

Conference Report

Academic Community on Circular Economy

Initiating a national interdisciplinary research network

12/10/21

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On October 12th, the Towards a Circular Economy and Society Hub of Utrecht University, Het Groene Brein, The Ministry of Infrastructure and Water Management and NWA Route Circular Economy hosted the first conference on initiating an Interdisciplinary Academic Community for Circular Economy. Participants from all Dutch universities came to discuss the relevance of scientific research for circular economy.

The aim of the Academic Network

Expanding on existing networks and initiatives we strive to enhance collaboration between researchers from different disciplines, with governments and other parties involved. Establishing an independent national network of scholars working on the wider topic of a transition to a circular economy will foster future programmatic research efforts, inform policy development, and thus accelerate the transition. As a first event, the aim of the conference was to identify and connect the different efforts of academic research on the various aspects of circularity at Dutch universities and to start organizing the collaboration for future events.

Summary of the Day

Apart from the main aim of connecting the researchers of the different universities, the conference was divided into two main sections. Discuss the current state of circular economy and understand the participant's views on how the network should be organized.

Morning program

The day started with the opening talk from **Ernst Worrell**, professor on energy and material use at Utrecht University, about the aim of the initiative and conference.

CE Missions Dutch Government and EU

The opening was followed by **Roald Lapperre**, Director-General for the Environment and International Affairs, Ministry of Infrastructure and Water Management presenting the relevance of Dutch and European efforts to address circular economy such as the transition agendas, knowledge and innovation agenda (KIA-CE) and the NWA-track CE.

Panel Programming CE research

Mark Beumer moderated the panel discussion on the relation of circular economy research with governments, businesses, and financial actions. The panel had **Emmo Meijer** (departing Chair of Mission Team Circular Economy¹, Chairman of EIT Raw Materials and the European Raw Materials Alliance), **Karen Maas** (Chairwoman of Het Groene Brein), **Alain Cracau** (Board member Rabobank Groen Bank Head of Sustainable Business at Rabobank Group) and **Thor Tummers** (Issues and external affairs of Unilever).

During the panel it was discussed that one area where academia can add much to the circular transition is in developing metrics and defining what a fully circular economy is. Some questions addressed by the panelists were: what role science can play in developing metrics, what is already happening and what needs to be improved.

The circular transition is going to reshuffle many existing value chains, which will require new collaborations. The transition will also require new or closer collaborations between government institutions, and within the triple helix. The panelist talked about the building consortia in the value chain and highlighted the importance of collaboration between science and small and medium enterprises as well as aligning with governmental institutions.

Furthermore, the panelist mentioned the need in some areas for creating scientific consensus, for example on LCAs, how some roles of science are currently under-utilized and how interdisciplinary network of scientists can be organized to fulfill these roles.

¹ The Mission Team is in charge of the Knowledge and Innovation Agenda for the Circular Economy (KIA CE).

Science and the academic research

Marko Hekkert, professor of Dynamics of Innovation Systems and Director of the Copernicus Institute of Sustainable Development at Utrecht University, closed the morning program presenting an overview of the Dutch research on Circular Economy. Hekkert displayed how the number of publications on circular economy has been increasing in the last decades, presented an overview of the most cited global publications and how the Netherlands is present amongst the top ones. The different areas of focus per university were addressed as well as the future of research on CE and the dissonance on the perspective of the scientific community and what is done in practice.

Afternoon program

Disciplines

After lunch participants were divided into three parallel sessions, on different disciplines connected to the three-mission oriented innovation programs of KIA CE². The aim was to meet fellow researchers in their own field and to identify and prioritise research and innovation questions in this field.

- MMIP³ 1: Design for Circularity (Navied Tavakolly - Program Manager KIA CE)
- MMIP 2: Circular Material Chains and Loops (Oscar van den Brink - Member Mission Team CE, Director at COAST)
- MMIP 3: Trust, Acceptance and Behaviour (Bart Volkers - Program Manager KIA CE)

The building blocks discussed in each of the sessions are displayed in the figure below (in the three columns, from left to right).

MMIP Building blocks



Design for Circularity	Circular Material chains & loops	Trust, Acceptance & Behaviour
Design Principles & Tools	Optimalization Biological Production	Increase trust in circular economy
Safe-by-Design	Saving valuable nutrients	New circular revenue models
Design for recycling	Optimalization re-use and recycling	Behavioral change
Modularity & Refurbishment	Recycling Technologies	Standards, norms, legislation
Lifetime extension & Maintenance	Procesanalysis & -monitoring	System analysis
Logistics		

² The KIA CE (Kenniss en Innovatie Agenda Circulaire Economie) stimulates the development of knowledge and innovation for the circular economy. We do this by connecting knowledge institutions, companies and governments. We give direction to cross-sectoral cooperation, strengthen networks and thus give the circular economy a solid place in government policy. – Information retrieved from <https://kia-ce.nl/de-kia-ce/>

³ MMIP: Multi-annual Mission-driven Innovation Program

Divided into groups by topic, the participants shared their views on the current state of research, also considering their own areas of action and then shared these views with the rest of the group to further discuss them. Some examples of research questions that were identified for discussion are:

- How can we translate the goal of 50 % less use of materials into legally binding rules?
- Which context factors most strongly influence circular behavior?
- How to analyse collective implementation of CE?

Thematic

After the more disciplinary oriented sessions, the participants were divided into more interdisciplinary groups discussing specific topics:

- Circular Economy and the Energy Transition (Presented by Gijs van Heemstra - Project Developer LC Energy and moderated by Antoine Heideveld - Director of Het Groene Brein).
- Value Chain: The R Hierarchy before Recycling (Presented by Denise Reike - Researcher and lecturer Utrecht University and moderated by Patricia Coelho - Researcher at Utrecht University)
- Power, Politics and Systemic Changes presented by Arnold Tukker - Director and Professor at Leiden University and moderated by Mark Beumer - Program Manager at Het Groene Brein.

The Network: next steps

Still separated into smaller groups, Moderated by Marc Pruijn, Marlon Boeve and Pieter Bruijninx, the participants discussed the organization of the network focusing on its goals, who should take part in it, which activities or events should be provided to keep the network active and how it could be financed.

What should be the goals of the network?



According to the participants the main goals of the network should be inter and multidisciplinary collaboration on research proposals and connecting research with societal challenges and policy making. Still, a lot of emphasis was put into sharing knowledge and

knowing about ongoing research. In terms of activities of the network, events, such as annual conferences, calls and workshops were highlighted and even excursions and the construction of a YouTube page were mentioned.

How to keep the network alive?



When asked about how to keep the network alive, having an online community and online meetings was mentioned in all rooms, having thematic and group events, an emailing list or newsletter and yearly gatherings was also emphasized by participants.

How should the network be organised and/or financed?



The idea that the organization of the events should be rotated between universities seemed to be unanimous between participants. However, when asked how the network should be financed, less input was given. For that, KIA CE, NWO, Ministry of Infrastructure and Water Management and the alliances were the most mentioned.

Closure

Before closing the conference with drinks, Mark Beumer highlighted the main takeaways from the day, discussing with all participants their views on the activities and future aims for the network. It was discussed that the universities should take turns in organizing the activities and events of the network. The participants showed enthusiasm regarding the future of the network for valuing its relevance for the academic community.