

CIRCULAR ECONOMY WEBINAR

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Welcome to the Webinar!



Before we start...

- Please keep your microphones muted during the webinar and make sure your webcam is switched off.
- You can use the conversation function anytime to submit your questions. They will be addressed during the Q&A at the end of the webinar



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Agenda

ESA Welcome and Introduction

About ESA's *Circular Economy* Competition

Circular Economy and Space

How to Apply to the *Circular Economy* Competition

Q&A Session

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space transportation

earth observation

s cience

telecommunications and applications

human spaceflight

navigation

exploration







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European Space Agency

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ESA SPACE SOLUTIONS



Zero-equity funding (from €50k to €2M+ per activity)

A personalised ESA consultant

Technical support and commercial guidance

Tailored project management support

Access to our international network of ESA and partners

Access to our network of investors

Credibility of the ESA brand



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Circular Economy ESA's Kick Start Competition

Circular Economy: An Introduction

Most organisations today operate in a linear way. This model operates as though there are infinite resources and it generates a lot of waste.

A **circular economy**, on the other hand, treats resources as though they are finite and is based on a make, use and return model. The circular model is based on three principles:

- Design out waste and pollution
- Keep products and materials in use
- Regenerate natural systems



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Circular Economy: Kick Start

Since the topic of the "Circular Economy" is so vast, this kick start has been split into four competitions:

	<u>Opening Date</u>	<u>Closing Date</u>
1. Circular Food & Drinks	03 May 2021	18 June 2021
2. Circular Fashion and Textiles	03 May 2021	18 June 2021
3. Circular Urban Life	21 June 2021	06 August 2021
4. Circular Waste Systems	21 June 2021	06 August 2021

If you are interested in applying please decide which topic your idea falls under and submit a proposal between the opening and closing date.



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Circular Economy: About the Kick Start

Winners of the competition will run a 6 month study, called a Kick Start.

During the Kick Start teams will:

- 1. Engage with users and potential customers of the proposed service
- 2. Assess the technical feasibility of the service
- 3. Develop the business model and plan

ESA will provide funding of 75% for a maximum of €60K to each winning team.

Visit: https://business.esa.int/funding/invitation-to-tender/circular-economy



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Part 1: Circular Food & Drinks

The equivalent of six rubbish trucks of edible food is lost or wasted every second. In cities, less than 2% of the valuable biological nutrients in food by-products and organic waste (excluding manure) is composted or valorised*.



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Source: Ellen MacArthur Foundation - https://guides.co/g/c-cef/165201

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Part 1: Circular Food & Drinks

What kind of ideas would we like to see submitted?

- 1. Ideas for services that optimise food use and reduce waste. Services can focus on any point along the supply chain: production, distribution, in shops, in restaurants, catering facilities and at home.
- 2. Ideas for services that use residue streams and agricultural by-products, which could become a valuable source of bio-based packaging, paper, fertiliser, or biofuel.

Ideas could:

- Use new technologies such as blockchain and AI to optimise food storage and supply chain efficiency by matching supply to demand more accurately and minimising the risk of goods expiring.
- Involve data sharing to enable industries to find agricultural by-products for re-use.
- Use sensors to precisely monitor changes in the quality of natural resources.



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PART 2: CIRCULAR FASHION AND TEXTILES

Key Challenges:

- Businesses have used "fast fashion" to cut prices and introduce new lines more often, but this has meant that the fashion industry produces approx 10% of CO2 emissions each year*
- Making and laundering clothes typically require large quantities of water and chemicals, with fibre farms occupying vast tracts of land.
- The global nature of the fashion industry means clothes may have travelled around the world several times during manufacture
- Current technologies cannot reliably turn discarded old garments into fibres for new clothes.



Source: Guardian Online – "Fast fashion speeding toward environmental disaster, report warns"

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PART 2: CIRCULAR FASHION AND TEXTILES

What kind of ideas would we like to see submitted?

- 1. Designing, sourcing, producing and providing clothes, shoes and accessories with the intention to be used and circulated responsibly for as long as possible in their most valuable form.
- 2. Safely returning materials to the biosphere when clothes are no longer of human use.



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PART 2: CIRCULAR FASHION AND TEXTILES

Ideas could:

- · Source safe and renewable materials for clothes.
- Enable people and industries to find and buy used clothing or second-hand materials.
- Manage and monitor clothing and textile "end of life". For instance, natural fibres - like cotton and silk - are biological nutrients and can return to the Earth, whereas technical components like polyester and nylon should be recycled.
- Use blockchain and other technologies to satisfy consumer demand for visible and transparent value chains from 'sheep to shop'.
- Create environmental labelling standards and evaluate the environmental impact of the textile sector.
- Use new technologies to reduce the amount of water and chemicals needed to make apparel.



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Part 3: Circular Urban Life

Circular cities can bring huge benefits, including reduced congestion, less waste and improved air quality.



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What kind of ideas would we like to see submitted?

- Use of mapping, digital twinning and AI to determine the optimum design and layout of cities in order to help with resource management, nutrient flows, and reverse logistics. These make the return, sorting and reuse of products possible.
- Use of digitally enabled technology solutions to enable/ enhance:

A collaborative economy – the creation of decentralised networks and marketplaces to unlock the value of underused assets, like Etsy or eBay.

A sharing economy – the sharing of the use of assets that have untapped or unused capacity, like Airbnb.

Collaborative consumption – the reinvention of traditional market behaviours like renting, lending and swapping through the power of digital technology, for example in a model like Zipcar or bike sharing schemes.

On-demand economy – models that directly match customer needs with providers to deliver goods and services, like Uber.

These all play a role in extending the amount of time a product is in use.



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Part 4: Circular Waste Systems

The circular economy aims to convert waste into income streams and minimise waste disposal where possible. If disposal is unavoidable, it must be adequately controlled to be safe for human health and the environment.



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Part 4: Circular Waste Systems

What kind of ideas would we like to see submitted?

We would like to see ideas that:

- Turn waste into resources.
- Ensure that, when waste cannot be recycled, the potential energy it contains is recovered through incineration, anaerobic digestion and waste-derived fuels.

Your ideas could:

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- Use mapping and tracking to design household waste collection systems so that recycling is maximised.
- Use technologies and innovative machinery to separate organic materials, and recover valuable nutrients or generate energy from waste.
- Use IoT to enable product elements to share information about their location, functionality and working condition through sensors.
- Trace products from manufacture to disassembly.



The Value of Space







Satellite Navigation



Satellite Communications

- Satellite Earth Observation enables the monitoring of natural resources like soil and water.
- It can provide key data for monitoring and forecasting air quality and CO2 emissions.
- It can help to detect precise changes on land and optimise water resources.
- Satellite imagery can provide maps required for traffic management and logistics, support land use analysis and urban planning, and improve infrastructure planning and management.
- Satellite Navigation, Positioning and Timing enables accurate tracking and tracing of goods along the supply chain, helping to improve logistics.
- It is key to optimising routes and operating traffic management systems.
- Global Navigations Satellite Systems (GNSS) enables geo-location of objects, goods and insitu measurements.
- Satellite Communications enable communications between central hubs and remote locations when no terrestrial network is available. This is key to supply chain operations.
- It can also support Internet of Things (IoT)/ Machine-to-Machine Communication (M2M), by connecting networks of sensors used to monitor equipment.

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Who Can Apply?

To be eligible for funding, your team must be based in one of the following countries: Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary,

Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Italy, Luxembourg, The Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden or the United Kingdom.

- Please note if your team is based in the United Kingdom you are only eligible for funding for Part 2: Circular Fashion and Textiles.
- If you are considering applying, you must inform your National Delegation to obtain a letter of authorisation allowing the funding of the proposed activity. Contact details of each National Delegate can be found here: https://business.esa.int/national-delegations-0
- However, if your team is based in Luxembourg, Norway, Germany, Ireland or the United Kingdom (for part 2) you do not have to contact your National Delegate.





How to Apply?

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1. Register your team on esa-star Registration today! <u>https://esastar-emr.sso.esa.int</u>

- When the Kick Start opens on 03 May 2021 visit esa-star Publication and search for this Circular Economy opportunity to download the official competition documents. https://esastar-publication.sso.esa.int
- 3. Use the official documents to prepare your proposal
- 4. Reach out to your National Delegate (if applicable) to request a Letter of Authorisation. Contact details of each National Delegate can be found here: https://business.esa.int/national-delegations-0
- 5. Submit your proposal via esa-star Tendering before the deadline! <u>https://esastar.sso.esa.int</u>

Deadline for part 1 and part 2 is 18 June 2021 at 12:00 CEST Deadline for parts 3 and 4 is 06 August 2021 at 12:00 CEST







Proposal Template

Your Proposal should include the following information:

- 1. Executive Summary (max 1 page)
- 2. Business Potential (max 5 pages)
- 3. Technical Concept (max 5 pages)
- 4. Team and Resources (max 3 pages)
- 5. Management (max 4 pages)
- 6. Financials (max 2 pages)



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Checklist

Before applying, check that:

- 1. Your team is proposing a service that could become operational in the near future (1-4 years)
- 2. Your idea tackles a challenge relating to the Circular Economy
- 3. Your idea uses satellite data or space technology like satellite communication, Earth observation or navigation.
- 4. Your team is eligible for funding and has attained a letter of authorisation from the National Delegate (if applicable).
- 5. There is a market for your service and potential users/customers will be involved in the kick start



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Q&A Session

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To learn more about Space and Green Applications download this report: https://business.esa.int/sites/default/files/Space%20For%20Green% 20Applications.pdf