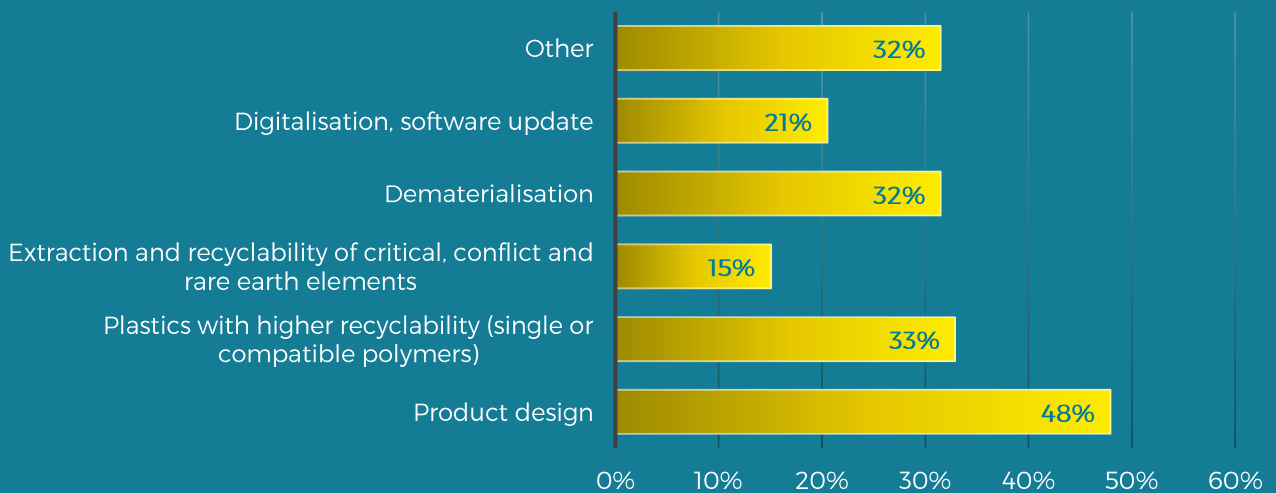
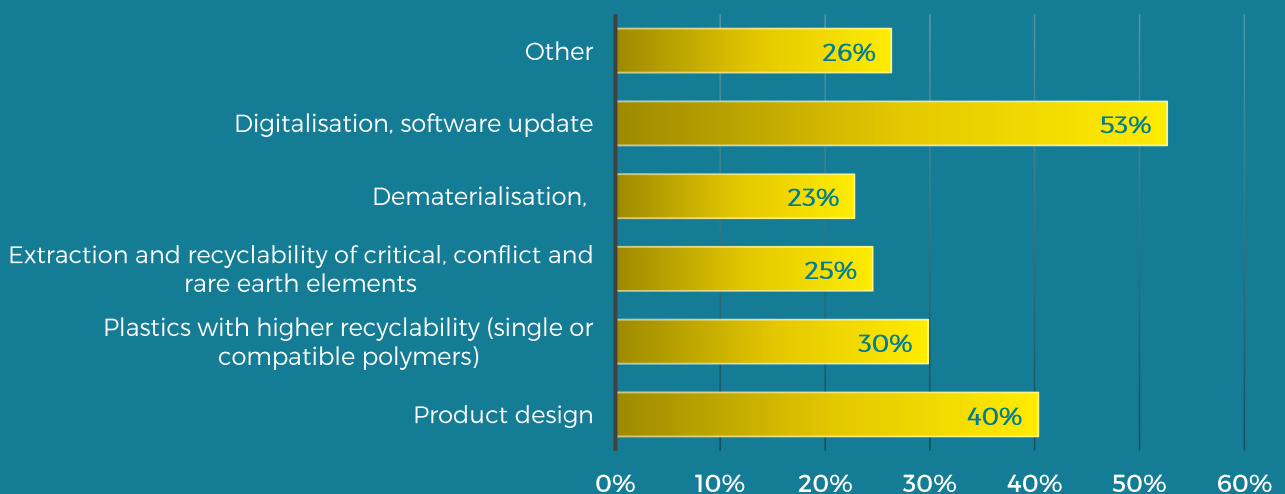


Figure 18: Preferences of companies in the area of collaboration - Innovation group 3 in %



Success stories

Based on the experience of the MOVECO partners, various barriers were identified in facilitating the creation of cooperation among companies. In general, establishing cooperation requires time; companies need to know each other and require some degree of private communication.

Several partners reported time-constraints at the side of the companies as a major challenge. At the same time, the needs of companies are highly individual.

Therefore, direct contact with companies, both during events or at company visits, enables the companies' needs to be identified and provides more accurate support, as well as helping to build trust.

Throughout the MOVECO project, support was provided to companies through various activities conducted by the MOVECO project partners. To learn more about the good practices identified, please see the Output 6.2 – Report on MOVECO pilot actions.

In the next section we present examples of partnerships created within the scope of the MOVECO project.

BULGARIA



Bio Company "Lopyanko"

2, Plachkovitsa Str., Sofia
Bulgaria

- micro company
- sector: Agricultural production

Bio Company "Lopyanko" (<http://lopyanko.eu/>) is a young innovative company in Bulgaria with a high calibre team of experts. Its main objective is to establish an industrial plant of a circular economy type in the Danube Region for organic silk production and further utilisation of the waste products from primary production as high quality secondary raw materials.

Initial situation in the company:

"Bio Company Lopyanko" Ltd. is a young company, established in 2013. The main business activities during the last four years were in the agricultural fruits & vegetables sector, together with harvesting mulberry yields and polycultures. The business development team of the company is focusing on the research and development of a new concept in the field of organic, 100% pure agricultural production. This process led us to the idea of developing and building a new technology, based on silkworm-derived products for feed and food industries and selling them on global markets. We did not hesitate to join the MOVECO project, as from the beginning we believed that this would be a useful step for us in successfully implementing our circular idea in practice.

Tools used by the company/Services provided to the company

On several occasions we were presented with the Circular Economy Toolbox developed within the MOVECO project. BCCI provided Lopyanko with two of the information tools – the brochure "Your trash is my treasure" and the factsheet. By using the online collaboration tools available on the platform and virtual marketplace, we were matched with an international partner, a technological centre, which will support the company in submitting a project proposal under the Horizon 2020 Programme. At the invitation of BCCI, representatives of Lopyanko participated in the final conference in Linz by giving a presentation in the panel "Circular Economy ideas and visions". The conference also provided an excellent opportunity to establish contact with the MOVECO partners and stakeholders.

Outcome

As result of the collaboration established within the scope of the project, Lopyanko will submit a project proposal under the Horizon 2020 Programme. The project proposal is being prepared in cooperation with our international partners and aims to develop the technological capacity of the company for processing one of the sub-products. Also in the framework of the project, we held a series of meetings with the President of BCCI to discuss the possibility of establishing an association of companies active in the field of CiE. The idea was fully supported by the management of BCCI and we are currently in the process of finalising the documents for registration of the association.

ENTREPRENEUR'S QUOTE



"I am grateful that our company was presented with the opportunity to participate in the MOVECO project. Thanks to MOVECO and its Circular Economy Toolbox, we were able to establish valuable contacts and exchange experience and good practices with stakeholders and potential partners, active in the field of the circular economy in the Danube region."

Mrs. Desislava Dimitrova, CEO of Bio Company Lopyanko Ltd.



Bor-plastika Ltd.

Glavna ul. 2, 31309, Kneževi Vinogradi
Croatia

- small company
- sector: manufacture of rubber & plastic products

Bor Plastika Ltd. is a manufacturing company established in 1997. It produces a wide spectrum of products made from thermoplastics, in particular a range of wastewater treatment (WWT) devices. While the company is continually improving production technology, their team of experts is also developing new types of WWT devices for different kinds of wastewaters. All of their products are designed and manufactured in conformity with the European standards (EN), and they are tested and certified accordingly to them. Their core product is BP ASP WWT device for the treatment of sanitary sewerage with an activated sludge process (ASP). With 22 years of tradition behind it, the company has 50 employees and is quickly progressing into a respectful company whose vision is to protect the environment for future generations and the sustainable development of the entire region.

Initial situation in the company:

As already mentioned, the core product is the BP ASP WWT device for the treatment of sanitary sewerage with an activated sludge process (ASP). It consists of three parts:

- primary settler tank and sludge tank,
- bioreactor with aeration,
- secondary settler tank.

One of the challenges faced by biological wastewater treatment plants (WWTP) is the capacity to handle load variations throughout the year. In situations where a significant variation in hydraulic and organic load in raw wastewater exists, such as sectors for tourism purposes (hotels, apartments, and weekend resorts), the most common WWTP with activated sludge cannot work steadily throughout the entire year, which has a negative impact on the environment.

Considering these challenges, Bor Plastika Ltd. went further by wanting to improve the current technology for the fabrication of wastewater treatment plants. This is the reason why they are interested in being involved with the piloting in the category of new product design and/or plastics with a higher degree of recycling.

Tools used by the company /Services provided to the company

The collaboration tool helped the company to sustainably improve the capacity, to start implementation of the circular economy and unleash its potential for sustainable economic growth. Using the collaboration tool, the project application was prepared. The project that was found within these tools and through the MOVECO project was KET4CleanProduction.

Bor Plastika Ltd. received help with preparation of the Technology Request and mentoring throughout the whole process of applying to the new project. This will help the company to improve their existing circular economy development, which will lead to better sustainable development.

Through the information tool, the company participated in all kinds of events, primarily in Be the role model/Inova, an international exhibition of innovations, prototypes and business plans.

At the event Be the role model™2018, Bor Plastika Ltd. won the Grand Prix for the best innovation with their innovation named the Static fluid mixer. Bor plastika Ltd. also participated in the Investor Day, which gave them the opportunity to establish contacts with potential investors and cooperation partners. The entire event was designed as a mixture of a business-to-business (B2B) and matchmaking. The informational character of the event helped the company to acquire all the necessary information and knowledge, as well as improving their existing network for future business growth.

Outcome

Through the whole involvement in piloting, the company received many benefits. Through mentoring, collaboration and networking they promoted their products as well as the vision of the company. They enjoyed the opportunity to partner with other R&Ds, and all sorts of doors opened for them as a result. Helping and mentoring them encouraged the development of the idea to improve their current technology. Help with applications to other projects got them a micro-grant and collaboration with major technology centres in the EU. Within the project KET4CleanProduction, new collaboration was established between the company Bor Plastika and two KET Technology centres from Portugal and Slovenia. This collaboration will give the company all the necessary resources for further steps in the improvement of their production process.

ENTREPRENEUR'S QUOTE



“Our main idea was to improve the company through upgrading business processes. We think we have succeeded in our plan and, with the experts’ help, developed a new and modern technology solution which will evolve based on circular economy principles.”

HUNGARY



Réthy Fashion Kft.

Csáklya str. 12, Szigetszentmiklós 2310
Hungary

- micro company
- sector: jeans recycling, fashion

Our company deals with the recycling of used jeans. We collect used jeans from consumers, schools and collection points. In exchange for the jeans a consumer brings, we offer him or her a discount when purchasing our products. The used jeans are cleaned and new products are designed and manufactured from them. We produce men's, women's and kid's clothes, and bags, accessories, upholstery, old chairs and armchairs.

Initial situation in the company:

One challenge for us was the problem of waste, namely, how we can handle the waste that we generate when we produce clothes and fashion items. However, thinking in terms of the circular economy, we realised that when the product reaches the end of its life cycle, the raw materials can be reused. In this way, the amount of waste is reduced, and the re-use of raw materials and final products is also economically valuable. That is how we started to work with the recycling of used jeans. In the beginning we made women's clothes, casual clothes and skirts. Another challenge for us was advertising and marketing used products.

Tools used by the company/Services provided to the company

We attended the training on "New material pathways" on 30 November 2018. Attending this circular economy training and workshop, we gained more insight into the practical perspectives about the circular economy. We were introduced to the best practices, while the "Fact Sheets" and the "Check lists" especially helped us to review our company's functioning from the practical perspective of the circular economy. We also attended the Round Table Discussion on the Circular Economy on 19 December 2018. We participated in the Round Table with the hope and plan to receive a more comprehensive and theoretical understanding of the circular economy. The discussion included voluntary producer responsibility, responsible management, prevention of waste generation, separate collection, reuse, recovery, recovery and obstacles to the recycling of waste. We also received more information about the functioning of the circular economy and innovative ideas on how to develop our company.

Outcome

The training and the roundtable discussion gave us a new, process-oriented perspective of the circular economy and supported the development of a new approach to waste. We thought about how we could improve circularity in the whole process. We have also examined how to produce fewer by-products. As a result of this reconceptualisation and new approach to waste, we began to look for circular business partners. In doing so we managed to find a partner, called Replacc, with whom we can collaborate. As a result of our collaboration, we design and produce pillows, large animal characters as children's toys and punching bags for our partner. The products are made of advertisement molinos and are filled with used jeans and textile waste that we could not handle properly before. We also designed a reading pillow made of used jeans.

This collaboration, which was triggered by participation in the training and the round table discussion, has led us to a point where we can solve the problem of managing the waste we generate during our production processes. In addition, it also opened a new business opportunity for us to generate new revenue for our company.

ENTREPRENEUR'S QUOTE

"I am pleased to announce that we have found partners for the recovery of our textile waste. It all started with a crazy idea and of course from our unshakable faith! MOVECO helped us to rethink our processes with fresh eyes."

GERMANY



HAWE Hydraulik SE

Einsteinring 17, 85609 Aschheim/München
Deutschland

- mid-sized company
- sector: hydraulics

HAWE Hydraulik is a mid-sized, internationally active family business headquartered in Munich/Germany. The production plants in Germany supply customers all around the world. HAWE Hydraulik aspires to combine over 65 years of experience in hydraulics with the integration of new technologies to provide innovative solutions.

Initial situation in the company:

In October 2018, HAWE Hydraulik started the "Zero Plastics" project at all production sites in Germany with the aim of no longer using disposable plastics by the end of 2022. This includes all plastic packaging in shipping and receiving, disposable coffee cups, food packaging and much more.

Tools used by the company/Services provided to the company

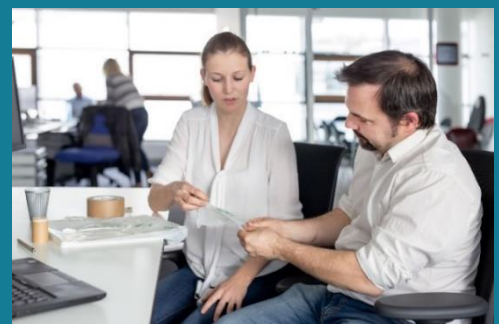
Within the MOVECO project, HAWE Hydraulik attended two events organised by UCB (Umweltcluster Bayern - Cluster of Environmental Technologies Bavaria). In addition, UCB staff presented different content from the Circular Economy toolbox, e.g. on new material pathways at HAWE Hydraulik. During this meeting, as well as during the workshop "Think circular!" and the networking event including a guided tour at a sorting plant for lightweight packaging, staff members of HAWE Hydraulik gained some new insights into the topic of the Circular Economy and some inspirations for their "Zero Plastics" project. As a follow-up, UCB supports the project "Zero Plastics", e.g. by hosting the next meeting of the network.

Outcome

"Zero Plastics" started as an internal project at HAWE Hydraulik. Now, it has already developed into a network with 20 representatives of companies from different sectors and sizes. In the network, interested companies exchange concrete measures and future ideas for the avoidance of disposable plastics. Previous experience with participation in energy networks has shown that goals can be achieved much more effectively and quickly by exchanging ideas and developing solutions together.

ENTREPRENEUR'S QUOTE

"Plastic packaging after the sorting process. Although some plastics get recycled, AVOIDING plastics, such as in "Zero Plastics", should be always the highest goal."





Landpack GmbH

Steinlacher Weg 1, 82239 Alling
Germany

- Small company
- sector: packaging

Landpack® GmbH is a Start Up company based in Bavaria (Germany) and founded by a young couple, who shared the vision of finding a sustainable material, which could replace Styrofoam. They found it: straw. Landpack® produces and commercializes sustainable insulation packaging from straw and hemp, and therewith contributes to the development of innovative packaging on a compostable and ecological basis. Straw shows a similarly low thermal conductivity as Styrofoam and additionally is moisture regulating. The straw is a by-product of cereal production of local farmers. Moreover, the isolation boxes are produced with minimal consumption of green electricity from hydropower. The ambition of Landpack® is to provide an ecological and appealing packaging to shippers of fresh, cooled, and shock-sensitive goods worldwide.

Landpack® is the first company in the world, which is able to process the abundant resource straw without the massive use of adhesives. This procedure is internationally patented and protected. The required, fully automatic installation was self-developed within three years.

Since its foundation, the company has grown steadily, in both ways externally and internally. The demand is increasing constantly and Landpack® could rapidly offer a broad portfolio of products and applications. Nowadays the company is also open for new and different uses in other sectors like pharma industry.

The company has won several prizes at national level for its new business model, vision and implementation, for example the German Packaging Award and the Next Economy Award 2016.

Initial situation in the company:

Landpack® was born with a clear vocation towards sustainability and environmental awareness. The main raw material of their products is straw and the vision of the company is the substitution of Styrofoam in the packaging industry in order to avoid the massive pollution, which comes along with this chemical product. The company was informed about the MOVECO project and tools during a first meeting with the Bavarian Environmental Cluster, which was also oriented to explore funding possibilities at regional level for sustainable products and solutions.

Even though the idea was very promising at economic and political level, public support and visibility was needed. Landpack® got an overview of the different MOVECO Tools for design and. During the project, a second meeting (this time with BayFOR) in parallel to the Key Account Services as beneficiary of the European funding instrument "SME Instrument Phase 1" took place. Here the company received information about the market place, the platform and the tool in preparation "New Materials Pathways", as well as the deriving possible benefits thereof for Landpack®.

Tools used by the company /Services provided to the company

Landpack® GmbH was presented as Best Practise case study in the New Material Pathways qualification programme handbook within the MOVECO project. The aim of this tool was, among other things, to raise awareness about current material use and possible alternatives.

The company registered as user of the MOVECO platform and market place. It uses it in both senses: offering and demanding.

Moreover, BayFOR and UCB are supporting Landpack® in the participation and preparation of project proposals at regional and European level (SME Instrument Phase 2) and putting the company in contact with several stakeholders, in order to fast-track its market introduction in other countries and to define the growth strategy.

The qualification and financing tools are the most interesting for the company and play an orientation role in the continuous improvement of the production and marketing processes.

Outcome

Thanks to the MOVECO Tools and the consulting services of UCB and BayFOR, Landpack® GmbH's awareness of the international and European perspective and impact of its product became clearer. The company used the MOVECO Marketplace and (despite the suggestion of some changes and improvements for it) met other companies to work with. The founders of Landpack® appreciated the idea of the Marketplace and both Bavarian MOVECO partners, UCB and BayFOR, will continue to closely support the company in order to internationalise the products and vision.

Concretely, BayFOR already supported Landpack® GmbH with the "StrawToGold" project proposal under call H2020-EIC-SMEInst-2018-2020 (SME-Instr.2) and with a deep analysis of the next H2020 call proposals in order to participate as a partner in European consortiums. In this sense, Landpack® GmbH is invited as participant to the EEN Brokerage Event "Horizon 2020 for Circular economy and transforming economy" which will take place in Warsaw on 9th October 2019. On the other side, UCB supported the company in participating in the national call "RegioCycle".

PHOTO of the product – Landbox



SERBIA



EKOFUNGI DOO Beograd

Industrijska zona, Padinska Skela, Beograd 11213
Serbia

- micro company
- sector: mushroom production, Growing fresh mushrooms

In June 2013, Belgrade's EkoFungi launched the industrial production of mushrooms using a new technology that uses waste in the production of substrates (nutrients) for the cultivation of cellulosic mushrooms, and eliminates the use of electricity by as much as 90%. This is the first facility of this type in Serbia and the world. The production of cellulose types of edible mushrooms (buckwheat, shii, etc.) is traditionally based on the exploitation of straw as raw material for the production of substrates, which began to be inaccessible and whose costs of transport and consumption of electricity in the production have considerably increased.

Initial situation in the company:

In 2018, the OECD recognised Eko fungi as one of the small or medium-sized enterprises in the Balkans applying the model of a circular and applied green economy. In order to further promote its activities, EkoFungi sought opportunities to further discuss the CE topics and to network with R&D organisations from Serbia and Europe. Hence, in November 2018, initial contact was established with the Mihajlo Pupin Institute between Ms. Ivanka Milenković, Director of EkoFungi and Dr. Valentina Janev, MOVECO researcher, and a plan was proposed to intensify the collaboration in the MOVECO framework.

Tools used by the company/Services provided to the company

- MOVECO team organised a meeting and
 - shared promotional and educational materials to the EkoFungi team (https://danube-goes-circular.eu/?q=Checklist_and_Fact_Sheets)
 - provided detailed instructions on how to use the Danube-goes-Circular platform and how to register with the Virtual Marketplace, <https://danube-goes-circular.eu/?q=node/2523>
 - provided information about EU funding and Financial tools, <https://danube-goes-circular.eu/?q=financing-tools>
- EkoFungi and MOVECO team participated in the Mikser Festival 2019 – Circulate, <http://festival.mikser.rs/en/mikser-festival-2019/> and the Mikser Follow UP event (25/06/2019), see pictures below

Outcome

Through its entire involvement in piloting, EkoFungi received many benefits.

- During the networking events, they promoted their products and also the vision of the company.
- EkoFungi started to promote its products via the Danube-goes-Circular marketplace, see <https://danube-goes-circular.eu/?q=node/2524>, and expects to enjoy benefits from their enhanced online presence on the market.

ENTREPRENEUR'S QUOTE

"I expect a serious export of products and further strengthening of our company position in the world of sustainable economy. This also leads to an increase in knowledge exports, which still forms a large part of our portfolio, see <http://www.ekofungischool.com/>"



EKOFUNGI production site



SLOVAKIA



SKC Foundry s. r. o.

Továrenská 7 943 03 Štúrovo
Slovakia

- Medium-sized company
- Industrial production, Manufacture of other parts and accessories for motor vehicles

SKC Foundry is a new plant for medium-sized parts production located in Slovakia, focused on the automotive sector. The company is engaged in manufacturing (casting) brake and air conditioning components. In the existing production hall, a new technology to expand production will be installed in the next stage. Thanks to the second production line, the current production capacity of 15,000 tons of metal castings will increase to 40,000 tons of products per year. In addition to an effective management system, the company also focuses on reducing the environmental impact.

Initial situation in the company:

Producing 1 ton of castings creates approximately 0.4 tons of waste. Considering that the landfilling is the most expensive way to deal with its industrial waste, the company tries to find waste-to-resource solutions in their production by its own initiative.

There are seven waste products which come from casting processes. They may have a wide range of applications in the construction, chemical, pharmaceutical or cosmetic industry. One of these uses casting mould for brakes, which contain black silica sand. With the addition of bentonite (binder), it forms sand moulds into which molten metal is poured. The problems emerging from the effort to deal with them in a circular way were as follows:

DESIGN: The standard for raw material quality is very high. Foundries do not demand Slovak raw materials for low quality, for brakes a high quality of material is important.

PRODUCTION: Internal sand regeneration would be an unrealistic investment. The company tries to use sand again for new moulds, but over time it becomes waste.

USE: It is not possible to say exactly how often the mould is used. It is a sand mould that disintegrates, with sand being used for mould making as long as it is suitable.

WASTE: Geographical proximity of customers interested in waste product – there is a difficult process of finding potential waste buyers who are geographically close; Waste-to-resource solution requires long and costly certification and testing – grain size on a weekly and monthly basis, volume weight on an annual basis and radioactivity on a multiannual basis; The moulds have very fine grains for use in the common construction industry.

Tools used by the company/Services provided to the company

During the Štúrovo plant visit on 12 November 2018, representatives of the Slovak Business Agency presented the MOVECO circular toolbox and the list of available financial tools for circular and ecological solutions. The virtual marketplace *Danube goes circular* for used materials and waste was also presented. The representatives of SKC Foundry were also invited to the upcoming conference *Circular economy - business model of the future* to present their circular initiatives in front of stakeholders and frontrunners of the circular economy in Slovakia. The SBA MOVECO team visited the plant premises and went on a tour to better understand the production process and waste types. After the visit, a circular expert from the Institute of Circular Economy working for the Slovak Business Agency approached several potential buyers of waste from sand casting moulds and other waste materials.

Outcome

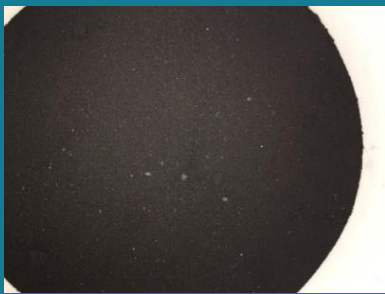
Finding a customer for the material is quite a difficult process. The ideal buyer should be geographically close, preferably from Slovakia or neighbouring countries for economic reasons and, of course, due to the minimal carbon footprint of the transport. Two cement plants were approached to use black sand material, but due to technical reasons which may result in high input costs of the technology, they did not show any interest. Several construction companies in the region were also addressed, but without any success. Subsequently, thanks to the recommendation of circular expert Petra Csefalvayova (INCIEN/SBA), a sample of waste was sent to a potential customer in Brno (Czech republic), who has immediately started

the testing of sand use in the production of concrete mixtures. The company made a sample of decorative concrete pavement. Its time-demanding tests included frost resistance and ecotoxicity testing and had to prove the conformity of the product to the relevant technical standards, allowing the product to be placed on the market. As of 14 August 2019, the tests have been completed and will be followed by the process of legislation accordance in both countries, agreement on the contractual terms and finally the serial production trials. The aim is to produce the above mentioned concrete pavement from waste sand, which is widely used in the construction industry.

ENTERPRENEUR'S QUOTE

"The more we recycle, the less we pay. The circular economy makes sense in both economic and environmental terms."

Marek Valko, Environmental technician



Black SiO₂ sand marked by thermal casting process



Tested concrete pavement made with waste sand.

SLOVENIA



Plastika Skaza Ltd

Selo 20a, 3320 Velenje,
Slovenia

- company size: medium-sized company
- sector: production of end-consumer products and B2B products from bio-based materials

Plastika Skaza (<https://www.skaza.com/>) is a family business, which was founded 1977. At Skaza they operate in accordance with the principles of sustainable development. They connect people and nature with their clear vision, which is reflected in the development of innovative products. They are driven by their values, which are the source of responsible fulfilment of given promises, high goals for meeting customers' expectations, courage in finding inspiring solutions and sustainable attitude, which is proven by their respect towards natural resources. In Skaza, they create products that are a part of a circular economy, without any waste.



PLASTIKA SKAZA – production site

Initial situation in the company:

They design modern, innovative solutions made from bio and degradable materials. Their innovation is focused on solutions that are friendly towards people, communities and nature. They relate their success with socially responsible projects, like Coffee cup project.

Tools used by the company /Services provided to the company

With the knowledge that Skaza has in circular economy, they design modern and innovative solutions that are sustainable. The changes they make are aimed at continually improving product quality and using sustainable materials.

Through improving materials and processes and setting trends, they achieve a greater added value per employee, gain expertise in brand new areas, and enhance the skills and knowledge of their employees. They organize different events, where employees participate in finding new ideas and implementing it to the company. One of them, is Skaza Coffee Cup movement, that participated in the MOVECO Innovation Competition and ranked second in the category "Circular Design of the Year 2019".

Outcome

As result of the advisory services, a new collaboration chains were established, especially due to the Single use Plastics Directive putting emphasis on reuse instead of single use and enhance interest in the possibility to reuse coffee machine cups.

ENTREPRENEUR'S QUOTE

"The idea for the multiple use coffee cup occurred during a company team building when we discovered that our company produces 1 ton of single use coffee cup waste per year. We changed our practice and inspire other companies to do the same with personalised coffee cups for multiple use."

Polona Tratnik, Quality director



Lead partner

Chamber of Commerce and Industry of Slovenia Slovenia

Project partners:

Chamber of Commerce and Industry Bistrita-Nasaud Romania

Slovak University of Agriculture in Nitra Slovakia

Ministry of the Environment and Spatial Planning of the Republic of Slovenia Slovenia

Tera Tehnopolis Ltd. Croatia

Bulgarian Chamber of Commerce and Industry Bulgaria

Slovak Business Agency Slovakia

Europa Consortium Regional Development Non-profit Ltd. Hungary

Business Upper Austria Austria

Cluster of Environmental Technology Bavaria Germany

Bavarian Research Alliance GmbH Germany

Institute Mihajlo Pupin Serbia



Interreg



EUROPEAN UNION

Danube Transnational Programme

MOVECO

A stream of cooperation

Project co-funded by European Union Funds (ERDF, IPA)

<http://www.interreg-danube.eu/approved-projects/moveco>