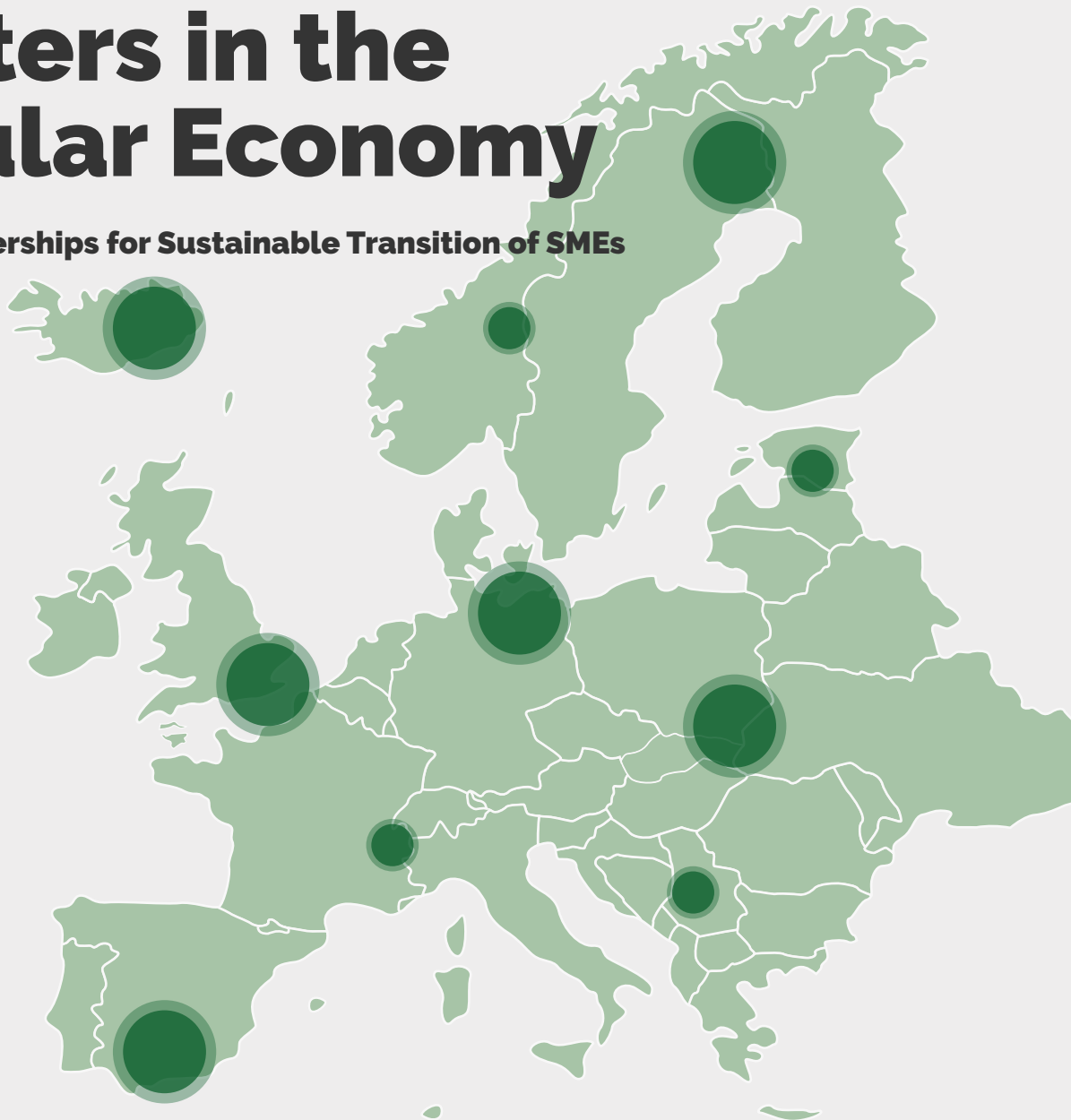


Clusters in the Circular Economy

Building Partnerships for Sustainable Transition of SMEs



Printed on sustainable paper according to the principles of
The Nordic Swan Ecolabel promoting circular economy

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Foreword

At least 250 green clusters in Europe are daily pushing the green transition forward. Helping companies to access the newest knowledge, testing new green business ideas and developing new green innovations. All of this accelerating, changing and supporting European businesses to be more focused on the way forward for a more sustainable world with better preservation of resources and environment.

The challenges we face in the green transition are in size and scale at a point where no sole actor can handle these challenges on their own. This is why clusters are among the most useful tools. They act as intermediaries for all core stakeholders within their sectors creating efficient platforms for collaboration and change. Within this framework clusters support companies in understanding the rush to start the green transition and the unique business opportunities for companies being frontrunners in the green transition.

The European green clusters are already very active in the transition towards a circular economy. Many of the green clusters also collaborate across sectors and value chains with the

over 1000 clusters that the Directorate General for Internal Market, Industry, Entrepreneurship and SME's of the European Commission has been working with in Europe and beyond registered under the European Cluster Collaboration Platform. This strong European infrastructure for collaborating clusters are helping both green clusters and other clusters to share knowledge, competences and new green innovations across sectors and branches.

Our ambition is clear: To support companies – especially SME's – to more efficiently tap into new knowledge and business opportunities in the circular economy, to boost their specialization, possibilities for investments, to internationalise and get access global value chains. Clusters can make this happen – so let's push even more for a green transition by using clusters.



Dr. Ulla Engelmann
DG GROW, European Commission
Head of Unit Advanced Technologies, Clusters and Social Economy

Definitions

What is Circular Economy?

The circular economy approach is an alternative to the "make, use, dispose" model, and aims to keep products and materials in the value chain for a longer period and to recover raw materials after the lifetime of the products for their next use.

What is a Cluster Organisation?

A mature cluster will at some point establish a more formalized organisation to serve the interest of the cluster with a board, CEO, staff, budgets and annual reporting.

What are Sustainable Development Goals?

The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries - developed and developing - in a global partnership.

What is a Cluster?

Following the definition by Michael Porter a cluster is a geographical proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and externalities.

Today many clusters are defined by a group of companies joining forces with research and knowledge institutions, public stakeholders, private investors and start-ups with the aim of collaborations within a branch or a technology area. Often the cluster have a geographic starting point at local or regional level. A cluster is a neutral platform independent of political and technological interests.

What is Social Economy?

The social economy is based on cooperative, often not-for-profit, and voluntary rather than paid activities carried out within communities, across national economies, and internationally.

Clusters in the Circular Economy

The pressure for a faster transition to greener economy and circular economy is growing. Frontrunning companies are interested in making the change moving towards the new and promising business possibilities. Further, the political pressure to make circular economy a hot and dominant political topic across Europe is increasing.

President of the European Commission, Ursula von der Leyen, has stated:

"A sustainable Europe is one that opens up opportunities, innovates, creates jobs and offers a competitive edge to its industries. The circular economy is key for developing Europe's future economic model".

At the same time The Ellen MacArthur Foundation¹ has demonstrated that the circular economy can be a significant value creation opportunity. Thousands of new jobs. Billions on earnings in new business opportunities. New markets to be conquered. Now the question is how to react to the pressure and the possibilities.

Changing mindsets, business models and developing

new products and services as a consequence of the circular economy is a complicated task. Especially for an SME with limited time and resources. A complicated task that often requires partnerships with other companies, researchers and public authorities.

The good news is that clusters are already acting as catalysts and supporters of the transition towards a circular economy. It is the very nature of clusters to facilitate neutral platforms for collaboration between private companies, public stakeholders, investors and knowledge institutions with the aim of new innovation and business possibilities. With the complexity and barriers for delivering new circular economy solution clusters help pave the way forward. Clusters help with changing mindsets, developing new competences, rethinking business models, supplying living labs and defining new costumers and green investors. No other mechanism is more efficient in handling the complex challenges we are facing.

This booklet shows how clusters from across Europe are key in driving the transformation of SMEs towards circularity. The cases show how clusters are supporting SMEs rethinking business models, providing access to the needed new knowledge, linking to smart green venture capital and in opening doors to new markets and costumers – both public and commercial.

1 <https://www.ellenmacarthurfoundation.org/circular-economy/what-is-the-circular-economy>

Clusters Role in the Circular Transition

With at least 250 green clusters the European clusters have a high potential for pushing the circular economy forward faster and more efficient.

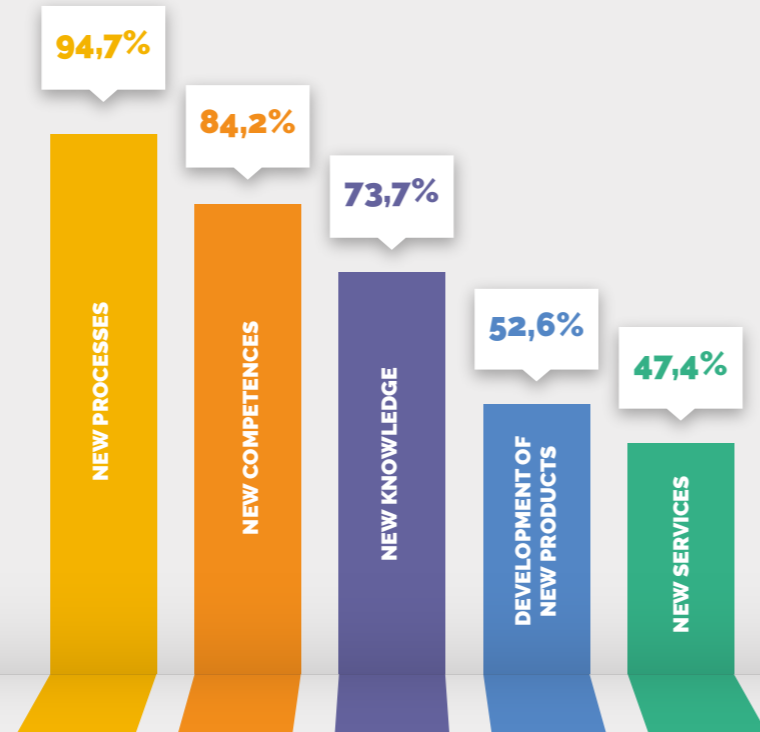
A new study from Denmark² documents that many clusters have an active role in the transition towards a circular economy. In total 2/3 of the Danish clusters are involved in circular economy – also indicating that clusters not directly related to the classical green sectors are working with circular economy in their sectors. For many of the Danish clusters it is

the UNs Sustainable Development Goals that are the guiding goals for their strategies and activities, while circular economy is a part of the strategic direction towards implementing UNs Sustainable Development Goals.

The study also shows the key areas where the clusters support the SMEs in their circular transformation. The key impacts for companies are new circular processes, competences, knowledge and development of new products. Almost all the clusters help SMEs with development of new processes supporting circular transformations.

² Based on survey sent out to Danish clusters by Cluster Excellence Denmark in 2019. Response rate: 33 out of 38 clusters responded.

Table 1:
Impact of clusters supporting SME's with circular economy



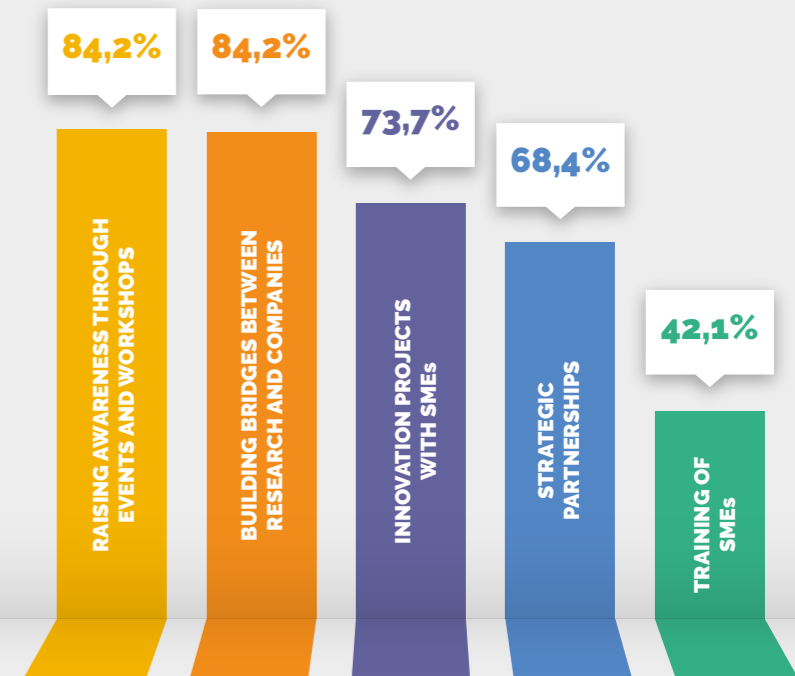
While 84 pct. help with new competences – and 73 pct. of the clusters supply new knowledge on circular economy to the SMEs. Finally, around half of the companies got help to either develop new products or services related to the circular economy.

In order to assist the circular transition, the clusters have developed a variety of services to companies. Most of the clusters offer collaboration and bridge building activities between research institutions and companies providing SMEs with the latest know-how. While dissemination of knowledge and awareness raising through events and workshops are also popular

services targeted SMEs. Specific innovation projects – where companies are rethinking business models - are also a key circular service for many clusters.

One can argue that Denmark might be among the European or even global frontrunners in the green transition, but with 250 green clusters around Europe many stakeholders and clusters are very active working with new innovations projects and new knowledge on circular economy. In this booklet, we have gathered some of the most interesting models with European cluster cases from Holland, Sweden, Finland, Poland, Denmark and Latvia.

Table 2:
Services provided by Danish Clusters



How Clusters are Powering the Circular Transition

There is no single way to the circular transition of SMEs through clusters. But one thing is clear: the clusters matters. In the case collection five ways to circular transition are unveiled.

The clusters are securing that high-profiled policies are turned into concrete action benefitting

SMEs, paving the way for much needed access to smart funding, building bridges to updated knowledge, securing new costumers by facilitating circular public procurement and embracing sustainable developments goals.



Clusters Building Bridges to Circular Knowledge

Bridging the gap between research and SMEs is a key task for clusters. Cases from Finland and Holland show how clusters are also playing a central role in building circular knowledge bridges between research and business.



Clusters Putting Circular Policy into Action

More than half of EU Member States have adopted or plan to adopt a Circular Economy strategy. Clusters can be key in turning the policies into action and increasing SME competitiveness.



Access to Circular Funding for SMEs

The transition of linear production to a more circular one can be complicated and costly – especially for SMEs. Cluster can support the SMEs in finding the right funding – from innovation vouchers to smart investors.



Clusters and Sustainable Development Goals

The Sustainable Development Goals (SDGs) is a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity by 2030. Ambitions are high. But it is not mission impossible. Examples from Sweden and Denmark show how clusters engage companies in circular economy while creating synergies between social, sustainable challenges and business.



Circular Public Procurement Supported by Clusters

The public sector is both a consumer and a costumer. If taking circularity into consideration the public sector could provide a major push. Public procurers wanting to make procurement more circular face many challenges. Clusters can play an important role in lowering the public risks by building bridges to the SMEs.

Clusters Putting Circular Policy into Action

More than half of the EU Member States have adopted or plan to adopt a Circular Economy strategy³. This public pull for circular economy offers new challenges and potentials for especially SMEs – a potential cluster can help unleash by putting policy into action. In this case 88 companies are developing new circular business models with support from a cluster.

The national Danish strategy on circular economy was launched in 2018. This was followed by ambitious initiatives to support SMEs in becoming more circular, greener and competitive. And the clusters are key in putting the strategy into action. One initiative is led by the Danish cluster Lifestyle & Design Cluster.

The now former Danish Minister for Industry, Business and Financial Affairs, Brian Mikkelsen explained the initiative:

“The Danish Government wants to strengthen the circular economy, where materials and products are recycled, and our natural resources are used most efficiently. It is important for the environment, but also an advantage for Danish companies. That is why we are now launching this initiative to support businesses become more circular, greener and more competitive”⁴.

Increased Growth Through Circular Business Models

The initiative is called “Increased growth through circular business models” and addresses the challenges that many SMEs might have, not realizing the new market opportunities circular economy offers and do not have the resources to make the needed transition to seize the growth opportunities.

The challenges are addressed through awareness raising targeted SMEs about the market potentials of circular economy and a funding scheme with both soft and hard money. With the soft money SMEs explore how to adapt to a circular business model together with experts. And with the hard money circular models are implemented in their business (e.g. through investments in machinery and equipment).

The Lifestyle & Design Cluster is managing the overall effort, including administration of the funding scheme.

“The SMEs are really grasping the circular opportunities. More than 70 companies applied to be a part of the programme. So far 22 SMEs companies have developed a resource profile with associated calculation of effects in the so-called Sustainable Bottom Line Tool. And they are all in the process of making the next main step towards rethinking their business models - a plan for a circular business model”

says Betina Simonsen, Director in Lifestyle & Design Cluster and continues:

“In the coming years more companies will be involved. 66 companies have already showed interest in taking part”.

Infobox

The initiative is funded by EU’s Regional Funds and runs until 2021. Other cluster partners in the project are Danish Material Network and VIFU - Knowledge Center for Food Innovation

Read more about the initiative and see the participating companies here:

<https://ldcluster.com/portfolio-item/>

⁴ <https://em.dk/nyhedsarkiv/2018/juni/flere-smv-erskal-vaere-groenne-cirkulaere-og-mere-konkurrence-dygtige/>

³ <https://circulareconomy.europa.eu/platform/en>

Funding Circularity in SMEs Through Clusters

The transition of linear production to a more circular one can be complicated and costly – especially for SMEs. Clusters can support the SMEs in finding the right funding – from innovation vouchers to smart investors.

SMEs are often lacking resources to initiate and implement circular solutions. Easy access to seed capital or innovation vouchers can be the solution. In Poland the AgroBioCluster is promoting and channeling circular vouchers - C-VoUCHER - to their members.

Cluster Manager Katarzyna Kowalska explains:

“Circular Economy is still a new concept here in Poland and our SMEs need support in many ways. Last year, together with Mazovia Regional Government, C-VOUCHER partners and clusters, we co-organized Mazovia Circular Congress that started an absolutely fantastic process of collaborative learning - from understanding the concept, identifying the possibilities for changing production methods to finding funding to do it.”

C-VoUCHER is the first pan-European initiative, funded by the European Commission, adopting the concept of the circular economy to transform linear value chains (cradle to waste) towards circular models (cradle to cradle). The cluster manager continues:

“C-VoUCHER is a great opportunity because it offers a circular acceleration program, funding-vouchers, mentors and designers helping the SMEs through the process. The program has been well-received by the Polish companies”.

The first Circularity Program Open Call of C-VoUCHER was targeted innovative SMEs willing to participate in the Circularity Program (circular economy acceleration program lasting 9 months), offering the selected SMEs up to €60.000 in vouchers to create and design circular solutions by using design thinking methodologies and implementing new technologies.

C-VoUCHER supports 66 SMEs in their transition from linear value chains (cradle to waste) towards circular models. The project’s support to the European SMEs with a total value of €4.2 million will offer €1.4 million direct vouchers to companies (to be spent on technology implementation) and €2.8 million in additional services.

C-VoUCHER is funded by the European Commission. The project is led by FoundingBox and has partners (including the clusters MADE and Lifestyle & Design Cluster) in 7 countries.

See more on: <https://c-voucher.com>

Clusters linking SMEs with Circular Investors

Vouchers are not the only financing needed by SMEs. Furthermore, longer-term investments from smart investors are needed for a sustainable transformation. An example on how clusters can help SMEs access venture capital is The European Bio Economy Venture Forum.

The 2019 edition of European Bio Economy Venture Forum - organized and hosted by Danish cluster, Agro Business Park - underlined the importance of the waste hierarchy in supporting the transition to the circular economy, starting with an increase in prevention, preparation for reuse and recycling of waste, and minimizing waste disposal in particular through a significant reduction of landfilled waste.

In two days, 32 companies from 10 countries pitched their ideas on circular bioeconomic solutions to 32 international investors. The eight most promising companies with solutions in circular bioeconomy qualified for the final round at the European Venture Contest Final 2019 in Düsseldorf. Agro Business Park is currently working on establishing a multi-million Euro “European Bioeconomy Fund” together with JBI Equity:

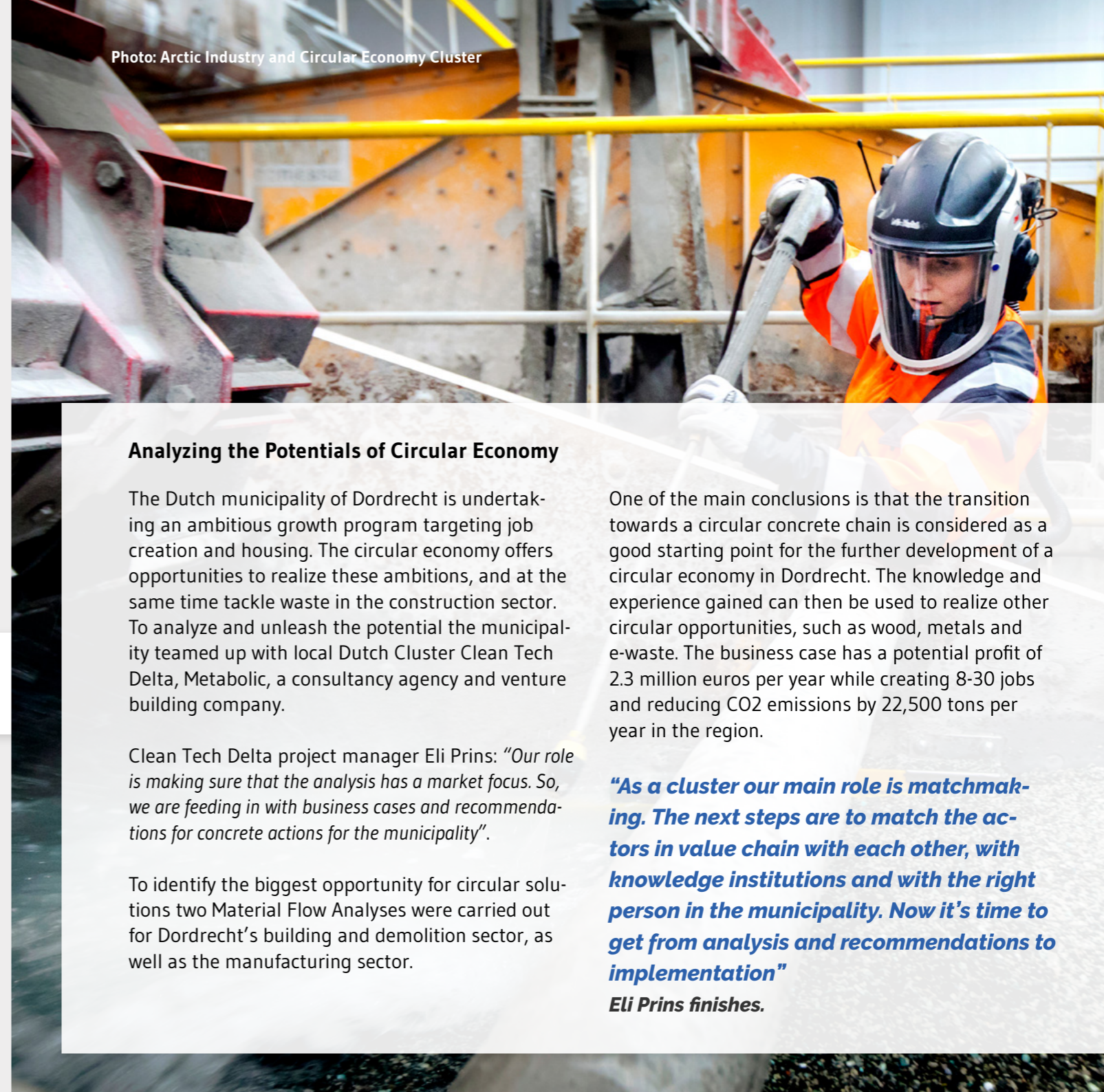
“If we want more sustainable initiatives and more innovative solutions in the field of green technology, we will have to earmark capital directly for the companies that work with circular thinking, sustainability and bio resources” says Network Manager Jacob Mogensen.



Photo: Unimos



Photo: Agro Business Park



Clusters Bridging Circular Knowledge Gaps

Access to the right solutions and skills are key for companies working with a circular transition. Bridging the gap between knowledge and SMEs is a key task for clusters. Cases from Finland and Holland show how clusters are playing a central role in building knowledge bridges on circularity.

The Finnish Arctic Industry and Circular Economy Cluster connect process- (or bio, metal) and mining industry companies, SMEs serving industry, universities, research institutions, funding and regional authorities to work on the common goal: Making Lapland a frontrunner in sustainable utilization of natural resources and sustainable industry and circular economy activities.

The local companies are already benefiting from this. One example is Tapojärvi Oy - a company is specialized in mining services, industry processes and material handling. The cluster have been supporting the company reach their ambition that no disposable waste would be generated at any stage.

"Since 2012 we have supported Tapojärvi Oy's circular transition. From mapping the challenges to finding the right partners, qualified labor assessing sustainability performance, and knowledge about the needed possible novel technical solutions"

says Finnish Cluster Manager Kari Poikela.

The work with Tapojärvi Oy and other local companies has led to the establishment of a national Circular and Bio Economy Centre in Lapland. The Centre gathers knowledge on circular economy challenges and the cluster's work is feeding into the education system. Lapland is one of the few places in the world where circular economy is part of the education of mechanical and electrical engineering.

Read more here:

<https://arcticsmartness.eu/artic-industry/>

Analyzing the Potentials of Circular Economy

The Dutch municipality of Dordrecht is undertaking an ambitious growth program targeting job creation and housing. The circular economy offers opportunities to realize these ambitions, and at the same time tackle waste in the construction sector. To analyze and unleash the potential the municipality teamed up with local Dutch Cluster Clean Tech Delta, Metabolic, a consultancy agency and venture building company.

Clean Tech Delta project manager Eli Prins: "Our role is making sure that the analysis has a market focus. So, we are feeding in with business cases and recommendations for concrete actions for the municipality".

To identify the biggest opportunity for circular solutions two Material Flow Analyses were carried out for Dordrecht's building and demolition sector, as well as the manufacturing sector.

One of the main conclusions is that the transition towards a circular concrete chain is considered as a good starting point for the further development of a circular economy in Dordrecht. The knowledge and experience gained can then be used to realize other circular opportunities, such as wood, metals and e-waste. The business case has a potential profit of 2.3 million euros per year while creating 8-30 jobs and reducing CO2 emissions by 22,500 tons per year in the region.

"As a cluster our main role is matchmaking. The next steps are to match the actors in value chain with each other, with knowledge institutions and with the right person in the municipality. Now it's time to get from analysis and recommendations to implementation"

Eli Prins finishes.

Clusters and Sustainable Development Goals

The Sustainable Development Goals (SDGs) is a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity by 2030. Ambitions are high. But it is not mission impossible. Examples from Sweden and Denmark show how clusters engage companies in circular economy while creating synergies between social, sustainable challenges and business.

“There are close connections between sustainability, circular economy and UNs global goals for sustainability” says Maria Hollander, CEO in the Swedish cluster Paper Province. “For Paper Province and the forest industry, The Global Goals’ objectives are highly relevant. The Global Goals help all of us to speed up, to put more money and resources into developing renewable materials. In this shift, the forest is a gold-mine. A great asset with great opportunities. And this is where clusters can make a difference”.

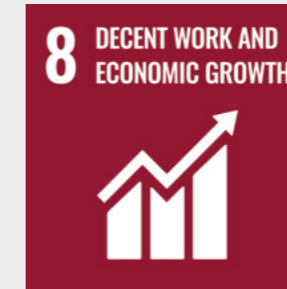
To stimulate new, wood-based innovations and support small and medium-sized companies to increase their market and their international competitiveness Paper Province is deeply involved in the Bioeconomy Region-project.

Through the project companies can test new green technologies ideas practically already during the development phase at 50 Test beds across Scandinavia. And this benefits especially smaller companies such as Swedish Mycorena AB:

“In the best of worlds there is no waste, everything comes to use. A company that helps to realize that vision is Mycorena AB. They can use paper mills’ residual water to produce bio-based edible protein for fish and animal feed. Though the Bioeconomy Region feed is currently being tested by research institutes, fish farmers and shellfish breeders”



Read more about the Bioeconomy Region at: www.bioeconomyregion.com



Cluster Combining Circular and Social Economy

In Denmark clusters are working on creating synergies in the cross-field between circular economy and sustainable development. Clusters, Circular, social economy and new business opportunities goes hand in hand.

The Circular North Denmark - a collaboration between the local cluster Network for Sustainable Business Development, Business Region North Denmark, universities and municipalities – is the proof of that.

The Circular North Denmark has two objectives to fulfill: Creating resource loops and coordinating the cooperation between municipal recycling sites and the region’s companies. So-called industrial symbiosis. At the same time, it is the ambition in the Circular North Denmark to focus

on social economy by thinking citizens on the edge of the labor market into new job functions.

An example of this is the waste company AVV. At AVV circular thinking includes keeping the materials in the loop while still considering the social aspect of human resources. Under the headline “Well Done” AVV are combing repair and upcycling with social economy jobs. This is done in collaboration with the local job centers. The job centers are responsible for the contact the new candidates. Here, citizens on the edge of the labor market are upcycling of leather and textiles, changing them to furniture cushions, bags and other products and sell them at AVV’s recycling store.

Circular Public Procurement Supported by Clusters

Getting access to new markets and costumers is often key when SMEs endeavor into circularity. Every year public authorities in the EU spend around 14% of GDP on public procurement making the public sector an important market potential.

“The public sector has a big purchasing power. If we start buying more sustainable and circular, then we are a major driver of the green change. This will mean more jobs and strengthen our economy”, says Birgitte Krebs Schleemann, CircularPP Project Manager from the City of Aalborg.

However, public procurers who aim at making procurement more circular faces many challenges. Both internally in procurement departments where there often is a need for capacity building and when finding the SMEs qualified to deliver the circular solutions. A targeted dialogue with the market is key when making public procurement innovative and circular. In many cases clusters can support building bridges between the public and the private sector.

Facilitating public-private collaboration
To build bridges between public sector and

innovative companies the Swedish cluster Sustainable Business Hub has teamed-up with the Danish counterpart Gate21 in the initiative Cleantech Testbed for Innovative Public Procurement (Cleantech TIPP). Here local governments are challenged to use procurement as a strategic tool to achieve their goals on climate and energy through public and private partnerships.

This has already led to nine new public-private collaboration on innovative tenders in Sweden and Denmark. From handling food waste in food loop systems in City of Malmö to reuse of construction materials in Denmark. The topics are diverse. But the role of the clusters is the same: To facilitate the process, from targeted dialogue between market and public sector and launch public-private innovation partnerships to test the new solution (through demonstration and testing in the municipalities).

Read more here:
<https://www.gate21.dk/cleantech-tipp/>

European Experiences in Circular Public Procurement to Latvia

In Latvia circular public procurement is a rather new phenomenon – both to the public sector and the companies. European experiences are supporting capacity building of both the

public sector and through a local cluster also to the companies. The Latvian Environmental Investment Fund and Latvian Chamber of Commerce and Industry (LCCI) - an umbrella organization for Latvian Export Cluster - are partners in an EU-project on Circular Public Procurement.

As part of the project Latvia have now had their first public circular procurement tender targeting food in high schools.

The Latvian Environmental Investment Fund is partner in the project to test and develop tenders on public procurement while the Latvian Export Cluster is partner to increase circular capacities and awareness among their members.

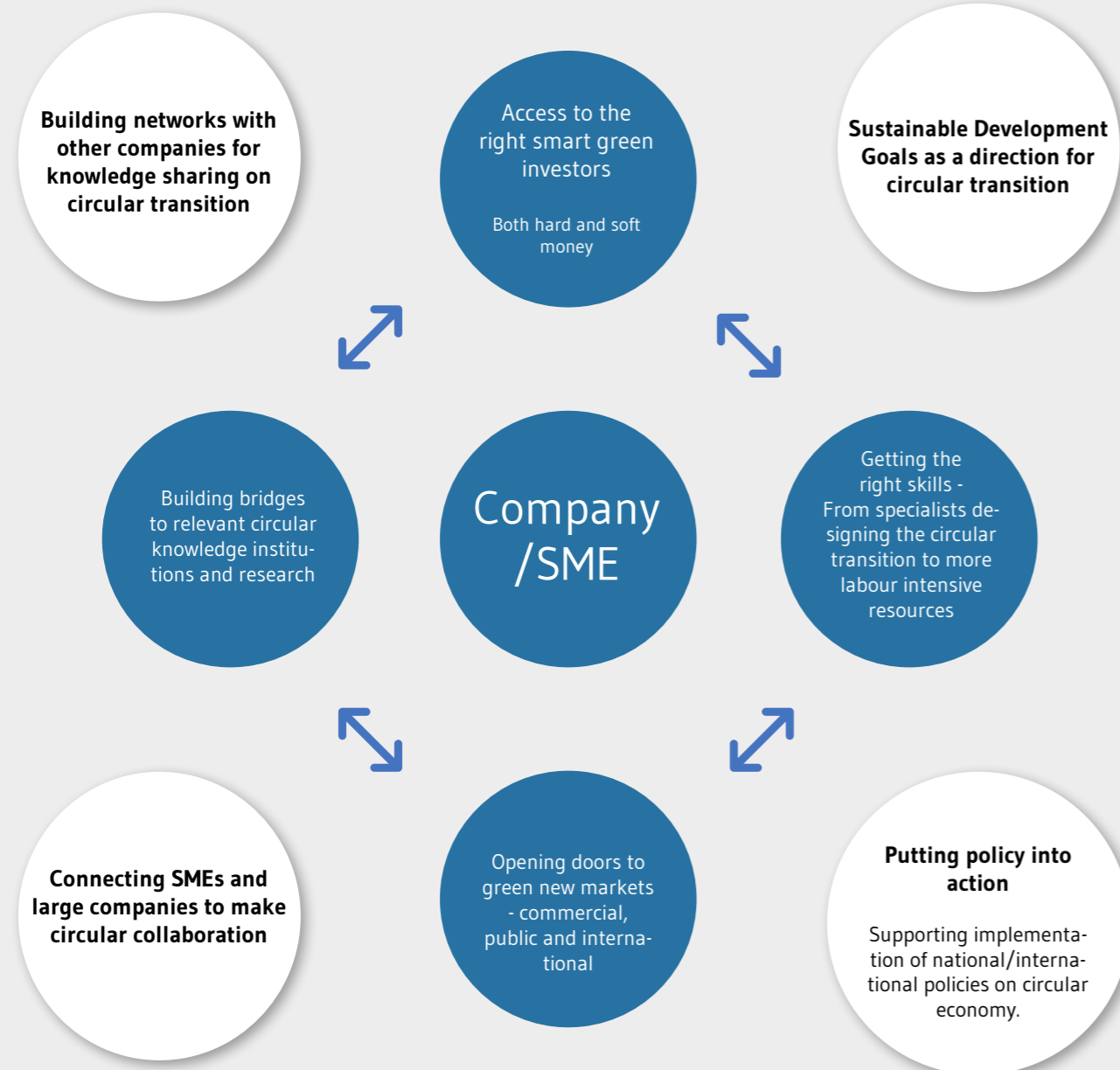
Līga Sičeva, Cluster Manager and Head of EU project department, Latvian Chamber of Commerce and Industry says:
“Circular Economy is a new topic in Latvia and for LCCI. But we see it with high potential for future work. This is why we joined the project about Circular Economy – CircularPP. To gain European knowledge and to prepare our members for future opportunities. For the future, we definitely see wide opportunities in Circular Economy”.

As part of the project Latvia have now had their first public circular procurement tender targeting food in high schools.

See the animated video “The Road to Circular Public Procurement” here: <http://circularpp.eu/the-road-to-circular-public-procurement/>

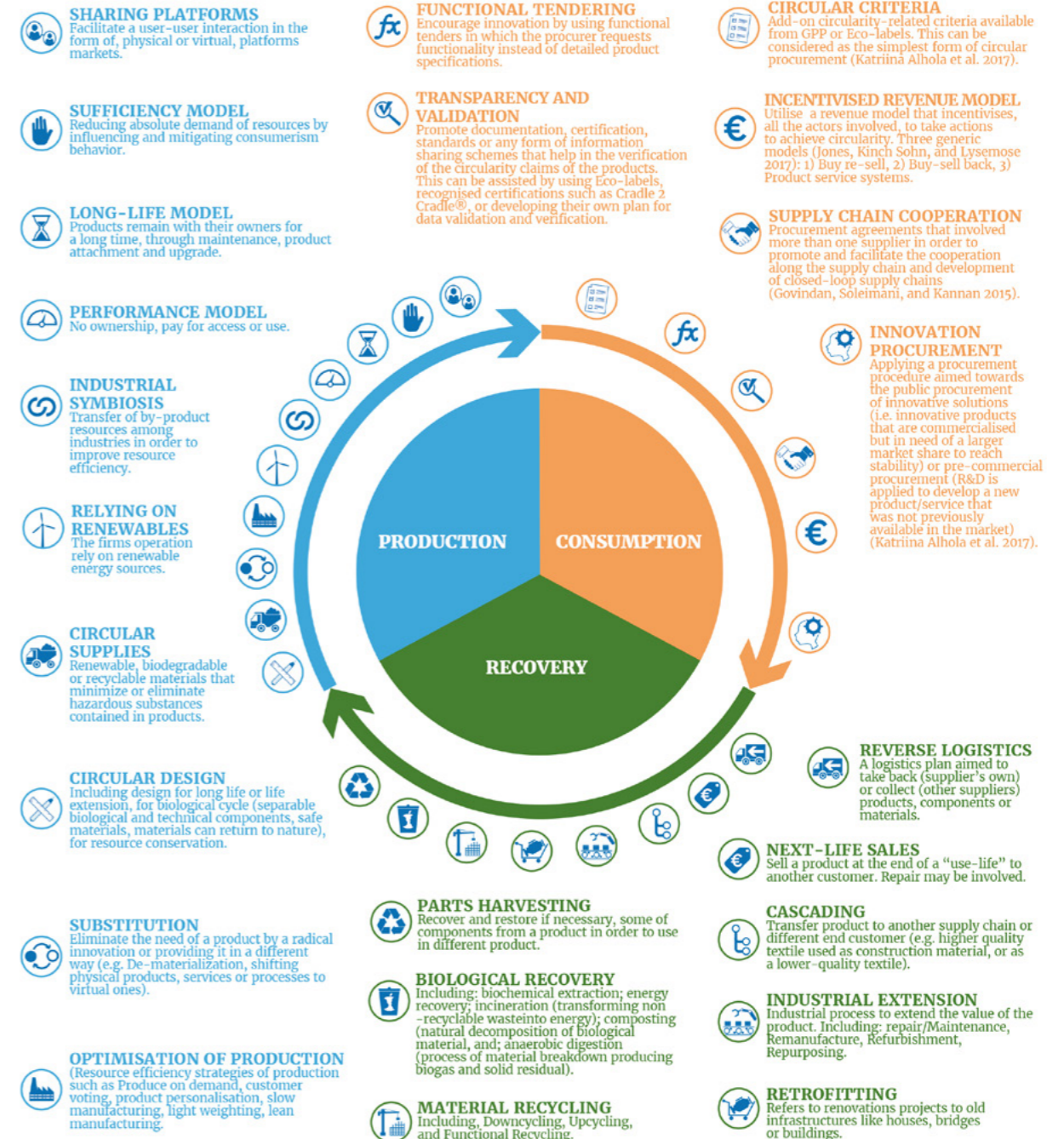


How clusters are building green partnerships for circular transition of SMEs



CIRCULARITY STRATEGIES

ENTERPRISES APPLY DIFFERENT STRATEGIES IN RELATION TO DESIGN, PRODUCTION AND RECOVERY.



Want to know more about circular economy and clusters?

European Circular Economy Stakeholder Platform

A joint initiative by the European Commission and the European Economic and Social Committee

Link: <https://circulareconomy.europa.eu/platform/>

European Cluster Collaboration Platform

is a service facility creating an overview of more than 1000 clusters and provides cluster organisations with modern tools.

Link: www.clustercollaboration.eu

Holland Circular Hotspot

A private public platform in which companies, knowledge institutes and (local) authorities collaborate internationally with the aim of exchanging knowledge and stimulating entrepreneurship in the field of circular economy

Link: www.hollandcircularhotspot.nl/en/about-us/

Circle Economy

A social enterprise, organised as a cooperative, Circle Economy accelerates the transition to circularity through on the ground, action focused, development of practical and scalable solutions.

Link: www.circle-economy.com

Polish Circular Hotspot

A public-private platform gathering entities that thanks to cooperation and access to shared resources can achieve more both for the introduction of circular economy concept and for their own interests. Link: <http://circularhotspot.pl/en>

Enterprise Europe Network - Thematic Groups clusters and Circular Economy

The Enterprise Europe Network helps businesses innovate and grow on an international scale. It is the world's largest support network for small and medium-sized enterprises (SMEs) with international ambitions. EEN has experts within the network dedicated to circular economy. Thematical groups Clusters and Circular Economy are some of the Networks structural units that gathers staff with an expertise in clusters and circular economy domain to exchange best practice, relevant companies and knowledge.

Link: <https://een.ec.europa.eu>

Circular PP

A 3-year project supported by the Interreg Baltic Sea Region Programme. The aim is to address the societal challenge of resource efficiency, by considering innovation from a multidimensional perspective – including involving products, processes and new business models and by exploiting the synergies between public authorities, research institutions, SMEs and non-profit organisations in this field.

Link: www.circularpp.eu

The Circular and Bioeconomy Centre

The Centre aims to develop a more competitive business environment for companies involved in the circular economy. The establishment of the Circular Economy Centre is a logical continuation of Kemin Digipolis Oy's work in promoting the circular economy.

Link: www.teollinenkiertotalous.fi/en/home.html

Topinpuisto

is a circular economy network and hub in Turku launched in 2016. Network of 15 organizations implement efficient public-private cooperation in circular economy and waste management. Topinpuisto has expertise in e.g. textile recycling, municipal and company waste management, biogas production, recycling of industrial metals, circular economy education and collaborative R&D projects.

Link: www.topinpuisto.fi/en/

EIT Climate-KIC

A Knowledge and Innovation Community (KIC), working to accelerate the transition to a zero-carbon economy. Initiated ConnectedClusters, an alliance committed to accelerating the impact of climate innovation ecosystems

Link: www.climate-kic.org

“Clusters in the Circular Economy” is co-financed by Interreg Baltic Sea Region Project Circular PP and Cluster Excellence Denmark

CircularPP: Circular Public Procurement is a 3-year project supported by the Interreg Baltic Sea Region Programme. The aim is to address the societal challenge of resource efficiency, by considering innovation from a multidimensional perspective.

Cluster Excellence Denmark is devoted to the strengthening of clusters through consolidation, professionalisation and internationalisation.

The cases in the booklet are selected in collaboration between CircularPP project partners and Cluster Excellence Denmark with valuable inputs from Enterprise Europe Network.



Circular PP

