Circular Economy Presentation to Potential EBRD Clients in Mongolia

30th April 2025

Circular Economy Concepts and Business Models in Agri Sectors

GREEN GROWTH, A CIRCULAR ECONOMY STORY

*The 'take, make, use, throw away' approach to scarce resources is a thing of the past. It's **time to close the loop** and invest in the circular economy and green growth!*

THIS IS WHAT WE KNOW

- growing demand for goods
- global competition is intensifying
- unsustainable use of resources
- climate change is happening
- energy supplies are dwindling

THIS IS WHAT THE CIRCULAR ECONOMY DOES...

- saves and values scarce resources
- cuts greenhouse gas emissions and environmental impacts
- breaks down silo thinking and promotes cross-policy action
- makes the economy more competitive, sustainable, fair
- creates new business opportunities, jobs and growth

THIS IS THE OUTCOME...

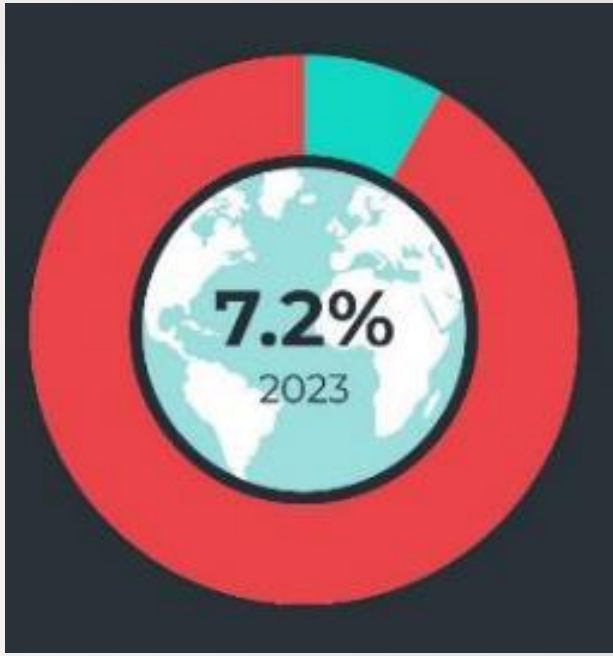
The circular economy package brings the pieces together – production, consumption, secondary raw materials, waste management, innovation & investment – to cover the whole product lifecycle.

It means Europe is now the best place to grow a sustainable green business.

European Commission

Key Facts

- The world's circularity is in reverse and stands at **only 7,2% in 2023 (9,1 % 2018, 8,6% 2020).**
- In only six years, half a trillion tonnes of virgin materials were taken from the earth to fulfil societal needs and wants: **70% more than what the earth can safely replenish.**
- Renewable energy solutions fail to address the chunk of emissions. **70% are stemming from resource use and handling.**



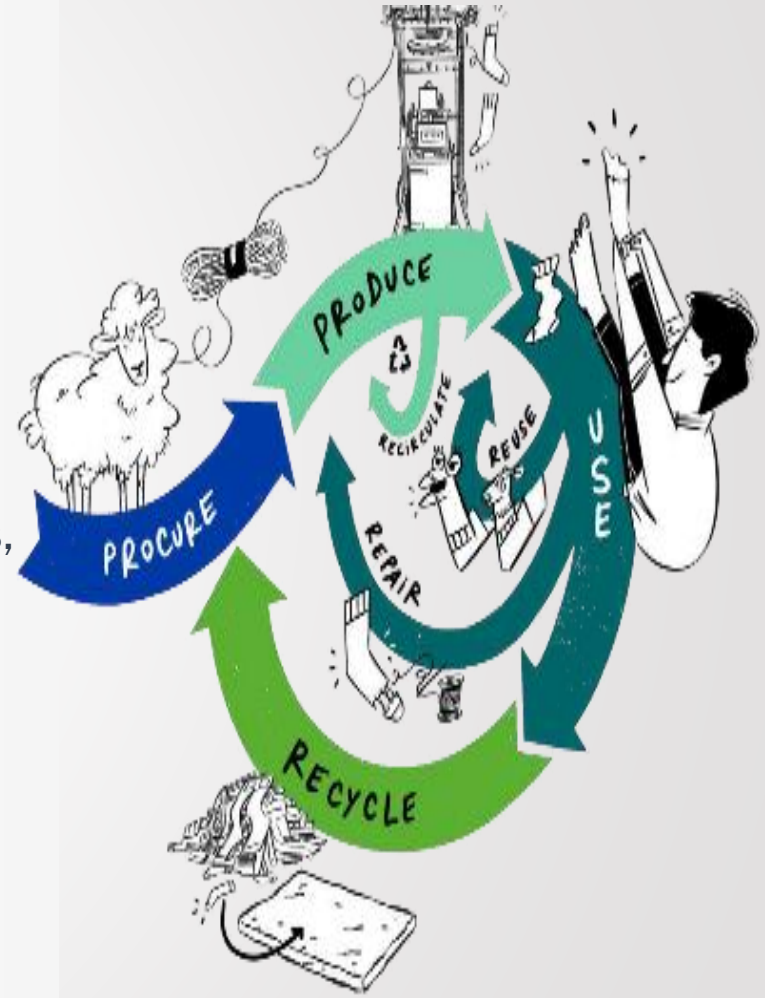
- We need the clean energy transition to happen, but it cannot keep us on the well below 2-degrees trajectory alone. Nor does it tackle our rising consumption levels and concerning resource scarcity.
- If the world moved away from a linear economy and toward a circular one, the analysis shows that global greenhouse gas (GHG) emissions would drop **by 39% and virgin resource use by 28%, and we would reach the goals of the Paris Agreement.**

Mobility, Housing and Nutrition Account for Almost 70% of Global Emissions

- Mobility has the largest emissions footprint at 17.1 billion tonnes—largely due to fossil fuel use across passenger and freight transport.
  - The production of automobiles, trucks, trains and aeroplanes is relatively limited in emissions contributions.
- Housing, at 13.5 billion tonnes of emissions, has the second largest contribution. This is due to the vast extraction, transport and construction activities it entails, as well as the energy used to light, heat and cool our homes.
- Third in line is the provision of food for Nutrition, which contributes 10 billion tonnes of emissions. Land use, land-use change and forestry (LULUCF) — a GHG inventory sector referring to emissions from human land-use activities—is associated with the production of food, but also fibres and clearing for the expansion of urban centres, and is responsible for about 4 billion tonnes of emissions.

Key drivers for circulatory measures

- Improved brand image
- New consumer demand
- Compliance with the existing and upcoming regulations
- Relatively fast return on investment
- Cost reduction through resource use and consumption optimization
- New market development through circular business models
- Providing more sustainable energy patterns through renewable energy systems, while reducing GHG emissions.
- Transparent measuring, monitoring, reporting and validation
- Responsible sourcing, through internationally recognized certification programmes, and/or Type 3 Ecolabeling
- Waste minimization, reduction of landfilling and avoidance of hazardous substances
- Strategic focus on lifecycle GHG reduction and lifecycle circularity improvements



Business Models

Circular Design Models

- **Focus on the development of existing or new products** and processes that seek to optimise circularity.

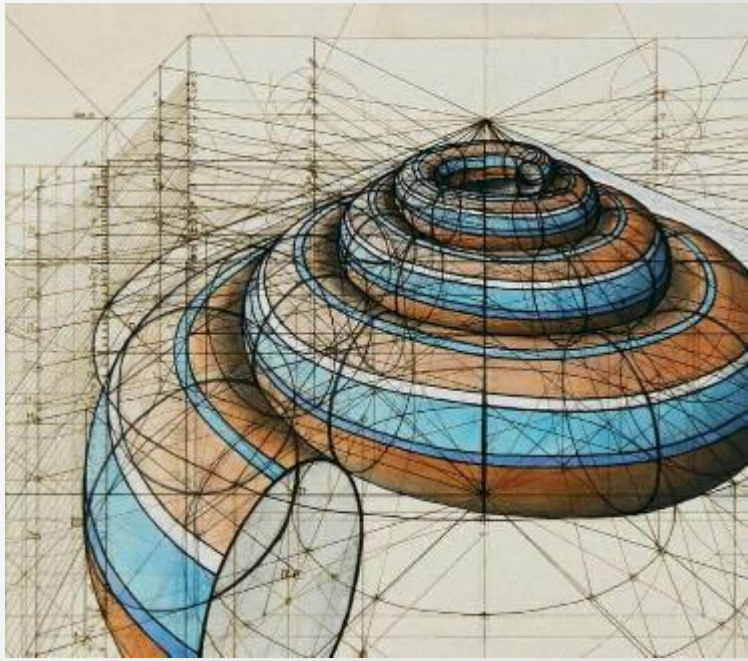
  - *Using animal manure as fertilizer and feeding crop residues to animals.*

- **Products are designed to last longer** and/or be easy to maintain, repair, upgrade, refurbish, remanufacture or recycle.

  - *Repairing and refurbishing machinery and equipment to extend their lifespan.*

- **New materials** are developed and/or sourced:

  - *Turning organic waste into valuable compost for soil enrichment*



Optimal Use Models

- **Aim to increase the value and use of a product during an extended life** - often build on retained ownership of a product, e.g. by providing a service rather than selling a product, *e.g. refrigeration in retail stores as service,*

- Such **product-to-service models** have financial implications coming from, for instance, the changing nature of cash flows, with increasing working capital to pre-finance clients, balance sheet extension, and re-evaluation of residual value.

  - *Reduce waste at all stages of the food production process, from the field to the consumer.*

  - *use resources (land, water, energy, etc.) as efficiently as possible, preventing over-use and ensuring they are used optimally.*

  - *Sharing resources like machinery and land reduces the need for individual ownership, saving costs and promoting efficient use.*

Value Recovery Models

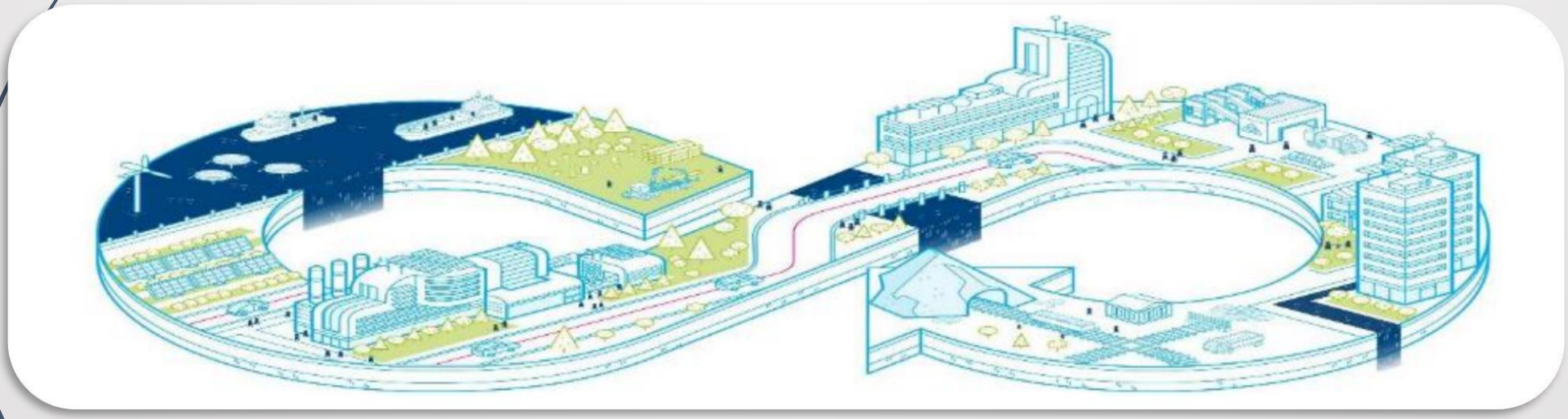
Focus on maximising recovery and recycling of products and materials after use into new products or useful resources.

- Farmers can create new products from agricultural by-products, such as using fruit and vegetable peels for new food products. (e.g. pectin production)
- Utilize agricultural waste and by-products to produce bio-based products like biofuels, chemicals, and materials. convert organic waste (e.g., crop residues, animal manure) into biogas for energy.
- Using treated wastewater for irrigation, reducing water consumption and improving water management.
- The development of **reverse logistics**, i.e. the return from point of consumption to point of production, is essential for this model.
- Creating new products from agricultural byproducts, such as food products, fabrics, or materials for construction.

Circular Support Models

Focus on the management and coordination of circular value networks and resource flows:

- Supportive policies and regulations are needed to incentivize circular practices and create a level playing field.
- Raising awareness among farmers, consumers, and other stakeholders is crucial for widespread adoption.
- Successful implementation often requires collaboration among different stakeholders, including farmers, processors, researchers, and policymakers.



Examples of Circular Solutions

Key Environmental Challenges in Mongolia

Key environmental and climate issues in Mongolia's agricultural sector include:

- climate change impacts like increased temperatures and changing precipitation patterns
- droughts and dzuds (harsh winters)
- Land degradation
- overgrazing, and desertification impacting livestock herding
- Decreasing fodder availability affecting healthy livestock populations
- greenhouse gas emissions
- water resource depletion
- food insecurity and malnutrition
- Diets imbalance and lack sufficient nutrient diversity, exacerbating malnutrition concerns

Examples of Potential CE Measures in Mongolian Agri Sectors

- Zero Waste Production Units
- Water reuse
- Reuse of packaging and plastics and food ware
- Recycling initiatives with recycling operators
- Packaging redesign, biodegradable material introduction for wrappers and cups
- Straws and other plastic cutlery phaseout
- Sustainable sourcing for packaging
- Installation of renewable energy mix for production units
- Energy efficient HVAC system installation, focus on passive heating and cooling
- Green fleets – fleets run on alternative fuels such as biofuel, hydrogen and-or electricity
- Insulation of buildings
- Bio based products for plant growth and pest control
- Organic based product lines
- Manure management

- Closed loop farming – by-products utilisation
- Food reuse (plant-based products, fertilizers, energy)
- Food waste as a source of biodegradable packaging
- Cooking oil reuse as fuels
- Optimised irrigation systems
- Transparent and traceable supply chains.
- Contribution to environmental benefits, such as:
  - Phasing out, avoiding, or minimizing Persistent Organic Pollutants (POPs)
  - Reducing GHG emissions
  - Saving or diverting materials from landfills
  - Implementing low or no chemical systems
- Use of innovative technologies, processes, or business models with low market penetration and high replication potential.

Circular Economy Investments for food retail store chain – good practice examples

- Focus on local sourcing
- Bio-based products for plant growth and pest control
- Change of purchase standards regarding irregular shapes and formats of fruits and vegetables
- Define private label sustainability food standards to engage the upstream supply chain and farmers.
- Investigate options for Fair Trade, FSC, Organic, Motivate farmers to become part of some programs
- Incentivize small hold farmers and support them becoming part of circular farming system

- Intermarche - Inglorious Fruits campaign to promote and increase the sales and awareness of thrown-away food.
- Ahold Delhaize - Invest in their supply chain to reduce their supply chain carbon footprint.
- Whole Foods Market - Initiative to support local farmers, reducing transport and promoting direct sales.
- Unilever Sustainable Agriculture Code - Promote and demands adoption of sustainable practices

Measures for Food Wastes – good practice examples

- Close to expiry discounts
- Food donation to national kitchens and food banks
- Composting, bioenergy or biofuel production
- Innovation projects by offering food waste to biotech institutes that find utilization purposes
- AI based detection and condition-based discounting

- British sugar uses its byproduct and waste to create bioethanol for their fleet.
- Ahold Delhaize offers discount for near-expiry products.
- Nikogladan forms the Food Bank in Sarajevo
- Vegatex had defined artificial skin products based on apple and orange waste skins. Some new products may be created through collaboration with research institutes.
- Winnowsolutions with the AI driven inventory management systems. May be altered and paired with digital price tags and automatic discount control

Energy and logistics measures and good practice examples

- Installation of renewable energy mix
- Energy efficiency programmes and upgrades
- Inbound and distribution fleet route optimization
- Fleet with alternative fuels based on renewable energy (green electric, hybrid, biofuel or green hydrogen based)
- Fuel efficiency fleet retrofits

- Target implemented energy-efficient lighting and HVAC systems in its stores, reducing energy use by over 20 %
- Wallmart is targeting to have Zero-emission fleet
- Tesco Ireland commits to biomethane-fueled transport fleet
- Tesco Ireland to purchase biogas made from its surplus food

Packaging and packaging waste measures and good practice examples

- Reuse of packaging
- Recycling initiatives with recycling operators
- Packaging redesign, biodegradable material introduction for fruit, vegetables and MAT packaging
- Alternatives to packaging as thin bio foils / sprays
- Developing own packaging production branch
- Sustainable sourcing for packaging
- Bulk sales and e-sales as an alternative to packaging, shelf-based sales

- Winterhalter offer dishwashers as a Biodegradable food spray packaging is almost ready for the market
- Target works on the circular retail systems and packaging design that reduce the need for single use packaging
- Loop is a system for returnable packaging and direct delivery to customers. Greatly reduces packaging needs
- Loliware produces edible, biodegradable alternative to plastics
- Zero Waste store offers package-free alterative shopping

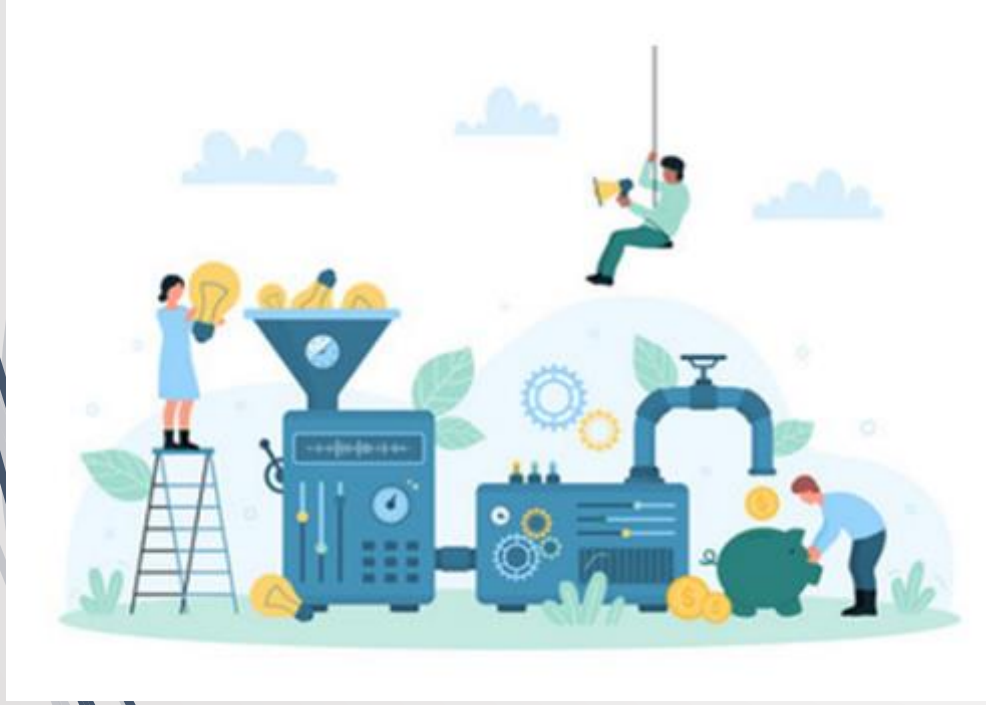
Animal Husbandry CE measures and good practice examples

- Manure Management as a Resource
- Crop Residue Utilization
- Waste Reduction and Reuse
- Integrated Farming Systems
- Introducing sustainable and traceable supplies of hides

- Cargill Cargill Nutrition System in upcycling for feed purposes.
- AB Agri and CORDIS highlight the development of technologies like bacterial products to break down manure or nitrification inhibitors to prevent ammonia loss.
- INTAG Systems offers organic nutrient solutions for modern agriculture.
- Several companies are actively working on sustainable and traceable supplies of hides, focusing on transparency and responsible sourcing. OEKO-TEX, Moss Bros, Smythson, Deckers Brands, Mercedes-Benz Group AG.

Horizontal service models – good practice examples

- Integration with brewery, using bread for brewing
- Circular farming initiative, upcycling food waste to animal feed and pet food
- Collaboration with processing facilities offering ingredients for processed food (jams, jellies, precooked meals, etc.)



- Rhodora Wine Bar – Brooklyn. became a 100% sustainable restaurant by implementing an on-site composter that converts diners' leftovers into mulch.
- Toast brewing produces beer from old bread
- Novae produces jams from downgraded fruits.
- Waitrose is converting its surplus food from supermarkets into pet food

Service models good practice examples

- Central kitchen, delivery models (Central K)
- “As a service” equipment (EAAS)
- Zero Waste kitchens (ZWK)
- Water reuse

- Winterhalter offer dishwashers as a service
- Hesburger also reuses its spent oil to make a biofuel, contributing to the Zero Waste kitchen
- Rhodora Wine Bar – Brooklyn. became a 100% sustainable restaurant by implementing an onsite composter that converts diners’ leftovers into mulch.
- Wallmart starting the “ghost kitchen” business that is serviceable by multiple **restaurants / brands**
- Chipotle, link 2 increases composting and battling waste reduction through logistics
- Yum! And McDonald’s donated millions of tons of food and spent coffee grains

Circular Economy in Mongolia

Key Initiatives and Focus Areas:

- Sustainable Yak Leather (SYL) Project
- Vegetable Tanned Yak Leather Cluster
- Training and Capacity Building
- Waste Reduction and Management
- Traceability Systems
- Manure Management and Biogas

The SYL Project

Launched on 27th May 2022 and running until 2025, the SYL Project aims to:

- Establish sustainable and traceable supplies of hides of domesticated yaks, available as raw materials for the emerging, vegetable tanning industry;
- Reduce losses associated with existing (incomplete) collection of hides, and waste attributed to remediation and improper processing;
- Improve the efficiency and effectiveness of tanning, finishing, and leather products manufacturing operations;
- Introduce traceability systems to support the marketing of the Mongolian Vegetable Tanned Yak Leather Cluster's products abroad, satisfying consumer demand for ethically produced materials and goods.

SYLPROJECT
Sustainable Yak Leather

Limited Awareness and Understanding of Circular Economy Among Businesses

A significant portion of Companies, in particular SMEs lack awareness of circular economy principles.

- **Recommended measure: Capacity building formats, mentoring and technical assistance** in the domains of:

1. Circular business models; market and policy pressures; circular market opportunities
2. Value chain and value network creation in circular economy
3. Industrial ecology
4. Material use optimization
5. Water use and treatment optimization
6. Energy auditing and optimization
7. Environmental impact assessment, including the LCAs
8. Climate change impact and decarbonization, including the GHG assessments

Outdated Technology

Many companies operate with outdated machinery not optimized for circular practices. This prevents cleaner production and produces suboptimal environment for energy, water and material usage.

- **Recommended measure:**

1. **Financial Support:** Provide grants, low-interest loans, and subsidies specifically aimed at upgrading technologies for circular economy practices and cleaner production.
2. **Technology Partnerships:** Facilitate partnerships between SMEs and technology providers to access modern, sustainable equipment through leasing or shared ownership models.
3. **Innovation Hubs:** Establish innovation hubs that offer access to state-of-the-art technologies, technology transfer and collaborative spaces for SMEs to experiment with circular solutions.

Supply Chain Integration and Collaboration Challenges

Challenges in integrating circular practices due to fragmented and non-cooperative supply chains. This hinders the seamless flow of materials, reduces efficiency, and limits opportunities for resource recovery and reuse.

- Recommended measure:

1. **Supply Chain Partnerships:** Encourage the formation of strategic partnerships and alliances among SMEs and larger enterprises to foster circular supply chains.

2. **Value chain integration in solutions:** Provide support to the initiatives that include wider supply chain and value chain benefits, knowledge, or technology transfer

3. **Standardization and Best Practices:** Promote the adoption of standardized processes and best practices for circular supply chain management to ensure consistency and efficiency.

Lack of Collaborative Platforms

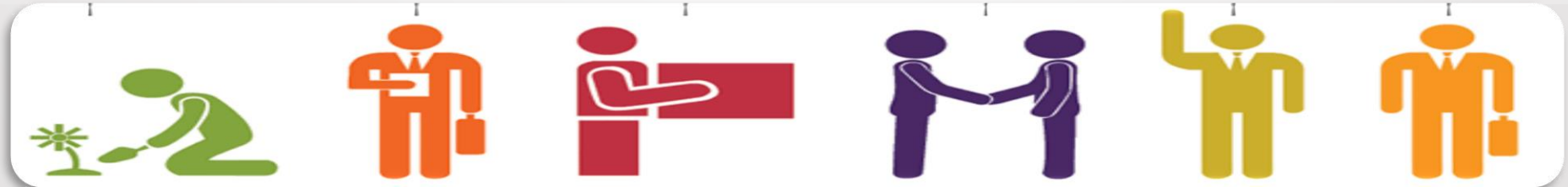
Lack of collaborative platforms that facilitate circular supply chain initiatives, particularly among SMEs, and that support collaborative solutions. This limits knowledge sharing, innovation, and the ability to implement joint circular projects.

- Recommended measure:

1. **Develop and support (digital) platforms** that enable SMEs to collaborate, share resources, and coordinate circular initiatives across the supply chain.

Key Areas for Change

- **Design of organizational governance** – "business as usual" governance tends to be quite hierarchical where day-to-day business activities, generally disconnected from each other, are overseen and directed from the top. This might not be entirely suitable to progress and sustain major change within the context of the circular economy. More successful organizations are likely to be those that engage and empower individuals at all levels of the organization to take a degree of responsibility to drive change.
- **Leadership** – strong leadership is needed to implement the principles of the circular economy. For example, effective leadership can keep the organization focused on what it needs to achieve, whilst managing often competing demands. Good leadership should ideally be present at all levels of an organization.
- **Communication** – change programmes typically fail due to insufficient or unclear communication. Good communication can have a positive effect on organizational culture and makes a significant contribution to the overall effectiveness of the change programme.
- **Technological development:** new technologies, the internet of things, big data tools, advances in production, material science and manufacturing, artificial intelligence, predictive monitoring and maintenance systems.
- **Expect the unexpected** – there is a degree of uncertainty when implementing the principles of the circular economy so it is reasonable to assume that unforeseen issues could be encountered along the way. Organizations should decide how these situations are to be dealt with, particularly where responsibility to drive change has been devolved.



Thank you!

Contact Details:

Dr. Dariusz Prasek

deprasek@gmail.com