TOWARDS A NEW GREENER NORMAL

HOW CLUSTERS ARE DEALING WITH CIRCULAR TRANSITION IN TIMES OF COVID-19

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EUROPEAN REGIONAL DEVELOPMENT FUND

Circular PP

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FOREWORD: CIRCULAR TRANSITION AS RECOVERY

Across the world, cluster organisations have - despite the hardship of the current crisis - taken a leading role as front-runners in the green transition. Based on new intelligence and inspiring cases from clusters around the world, this e-book outlines how cluster organisations are helping to lead the green transition by supporting circular activities and services targeted companies and eco-systems.

Ambitions for circular transition of the economy are high and in many cases the ambitions are also supported by impressive funding options. The EU is investing billions of euros in the new Green Deal[1] and with the new Circular Economy Action Plan the aim is to generate a cleaner and a more competitive Europe[2]. Simultaneously, UNs Industrial Development Organisation is investing heavily in line with the Sustainable Development Goals[3]. Many governments are emphasizing green investments in the newly developed recovery plans. At the same time, private funds and investors are also increasingly looking at the green transition when investing.

In this e-book, we take a deep dive showing how clusters are moving fast to push and lead for circular transition. With the strengths that clusters have as neutral facilitators across companies, knowledge institutions, public authorities, investors, and other institutions, they have the possibilities and potentials to provide new and fast solutions on green transition. We see clusters across all sectors taking lead offering specific services to help companies with new knowledge, new skills (or re-skilling), re-defining business models and developing new products and services.

During COVID-19, other trends have been speeding up – especially on digitalisation. We can also see how companies expect their cluster organisations to support this dual transformation with both digitalisation and circularity. In many of the cases, we see frontrunning clusters integrating green transition and digitalisation leading to brand new and innovative solutions with unique market potentials.

Thanks to all the clusters and stakeholders taking the time to share their insights and stories. With this e-book, we hope to share your best practises for others to be inspired from and to take the lead on green and digital transition. It's not an easy journey, but by sharing and learning we hope to deliver new inspiration of the important role of clusters in the new green economy.

1 European Union (2020): "A European Green Deal": https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_

2 European Commission (2020): "EU Circular Economy Action Plan - A new Circular Economy Action Plan for a Cleaner and More Competitive Europe (2020)" https://ec.europa.eu/environment/circular-economy/

3 UNIDO (2020): "The UNIDO Approach to Cluster Development"

NEW INSIGHTS ON HOW CLUSTERS ARE DRIVING THE CIRCULAR TRANSITION

The COVID-19 pandemic continues to cause massive human and economic costs globally. Cluster organisations have reacted fast adjusting their services and business models while still focusing on the long term growth and innovation challenges.[4]

In September 2020, Cluster Excellence Denmark joined forces with Enterprise Europe Network and TCI Network with a survey to better understand the role of cluster organisations in driving circular transition forward in times of COVID-19. Almost 50 clusters responded from three continents and from 17 countries. In total, the responding clusters reach out to around 5,000 companies[5].

Overall, the message is clear: Circular transition of SMEs can help to reignite the economy. Of the responding cluster managers 66 pct. answered that in their opinion ciruclar transition can help to reignite the economy, while 33 pct. responded maybe. Nobody said no.

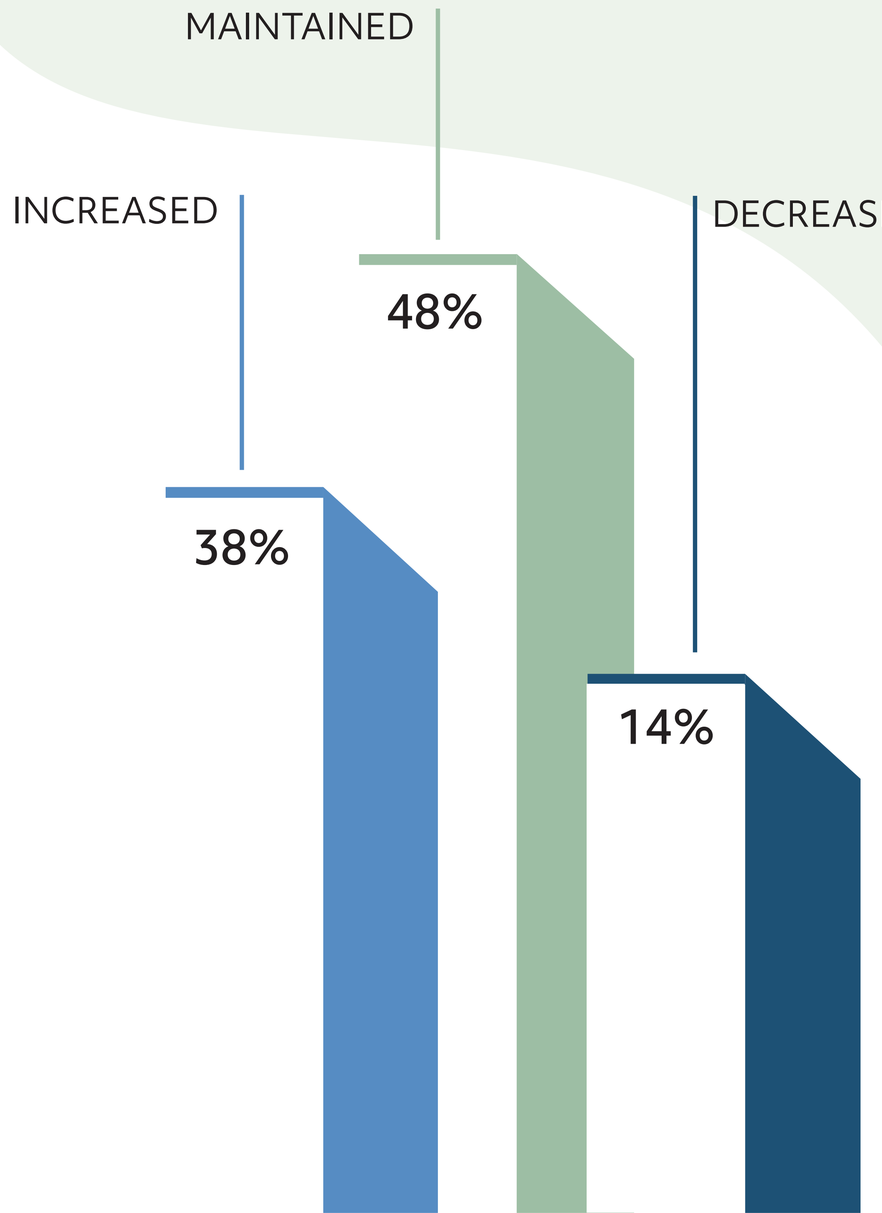
CIRCULAR TRANSITION OF SME'S CAN HELP REIGNITE THE ECONOMY

4 TCI Network (2020): "TCI Recovery Playbook. Helping Today. Preparing for Tomorrow. A guide for Economic Development Organisations and Cluster Organisations".

5 The survey was part of the Interreg-project CircularPP and sent out jointly by Cluster Excellence Denmark and TCI Network in September 2020.

The clusters also report that companies have maintained (48%) or even increased (38%) their interest in circular transition during the covid-19 crisis, while some however experience a decreased interest (14%):

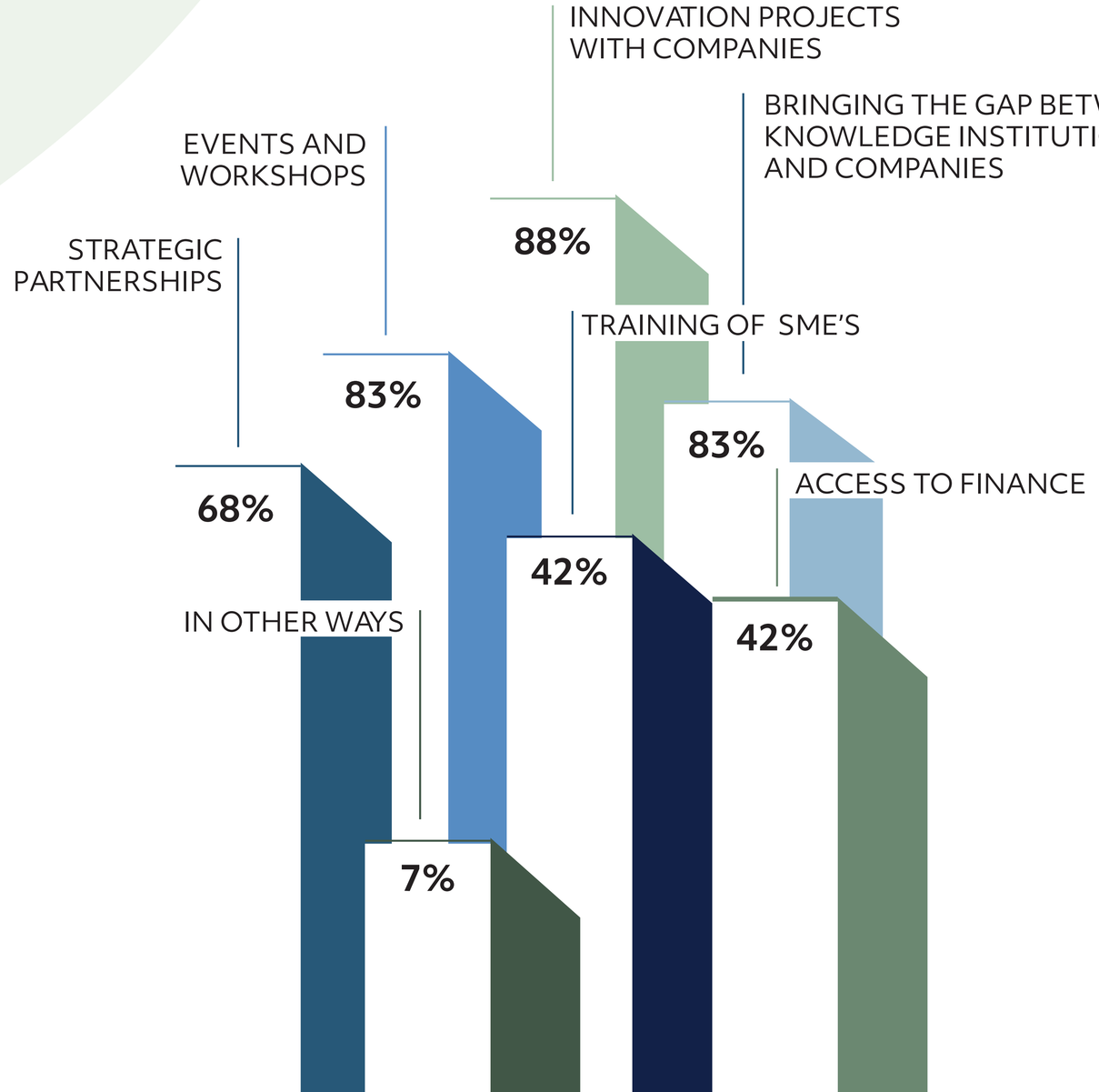
INTEREST IN CIRCULAR TRANSITION



HOW CLUSTERS ARE WORKING WITH CIRCULAR TRANSITION

To meet the high political and societal ambitions to deliver green transition, SMEs seem to have an increased need for support. The good news is that clusters are already acting as catalysts and supporters of a green transition. 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 innovation and business possibilities. With the complexity and barriers for delivering new green economy solution, clusters help pave the way forward[6].

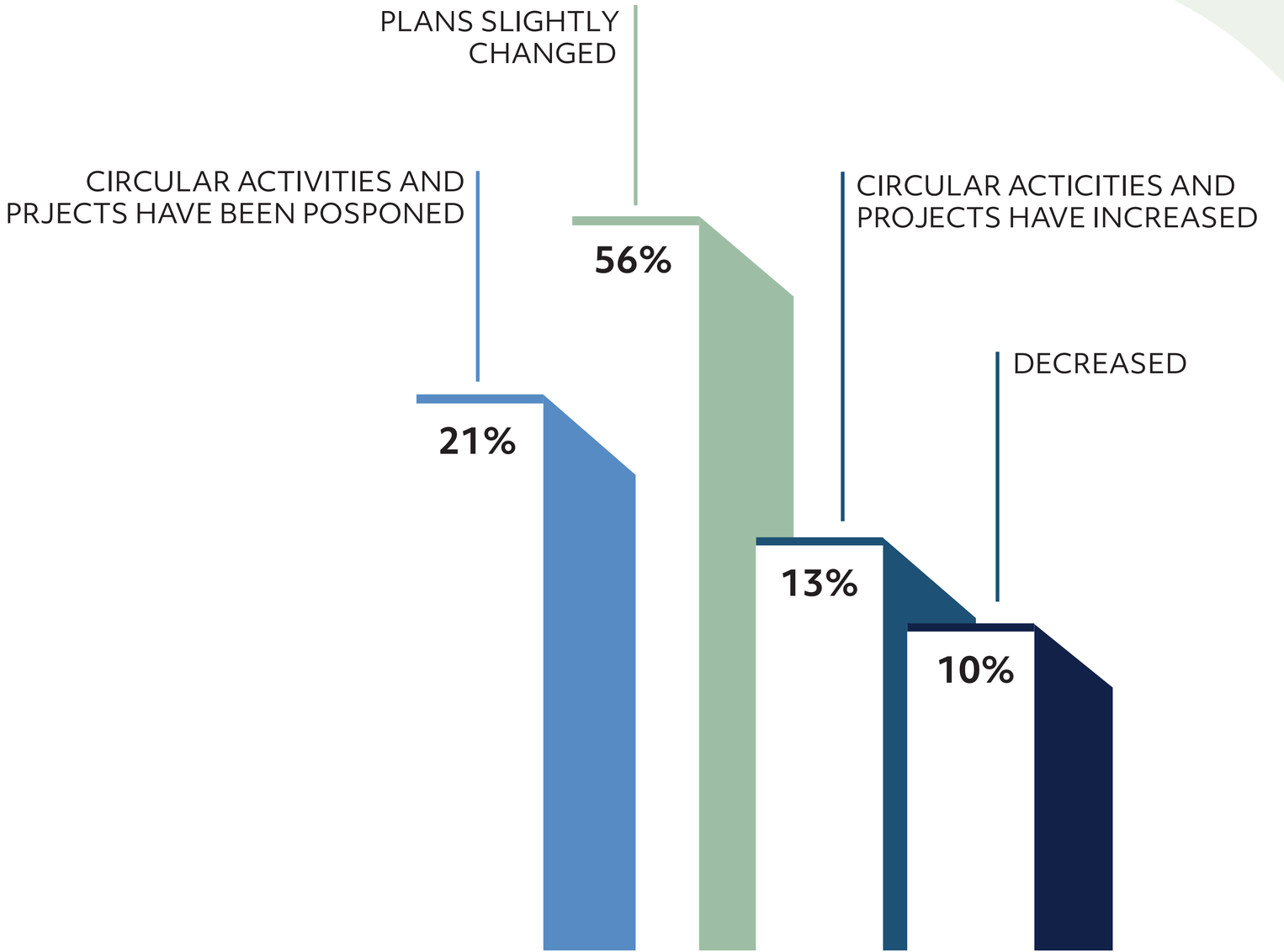
The survey shows that clusters around the world are supporting the circular transition of SMEs in many ways – especially through deep innovation projects (88%), bridging the gap between knowledge and the companies (83%) and through raising awareness about the circular transition (83%).



6 Cluster Excellence Denmark et. al. (2019) "Clusters in the Circular Economy".

HOW THE COVID-19 CRISIS HAVE AFFECTED THE WAY CLUSTERS ARE WORKING WITH CIRCULAR ECONOMY

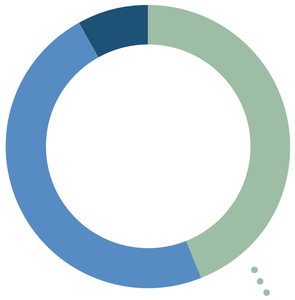
In general, the services supporting the green transition of SMEs have been and are affected by the COVID-19 crisis. Around half the clusters report that their work with circular transition of SMEs has changed slightly, 21% report that the activities have been postponed and only a few have decreased their circular activities. More surprisingly, 13% have increased their green transition activities.



HOW THE COVID-19 CRISIS HAVE AFFECTED SME'S NEEDS FOR CIRCULAR CLUSTER SUPPORT

But the companies' need for circular support has changed during 2020. The clusters report that SMEs increasingly are looking for access to new funding to finance the circular transition and access to new knowledge on how to drive the green transition. Furthermore, the SMEs experience an increased need for new competences (upskilling and reskilling) and access to new markets than before the COVID-19 crisis.

DEVELOPMENT OF NEW CIRCULAR PRODUCTS

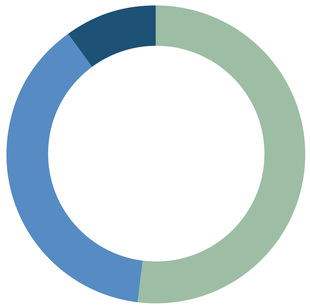


- 44% MORE IMPORTANT
- 48% NOT AFFECTED
- 8% LESS IMPORTANT

NEW CIRCULAR SERVICES

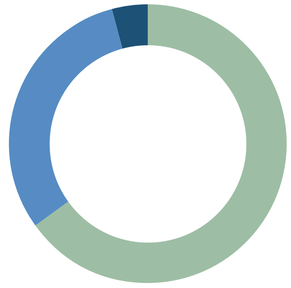
- 39% MORE IMPORTANT
- 53% NOT AFFECTED
- 8% LESS IMPORTANT

NEW CIRCULAR PROCESSES



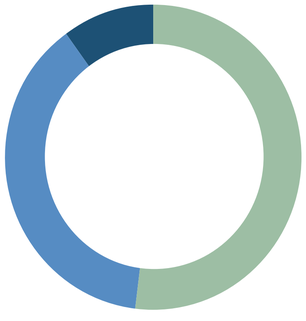
- 52% MORE IMPORTANT
- 38% NOT AFFECTED
- 10% LESS IMPORTANT

NEW KNOWLEDGE



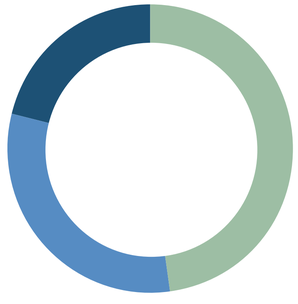
- 65% MORE IMPORATANT
- 31% NOT AFFECTED
- 4% LESS IMPORTANT

NEW COMPETENCIES



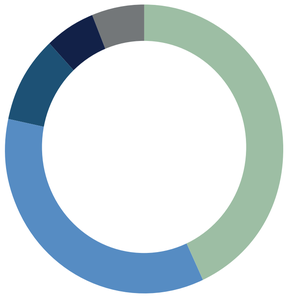
- 52% MORE IMPORTANT
- 38% NOT AFFECTED
- 10% LESS IMPORTANT

ACCESS TO NEW FUNDING



- 48% MORE IMPORTANT
- 31% NOT AFFECTED
- 21% LESS IMPORTANT

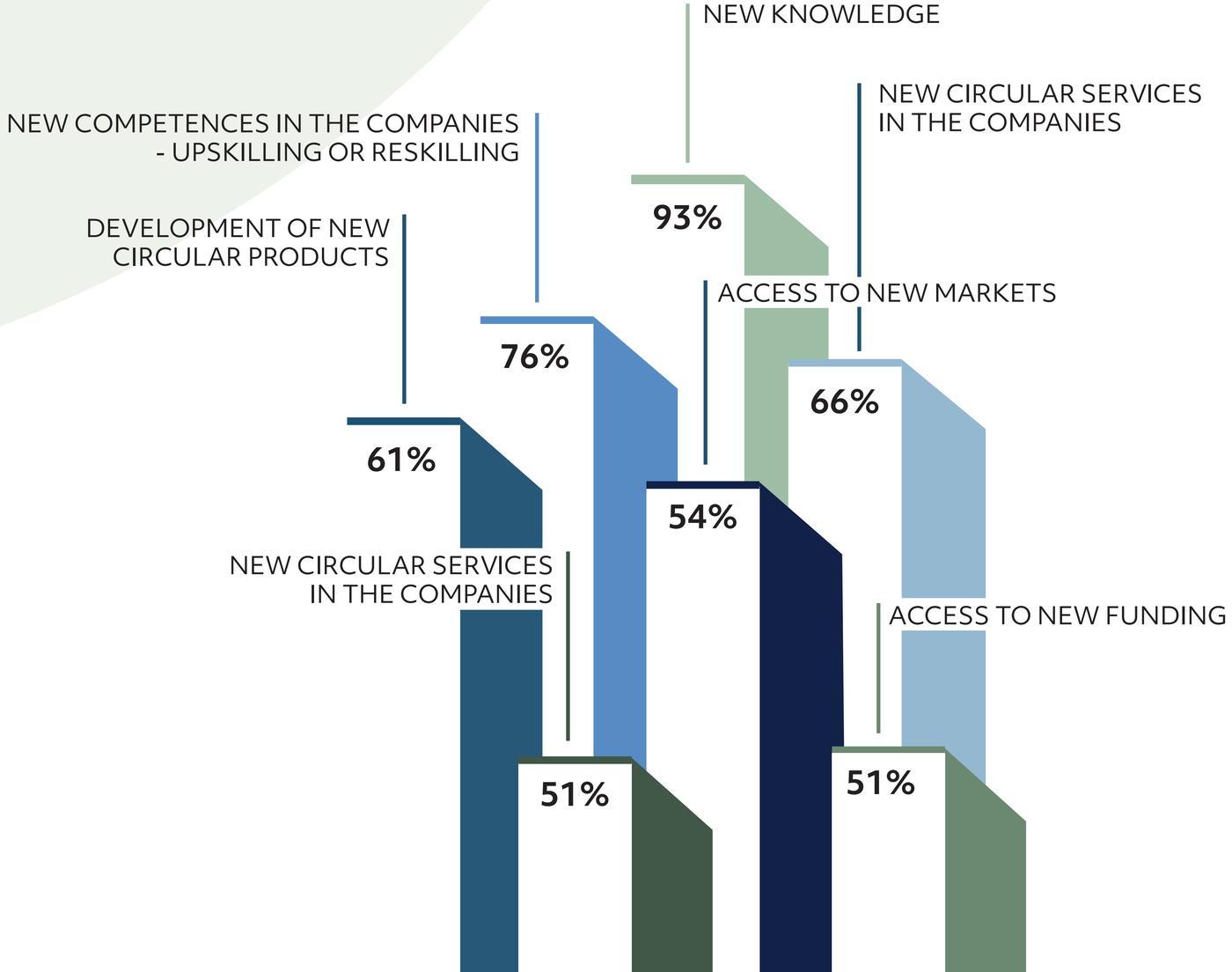
ACCESS TO NEW MARKETS



- 56% MORE IMPORATANT
- 38% NOT AFFECTED
- 10% LESS IMPORTANT

THE IMPACTS OF CLUSTERS WORKING WITH CIRCULAR TRANSITION

Despite the slight change in plans working with green transition, the clusters still reports impact for their companies. Especially new knowledge on circular transition (93%), new competences in the companies to drive the circular transition (76%) and development of new processes (66%), products (61%) and new services (51%) are important impacts.



CLUSTER SERVICES ARE EVOLVING

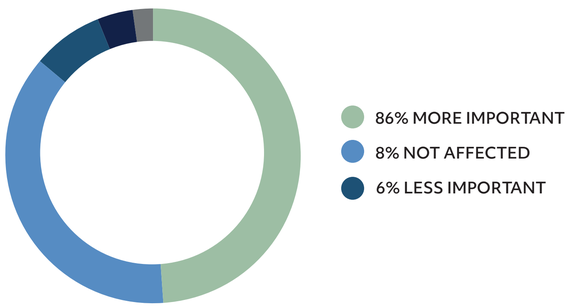
The very core of cluster work is to foster innovation and growth by connecting actors, sectors and between businesses and knowledge institutions. This is done through variety of services and activities such as matchmaking and innovation projects, often catalysed by the physical meeting between people.

The Covid-19 restrictions for travel and distancing rules are challenging the way clusters work. However, clusters have reacted rapidly to the new situation by rethinking their services. This is also the case when it come do services fostering circular transformation.

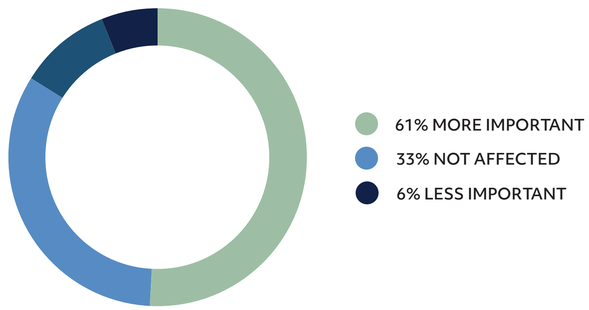
HOW THE COVID-19 CRISIS HAVE AFFECTED CLUSTER SERVICES

Cluster services have changed during 2020. Especially digitalization is booming. Both when it comes to the digitalization of the service itself and in supporting implementation of digital solutions. Also business development and community building among cluster members[7] has become more important.

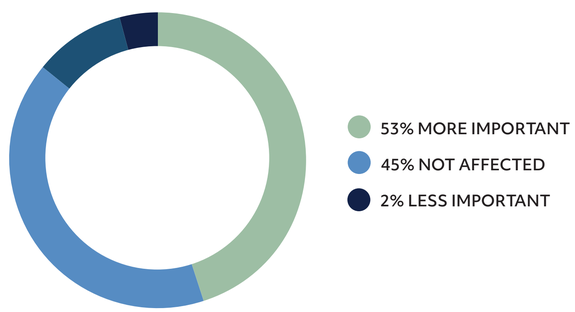
DIGITALISATION



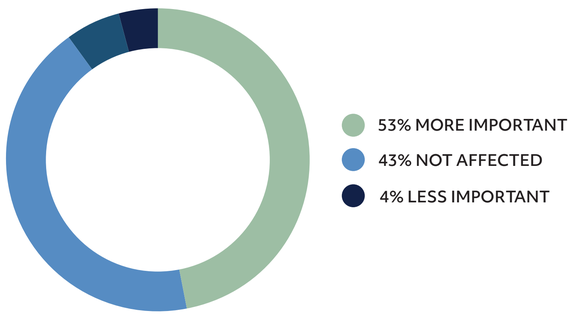
BUSINESS DEVELOPMENT



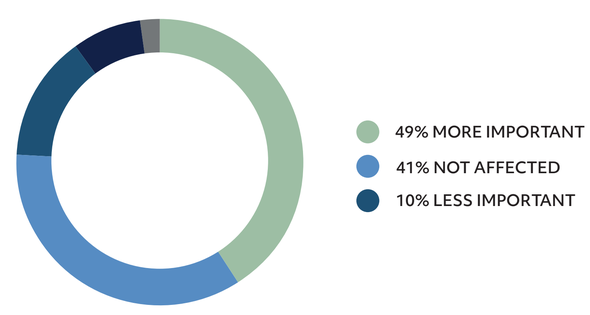
RESEARCH, DEVELOPMENT AND INNOVATION



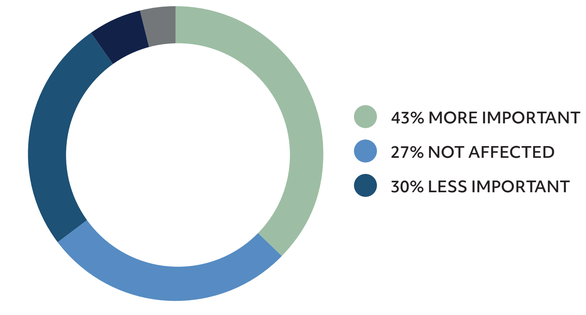
DEVELOPMENT OF HUMAN RESSOURCES



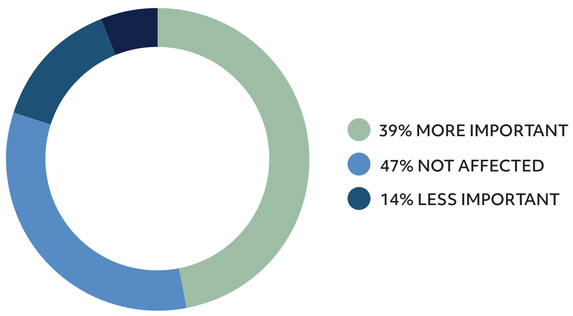
COMMUNITY BUILDING (INTERNAL NETWORKING)



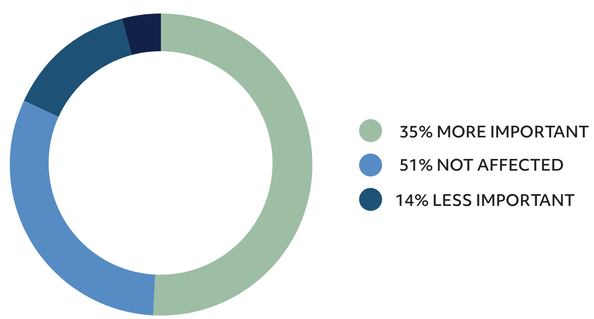
INTERNATIONALISATION



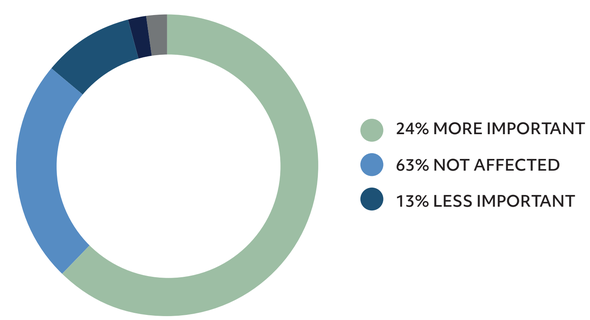
DEVELOPMENT OF ENTREPRENEURSHIP



SUPPORT POLICY DEVELOPMENT



LOCATION BRANDING



7 For examples of new digital services of clusters see Cluster Excellence Denmark (2020): "Digitalisation of Cluster Services and Activities – Rethinking the Power of Innovation". http://www.clusterexcellencedenmark.dk/da-DK/Nyhed.aspx?Action=1&NewsId=1051&M=NewsV2&PID=19

The way cluster organisations work with circular transition among the members has also changed. New digital ways of supporting the circular transition have already emerged, and they keep on evolving:

IN-DEPTH WEBINARS

on re-use of materials, circular loops and process. Webinars have turned out to be useful for in-depth specialized topics. Examples from all over Europe shows that clusters are using in-depth webinars to get the latest knowledge on relevant circular topics out working in the companies.

ONLINE MASTER CLASSES

Danish and Swedish clusters are working together on a tailor-made development program for entrepreneurs who want to make a difference in sustainable buildings. Through online master classes the entrepreneurs are prepared to develop their businesses and pitch to industry-leaders and green investors[8]

MEET-THE-BUYER ONLINE

Five European clusters are collaborating on getting small innovators to access large enterprises by unlocking procurement. Through a series of online Meet-the-Buyer events the clusters have facilitated online meetings between cities and large international companies with sustainable needs and SMEs with the solutions[9].

ONLINE ASSESMENT OF READINESS FOR CIRCULAR TRANSITION

Clusters have various means of assessing the readiness of companies' endeavour into circular transformation online. From informal Teams meetings with companies to advanced online assessment tools[10].

DIGITAL MATCHMAKING

Matchmaking between companies and research is a core activity of cluster organisations. In 2020 many matchmaking activities have gone digital, including the matching for circular transition. Now companies can find and connect with future business partners and potential customers, researchers, test laboratories, municipalities, corporates, and many others online[11].

KNOWLEDGE DISSEMINATION

Circular transition and its benefits is a rather new and unknown topic among many companies. Clusters are using webinars and online conferences as a steppingstone to raise awareness about circular transition in order to push it forward - e.g. by showcasing the circular business case, through success stories etc.

8 For instance, Greater Copenhagen Cleantech Impact Accelerator (CIA) – a collaboration Between CLEAN, Food & Bio Cluster Denmark and Swedish cluster Sustainable Business Hub – involved online masterclasses for Danish and Swedish entrepreneurs: https://www.cleancluster.dk/project/greater-copenhagen-cleantech-impact-accelerator/

9 An example is Scale-Up NSR where five European clusters are connecting buyers and suppliers of green solutions. https://northsearegion.eu/scale-up

10 For an example of an advanced online assessment tool see the cluster-driven C-Voucher project's use of the Readiness Assessment tool for the Circular Economy of MATCHE: https://c-voucher.com/circularity-marketplace/online-tools/

11 An example is the cluster driven DigiCirc matchmaking platform where companies can find matches with selected circular topics online: https://digicirc.eu/tools/

CIRCULAR TRANSITION CAN HELP REIGNITE THE ECONOMY

Political and societal ambitions for the circular transition is high – but not unrealistic. Because circular transition is about better use of resources, optimizing the supply chain, developing new markets and products. Circular transition offers alternative access to funding. While digitalization can catalyze new circular processes. This is why a circular transition can help reignite economy.

HOW CIRCULAR TRANSITION CAN REIGNITE THE ECONOMY

BETTER USE OF RESSOURCES

The COVID-19 crisis have made companies and customers more aware of how resources are being used. A better and more efficient use of resources is what circular transition is all about. In the linear economy, it's take, make, use, dispose resulting in a lot of wasted resources. In the circular economy, it's take, make, use, reuse resulting in better use of the resources.

A MORE SECURE SUPPLY CHAIN

Many companies have experienced that their supply chains have been disturbed or disrupted during the COVID-19 crises. Circular transition is very much about taking control of the supply chain, to know where the resources come from and better utilize the resources. Done right a circular transition ensures a robust supply chain of materials, components and products.

NEW MARKETS AND PRODUCTS

The COVID-19 crisis has created a more competitive market to get to the customers. New circular products can open new markets and create new positions in the market.

ACCESS TO FUNDING

Many companies are struggling with funding during the COVID-19-crisis. Aid-packages are only covering the basics. However, green funds are flourishing. The EU is investing billions of euros in the new Green Deal[12], United Nations Industrial Development Organisation is investing in line with the Sustainable Development Goals[13] and national and regional governments are also putting an emphasis on green investments in recovery plans. At the same time, private funds, investors, and equity funds are increasingly looking at the circular principles when investing[14].

DIGTAL OPPORTUNITIES

E-business is booming during the COVID-19-crisis and digital meetings are now the new normal. These new-born digital skills can be used to foster circular transformation through smarter use of resources.

UP- AND RESKILLING

Circular transition means a need for new competences. When working with circular transition, companies will become equipped with competences to better cope with the changed conditions that corona has given birth to. In the future, green and digital competences will become key competitive parameters.

12 European Union (2020): "A European Green Deal": https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

13 UNIDO (2020): "The UNIDO Approach to Cluster Development"

14 Nordic Circular Hotspot (2020): "Financing the Circular Economy (2020)"

THE RESPONSES OF CLUSTERS DURING THE PANDEMIC

Three main phases have been identified to show the role of cluster organisations during the Pandemic: Mobilising Crisis Response, Living with the Pandemic and Reigniting the Economy[15].

This pattern can also be seen in the way cluster organisations are organising circular transition activities: Both in the first critical phase of the Pandemic and now where we are living with the Pandemic while preparing for a new better tomorrow where green and circular transition can help to recover and reignite the economy

15 TCI Network (2020): "TCI Recovery Playbook - A guide for Economic Development Organisations and Cluster Organisations"

MOBILISING CRISIS SUPPORT

Reach out to members to assess state of circular priorities – as direct contacts, surveys or online meetings. To gather intel on the needs among the members

Use the new knowledge to adjust circular activities. Regroup and adjust green activities to the circumstances

Develop digital ways to implement green transitions

Offer training and/or re-skilling through in-depth online workshops and courses

Develop new circular innovation projects based on the new situation

LIVING WITH THE PANDEMIC

Keep staying in close dialogue with members involved in the green transitions

Stay alert to changing restrictions and recommendations. Have a plan A and plan B for circular activities. Planned physical meetings might be changed into digital with short notice.

Continue to develop new green innovation projects based on changing needs.

New skills on digitalisation have been developed – or needs to be supported. New digital skills can benefit the green transition

Keep an eye on new opportunities to fund green transitions – and apply for new innovation projects on green transition

RECOVER AND REIGNITE

Development of business models in SMEs with better use of resources

Understanding new market opportunities for green products in collaboration with key market players

Development of more secure supply chain by circular supply chain management and closer collaboration between supply chain actors

Reskilling and upskilling of key staff in the SMEs to make the green transitions.

Access to funding by matching SMEs with capital (hard and soft)

Digital opportunities can help unleash the potentials of the green transition though track and trace etc.

CASES

HOW CLUSTERS ARE WORKING WITH GREEN TRANSITION

Case 1: CLUSTERS UNLEASHING SMES' GROWTH POTENTIAL THROUGH GREENING OF SUPPLY CHAINS

Case 2: DIGITAL-DRIVEN CIRCULAR INNOVATION SPURRED BY CLUSTERS

Case 3: RE- AND UPSKILLING FOR DIGITAL AND CIRCULAR TRANSITION

Case 4: ACCESS TO NEW MARKETS THROUGH CIRCULAR TRANSITION

Case 5: CIRCULAR ECONOMY IN THE SLAUGHTERHOUSE

Case 6: SUSTAINABLE PACKAGING SOLUTIONS AGAINST COVID-19

Case 7: NAVIGATING CIRCULARITY BY USING TECHNOLOGY

CLUSTERS UNLEASHING SME'S GROWTH POTENTIAL THROUGH GREENING OF SUPPLY

Seven Danish clusters join forces to accelerate the green transition of 450 SMEs. The ambition is to unleash growth potential of companies not previously working with green transition.

A key component within the project is to identify leading companies wanting to make green transition of their suppliers. Leading companies such as retailers, brands and large companies wanting to implement green principles among their suppliers are participating as problem-owners. The suppliers or potential suppliers – mainly small companies – get support in developing green competences together with a (potential) customer.

With the project Green Circular Transformation, more than 400 Danish SMEs will receive help to develop their business in a more sustainable and circular direction. In the project, companies can receive professional advice up to a value of 90,000 DKK to develop a new green and circular business model.

By participating in the project "Green Circular Transformation", a company gets:

- A concrete plan for how the company can work more circularly
- Development of new business potentials
- Competitive advantages and preparation for future sustainability requirements

- Professional industry-skilled consulting service that looks at the company's resource use with new eyes

The circular transition in times of COVID-19

The Green Circular Transformation opened for applications from SMEs interested in joining just as Denmark closed down because of COVID-19 in March 2020. The project already received 50 applications of companies interested in making green circular transition. Due to the lockdown, the clusters involved had to make a range of adjustments. Some of the activities with the companies had to be postponed, others continued through online meetings, and sparring and physical meetings taking social distancing regulations into consideration. Generally, however, the SMEs signalled that they were still interested in green transitions. To keep momentum, the cluster partners made in-depth webinars on circular transition and re-use of materials.

The call has continued being open for applications during lock-down and now that we are living with the Pandemic. Currently – in the middle of "the second wave" of COVID-19 in Denmark - more than 200 companies have applied to join to develop new circular business models. The good news is that there is

still a very high interest of companies to join the project and make circular transition - higher even than in previous similar projects.

Partners in Green Circular Transformation

CLEAN, Lifestyle & Design Cluster, Network for Sustainable Business Development in Northern Denmark (NBE), Gate21, Plast Centre Denmark, Food & Bio Cluster Denmark, DAMRC, Danish Federations of Industry, Dansk Design Center and the Municipality of Nœstved.

Read more here:
https://groenogcirkulaer.dk

DIGITAL-DRIVEN CIRCULAR INNOVATION SPURRED BY CLUSTERS

Europe is undergoing a dual transition: Green and digital. Clusters across Europe show how to combine the dual transition to develop the circular innovations through digitalisation. 2.4 million € are ear-marked to fund and accelerate a minimum of 45 European circular innovations led by SMEs.

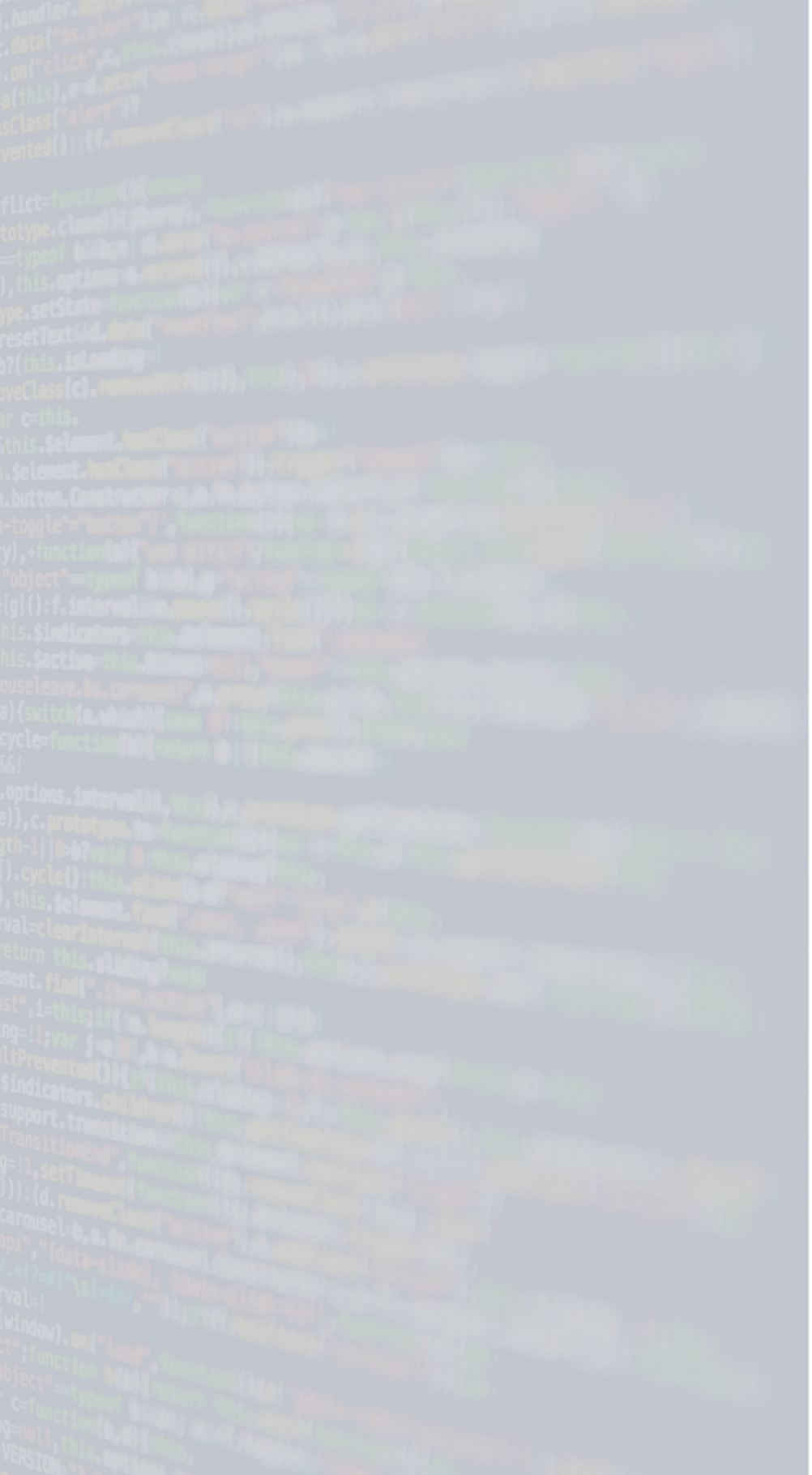
The initiative - called DigiCirc - aims to seize upon the potential of new digital technologies to boost the transition to circular economy.

Accelerator programs and seed funding

Through three accelerator programmes, DigiCirc is supporting circular innovation by helping entrepreneurs to develop digitalised solutions for circular transition – and therefore boost the efficiency, scalability and overall impact of their products and services. The intensive accelerator programmes will foster large scale demonstration and transfer innovative solutions into new value chains.

The project targets three strategic high-growth domains where the potential for digital-driven circular innovation is recognized but not realized, with each domain including several emerging and established industries: circular cities, bioeconomy, and blue economy.

The three accelerator programs, one per domain, are accompanied by small scale seed funding for the companies that will be selected through open calls. The first accelerator program is on circular cities with a total budget of € 800k and will fund a minimum of 15 SME-led consortia. The intensive and innovative 12 circular value chains with focus on key challenges under the circular cities domain. A DemoDay event will be held at the end of the programme to select the five best ranked consortia, who



will receive further funding of €100k to support the demonstration and market launch of their solutions.

Kicked-off during COVID-19 lockdown

The DigiCirc-project was kicked-off on May 1, 2020 when most of Europe was under lock-down. This means that the project team – covering clusters, business experts, circular professors, tech developers, consultants, and designers across nine European countries – has only met online to plan the project activities.

However, the timing also means that the designing of the DigiCirc activities is made while we are living with the Pandemic. The first step in the project was to reach out to relevant actors that provided inputs, through an open consultation, to shape the circular cities challenges for the first DigiCirc open call– the call is out as we speak. Digitalisation provides the tools to make key linkages which are crucial to the contemporary notion of a circular economy, particularly one that is internationalised and globalised.

Demonstrated applications of digital technology in support of the circular economy include:

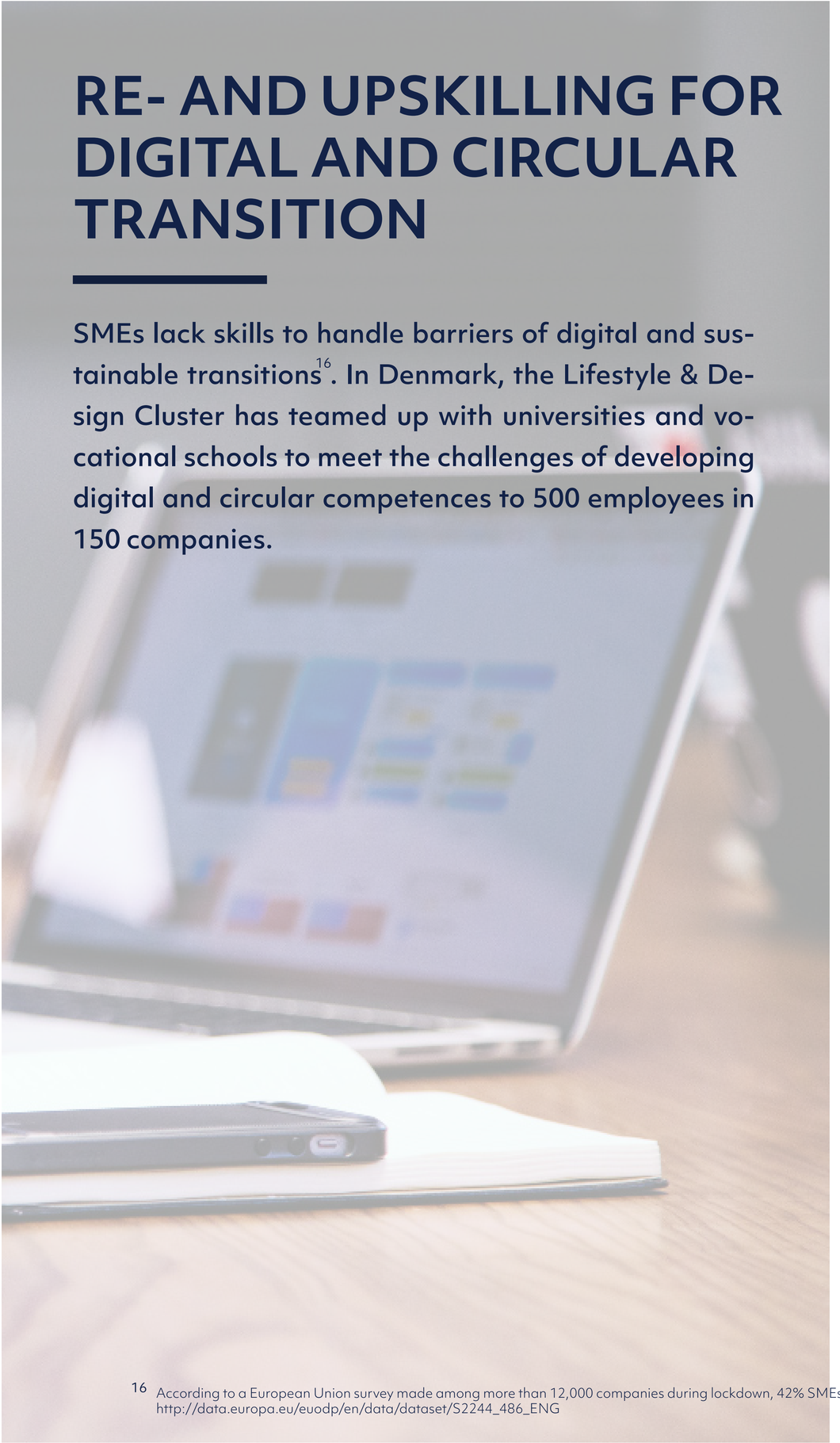
- Management of complex circular logistical chains, including by improving the efficiency of energy and resource use;
- Traceability solutions, within and between companies and with consumers alike;
- Sharing platforms and exchange platforms extending the utility and life of products through renting and leasing as well as by facilitating repairing, upgrading and reselling of items;
- Product-as-a-service business models are typically dependent on a stream of data and its analysis (e.g. Phillips'/Cofely's light-as-a-service).

More information about digital technologies for circular transition: https://digicirc.eu/digital-technologies-help-circular-businesses-move-faster-and-get-further/

Read more about DigiCirc here:
https://digicirc.eu

RE- AND UPSKILLING FOR DIGITAL AND CIRCULAR TRANSITION

SMEs lack skills to handle barriers of digital and sustainable transitions[16]. In Denmark, the Lifestyle & Design Cluster has teamed up with universities and vocational schools to meet the challenges of developing digital and circular competences to 500 employees in 150 companies.



Unlocking the potentials of digital and circular transitions in companies requires the right skills to catalyse the transformation. The cluster-led project "Tomorrow's Circular Digital Competences" will develop key employees in 150 companies across the Denmark with skills to drive circular and digital transition.

The project will provide over 500 managers and high-level employees with new skills so they can act as change agents in their companies. The project will primarily be unfolded in the manufacturing industry, construction and architecture, experience economics, and the lifestyle industry.

Developed during lock-down

The project was developed during lock-down to help companies that are challenged as a result of COVID-19 and therefore need to strengthen the company's competences and business. These companies now have the opportunity to participate in various competence development courses and thus be equipped with competences to better cope with the changed conditions that covid-19 has given birth to. In the future, green and digital competences will become key competitive parameters.

16 According to a European Union survey made among more than 12,000 companies during lockdown, 42% SMEs need support and new skills to make sustainability transitions. Find the survey "Flash Eurobarometer 486 (2020)" here: http://data.europa.eu/euodp/en/data/dataset/S2244_486_ENG

Read more about Lifestyle & Design Cluster here:
https://ldcluster.com/

Behind the new project is Lifestyle & Design Cluster in a strong partnership with a number of vocational schools and knowledge institutions, including Aalborg University, VIA University College, University of Southern Denmark and UCN University College. It's funded with 17.3 million DDK from The Danish Executive Board for Business Development and Growth[17].

Competence development and positive impacts

The project has just started out, so it's too early to conclude on the impact. However, green transition is the cornerstone of Lifestyle & Design Cluster's strategy. Learnings from others of their green transition activities are the base of the new project.

Here, an impressing piece of learning from intensive evaluations is that seven out of ten participating companies state that they have acquired new competences to continue working with the green economy, and every other company has built up new networks with which they will continue to collaborate. Competences that can even be measured directly in improvements on the environment. The cluster's green transition projects have resulted in 89,000 gigajoules being saved on energy consumption and 7,900 tonnes fewer materials have been used[18].

17 The Danish Executive Board for Business Development and Growth (2020): "Nøglemedarbejdere skal gøre SMV'er grønne og digitale i hele landet" https://erhvervsfremmebestyrelsen.dk/noeglemedarbejdere-skal-goere-smver-groenne-og-digitale-i-hele-landet

18 Erhvervsstyrelsen (2020): "Virksomheder i kø hos EU-projekt for at blive grønne og cirkulære" https://regionalt.erhvervsstyrelsen.dk/virksomheder-i-koe-hos-midtjysk-eu-projekt-blive-groenne-og-cirkulaere

ACCESS TO NEW MARKETS BY REUSING TIRES

Circular transition driven by clusters can lead to more robust supply chains and new markets. That's one of the conclusions from Russia where a local cluster has supported the development of a green circular process giving old tires and rubber new life.

In the recent years, the Government of the Russian Federation has adopted laws and regulations that organise and stimulate enterprises to involve production and consumption waste in economic turnover. Turning the policy into practice, The Mechanical Engineering Cluster of the Republic of Tatarstan, which includes the largest enterprises for the production of tires and rubber technical products, has implemented an ecological project focusing on recycling rubber and tire crumb.

The project is based on the principles of circular economy through an ecological clean and innovative processing method turning used tires into to regenerate. The regenerate can be used in the production of new tires and other rubber products.

Investments in new circular process equipment pays off

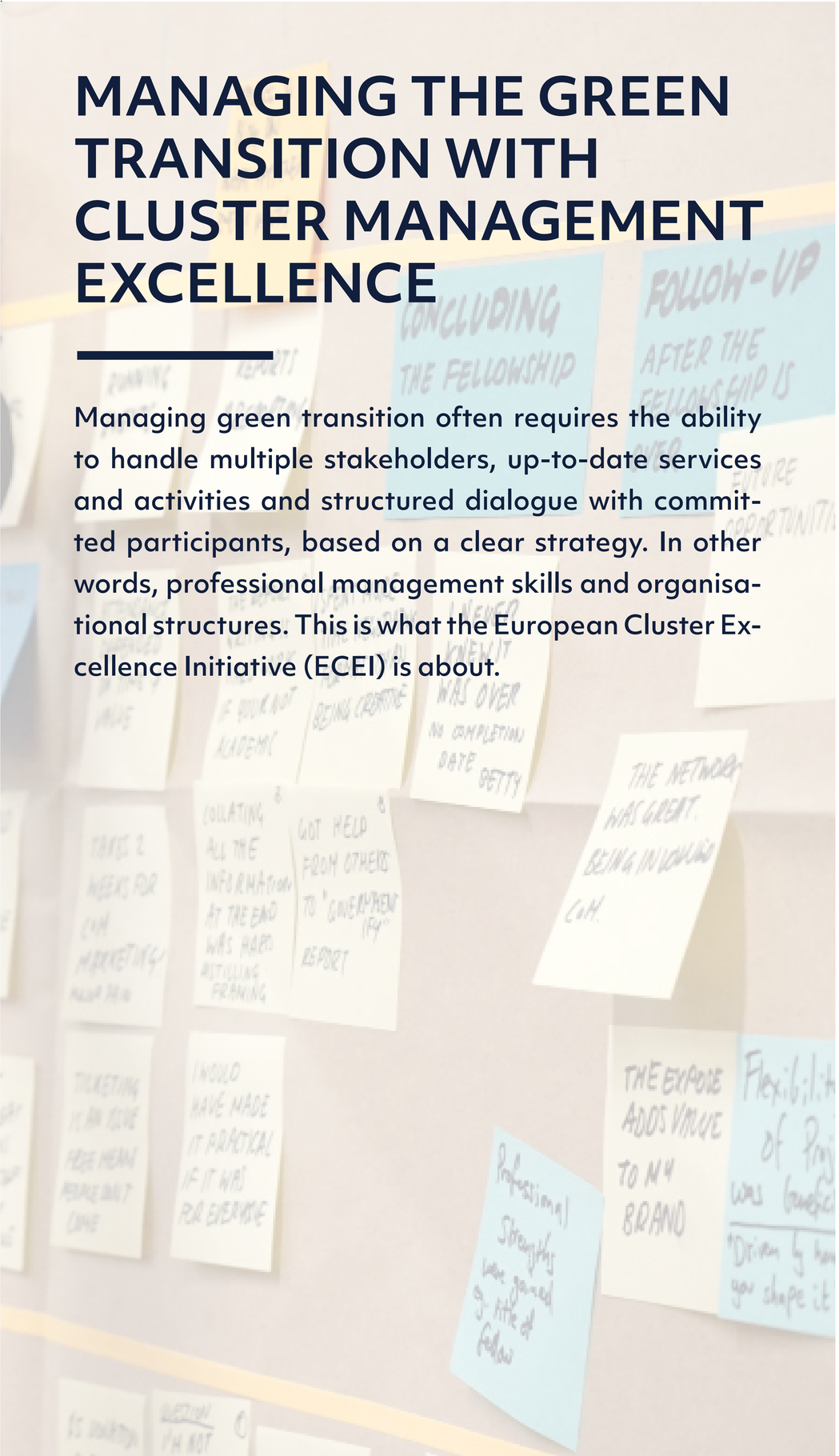
As a result of the project, a member of the Mechanical Engineering Cluster of the Republic of Tatarstan has developed equipment for the production of the regenerate from rubber and tire crumbs. And it's good business. The new process requires investments in new machinery; however, the return of

investment is less than three years. And it has led to a more robust supply chain and new customers.

Previously, the regenerate was purchased in foreign countries such as China and Korea. Now it can be produced locally. And it is already delivered to a new “anchor customer” in the Republic of Tatarstan. As a result of the successful transformation The Mechanical Engineering Cluster is now ready for the next steps: supporting export of the technology to enterprises that have competences in mechanical engineering and modern technologies for processing tire and rubber.

Read more about The Mechanical Engineering Cluster of the Republic of Tatarstan here:
http://www.innokam.ru

MANAGING THE GREEN TRANSITION WITH CLUSTER MANAGEMENT EXCELLENCE



Managing green transition often requires the ability to handle multiple stakeholders, up-to-date services and activities and structured dialogue with committed participants, based on a clear strategy. In other words, professional management skills and organisational structures. This is what the European Cluster Excellence Initiative (ECEI) is about.

Cluster management excellence is considered one of the most promising approaches to increase the contribution of cluster initiatives to sustainable economic development and to successfully address (mega)trends such as digitalisation, green transition or social innovation.

In this context, cluster policy makers in various countries encourage cluster initiatives to take part in a cluster benchmarking exercise in order to advance their strategy, structures and services by comparing their own performance with peers from Europe and beyond. In a second and third step, the cluster initiatives can show their documented commitment towards a continuous improvement of their organisational structures and routines and be awarded the internationally renowned ECEI Silver and Gold Quality Labels.

As part of its regular benchmarking and assessment activities, the European Secretariat for Cluster Analysis (ESCA) introduced in 2019 several interview questions on clusters' strategies towards resource efficiency and circular economy. The following three cases are selected out of ESCA's pool of more than 1,200 benchmarked cluster management organisations.

They highlight the strong commitment of the three cluster management organisations to transform their respective industry sectors towards the principles of green economy and a sustainable use of resources.

esca
European Secretariat
for Cluster Analysis

Read more here:
https://www.cluster-analysis.org/

GREEN ECONOMY IN THE SLAUGHTERHOUSE

As the global meat business has been attracting growing scrutiny for its climate change consequences in recent years, a Spanish pork industry cluster committed to promote the reduction of greenhouse gas emissions among its members and implemented projects on waste reduction, sustainable packaging, water and energy efficiency and local and ecological food products.

Joining forces with the Government of Catalonia to mitigate climate change and attain energy transition, the Catalan Association for Innovation in the Pork Sector (INNOVACC) initiated steps to address its members' environmental impact during the First Catalan Climate Action Summit in January 2020. Most prominently, INNOVACC, which brings together 100 members from the local meat and pork industry, auxiliary services, universities and R+D+I, implemented a project on "Recovery of protein of low commercial-value from pig slaughterhouse co-products and by-products".

Recovering slaughterhouse by-products

With the demand for meat proteins likely to exceed the productive capacity of traditional sources in the near future, meat producers are compelled to find solutions to this pressing problem. Knowing that the level of exploitation of by-products from slaughterhouses is not yet at optimum, INNOVACC proposed to develop a system to make the maximum use of low commercial-value products as a source of high biological value proteins and ingredients. As a result, INNOVACC members learnt how to obtain and wash protein fractions from various pork viscera, such as livers, hearts **and spleen,** and use them as ingredients in the food industry. The optimal conditions for the formation of Zn-protoporphyrin from pork livers have been established to obtain two

types of ingredients with a coloring ability. As a positive side effect, the new procedures also significantly reduce the level of nitrates and nitrites in meat products.

The project has a positive economic impact on the majority of the INNO-VACC cluster participants: Slaughterhouses can better value the viscera while meat transformers can use the new by-products to prepare their meat products. Overall, the project contributes to the achievement of two of the cluster initiative's strategic objectives, namely producing more sustainable products and enforcing circular economy in the pork sector.

Read bout the Catalan Association for Innovation in the Pork Sector (INNO-VACC) here: https://www.innovacc.cat/?lang=en

SUSTAINABLE PACKAGING SOLUTIONS DURING COVID-19

Aiming at optimising material use and minimal environmental impact while providing full packaging functionality, the Swedish Packbridge Cluster has made sustainability, including eco-design and circular business models, one of their strategic focus areas. The early shift towards green solutions pays off as the COVID-19 pandemic forces companies to meet increased product hygiene standards while consumers demand more sustainable packaging solutions

Malmö-based Packbridge supports its members with a range of services to meet the cluster's sustainability goals, such as information sharing on green trends, innovations, and industry developments; hosting member webinars for sharing business cases on sustainable packaging solutions; organising company-tailored workshops on circular business models; or running projects on the development and manufacturing of material innovation, research and material development.

Mapping material-use and recycling in Southern Sweden

One example of Packbridge's innovative strength in advancing the green transition within the entire packaging value chain was its 2018 project "Kunskap i Rätt Forpackning". The objective of the project was to map-out the missing elements in the current model of how companies in Southern Sweden manage materials and their recycling. As a result, more than twenty local material producers, packaging converters, brand owners, environmental institutes, material research and branch organisations, waste management companies and recycling companies worked together to close the existing gaps in the current packaging cycle. Packbridge has initiated a new "Collaborative Forum for Increased Material Recycling" to further discuss and implement the project results and tackle specific challenges, such as designing

for circularity, or the proper use of recycled materials.

Ironically, COVID-19, in a way, is raising the urgency in the shift towards a green transition in packaging: During the pandemic, fillers and retailers had to introduce additional packaging solutions for individual products to meet the changed safety perceptions and increased product hygiene demands, as well as requirements for e-commerce. This together with the ongoing pressure to shift towards more sustainable packaging solutions from consumers and new regulations is pushing Packbridge's members to a speedier integration of more optimal, recyclable, bio-based, or biodegradable packaging solutions into the already existing infrastructure.

Read more about Packbridge here:
https://packbridge.se

NAVIGATING CIRCULARITY BY USING TECHNOLOGY

Climate change and limits in the availability of fossil resources have brought about new challenges for the chemical industry, which has traditionally been characterised by a high throughput of material and energy. A German Chemistry Cluster together with partners from six European countries developed and tested an online platform for the flexible management of shared process resources.

Because chemical companies are still heavily reliant on fossil raw materials like oil, gas or minerals, the Chemistry-Cluster Bavaria with its more than 120 local stakeholders from industry and academia, lifted the transition of the chemical industry towards carbon-neutral and circular production onto its agenda.

In order to achieve this goal, the Chemistry-Cluster Bavaria, supports numerous start-up companies in low-carbon and circular economy and connects them to potential cooperation partners in established industries. Moreover, the cluster initiates and coordinates applications for public funding of joint R+D+I projects and is involved in a number of international projects dealing with circular economy. In doing so, the cluster draws on its members' long experience in creating "industrial parks", where different production plants from different companies exchange materials and energy along value chains for maximized efficiency.

From 2015 to 2019, a European consortium under Horizon 2020 developed and tested an online platform for the flexible management of shared process resources: SHAREBOX. The new platform provides plant operators and production managers with the robust and reliable information which they need in real-time in order to effectively and confidently share resources (plant, energy, water, residues, and recycled materials) with other com-

panies in an optimum symbiotic eco-system. While industrial managers welcomed the features of the new software, they agreed that due to the high complexities of organising material and energy flows beyond companies' boundaries, there is a strong need for external support and advice. As a result, clusters with their robust networks of experts and their competences in facilitation and industrial transformation, have been identified as ideal partners to help managers navigate through the new platform and advance the concept of "industrial symbiosis".

Moreover, encouraged by the uplifting project results, the Chemistry-Cluster Bavaria is stepping up its activities in the area of circular transition beyond the SHAREBOX project, embedded in international networks like Processes4Planet or CircLean for mutual learning and exchange of best practices on circular economy policies and activities.

Read more about Chemistry-Cluster Bavaria here:
http://chemiecluster-bayern.de

"Towards a New Greener Normal - How Clusters are Dealing With Circular Transition in Times of Covid-19" 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.
A survey is send out in collaboration between Cluster Excellence Denmark, TCI Network and Enterprise Europe Network. Cases in the booklet are selected in collaboration between Cluster Excellence Denmark and European Secretariat for Cluster Analysis (ESCA) with valuable inputs from Enterprise Europe Network.

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