

Lapland University of Applied Sciences
Arctic Natural Resources and Economy
Circular Economy RDI

Proposal for establishing a new UArctic Thematic Network of Circular Economy

Host organisation and Leader

Lapland University of Applied Sciences, Ph.D. Sanna Tyni, sanna.tyni@lapinamk.fi, +358 40 674 7964

Members - From all three major northern regions (North America, Northern Europe, Russia)

Northern Europe:

- Lapland University of Applied Sciences
 - o Ph.D. Sanna Tyni, New Industry Research Group, sanna.tyni@lapinamk.fi
 - o M.Sc. Petri Muje, Future Bioeconomy Research Group, petri.muje@lapinamk.fi
- University of Lapland
 - o Veera Kinnunen, Waste Society/Faculty of Social Sciences, veera.kinnunen@ulapland.fi
- University of Oulu
 - o D.Sc. (Tech.) Satu Pitkäaho, Environmental and Chemical Engineering, satu.pitka-aho@oulu.fi
- Oulu University of Applied Sciences
 - o Head of RDI Jukka Säkkinen, Engineering and Natural Resources, jukka.sakkinen@oamk.fi
- LAB University of Applied Sciences
 - o MS (eng.) Pia Haapea, Technology, pia.haapea@lab.fi
- Karelia University of Applied Sciences
 - o Head of International Affairs Liisa Timonen, liisa.timonen@karelia.fi
- Kajaani University of Applied Sciences
 - o MS (eng.) Outi Laatikainen, CEMIS, outi.laatikainen@kamk.fi
- Savonia University of Applied Sciences
 - o Ulla Santti, R&D Specialist, ulla.santti@savonia.fi
- Luleå University of Technology
 - o Prof. Vinit Parida, Department of Social Sciences Technology and Arts, vinit.parida@ltu.se
- University of Iceland
 - o Prof. Harald Sverdrup, Faculty of Industrial Engineering, Mechanical Engineering and Computer Science, hus@hi.is
- The Arctic University of Norway
 - o Prof. Muhamad Mustafa, Department of Building, Energy and Material Technology, Mohamad.y.mustafa@uit.no
- Aarhus University
 - o Prof. Marianne Thomsen, Department of environmental and biological science, mth@envs.au.dk

North America:

- Canada, Université Laval
 - o Prof. Bernard Korai, GFaculty of Agriculture, Bernard.korai@fsaa.ulaval.ca

Russia:

- Northern (Arctic) Federal University (NArFU)
 - o PhD Sergey Koptev, Head of the Department of forestry and forest management, s.koptev@narfu.ru
- Murmansk State Technical University
 - o Natalia Anikeeva, Head of International Cooperation Department, anikeevanm@mstu.edu.ru

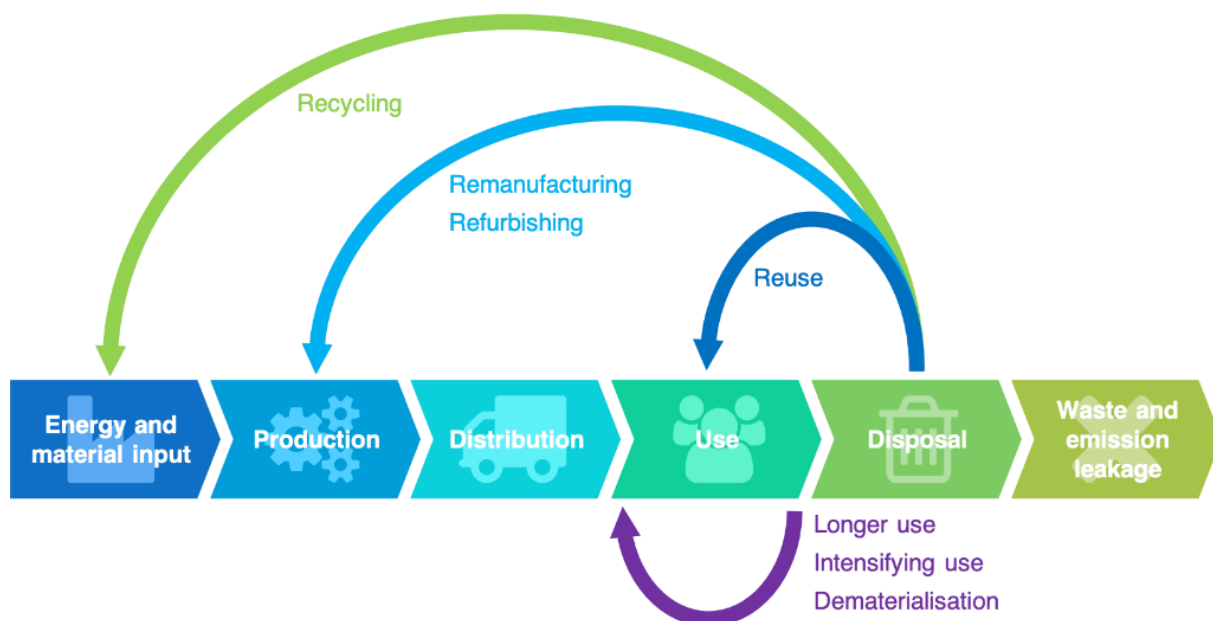
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Non-Arctic member institutions:

- Trinity College Dublin, Trinity Centre for the Environment, Ireland
 - o Prof. Quentin G. Crowley, Head of Organisation, Trinity Centre for the Environment, crowleyq@tcd.ie
- University of the Highlands and Islands, Scotland
 - o Prof. Stuart Gibb, Environmental Research Institute, stuart.gibb@uhi.ac.uk
- The University of Strathclyde Glasgow, Centre for Water, Environment, Sustainability and Public Health
 - o Dr Christopher White, Head of Centre, chris.white@strath.ac.uk
- University of Aberdeen
 - o Prof. David Anderson, Chair in the Anthropology of the North, David.anderson@abdn.ac.uk
- University of Applied Sciences Windesheim, Netherlands
 - o Prof. Michiel Steeman, Supply Chain Finance, ma.steeman@windesheim.nl

What is Circular Economy?

The circular economy is an economic model focusing on services such as sharing, renting and recycling instead of producing only new goods and owning them. (<https://www.sitra.fi/en/dictionary/the-circular-economy/>). Additionally, the circular economy aims to minimize loss and waste via designing the systems so that materials and products are staying in use, and natural systems have been regenerated. (<https://www.ellenmacarthurfoundation.org/circular-economy/what-is-the-circular-economy>) Picture 1 by Geissdoerfer, M. *et al.* illustrates the concept of the circular economy. Instead of linear “take-make-waste” model, the circular economy concept is focusing on the designing “out-of-waste”, which means that from the beginning of the designing of new products decisions are made so that production or product itself does not produce waste or pollution. This means that alongside with production rethinking, the business concepts additionally require also transformation. Therefore, the circular economy concept is also changing the business models.



Picture 1. An illustration of the circular economy concept (Geissdoerfer, M., Pieroni, M.P., Pigosso, D.C., and Soufani, K.)

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In the U.K. the Ellen MacArthur Foundation (<https://www.ellenmacarthurfoundation.org/>) has been escalating the transformation towards a circular economy by sharing information as well as developing and promoting the concept of a circular economy. According to Ellen MacArthur Foundation, (<https://www.ellenmacarthurfoundation.org/circular-economy/what-is-the-circular-economy>) shifting towards a circular economy involves everyone and everything; from businesses to governments, and individuals, as well as from our cities, to our products, and to our jobs. The transition requires reinventing everything, and therefore we also need educated workforce to accelerate the transition.

The Finnish Innovation Fund Sitra (<https://www.sitra.fi/en/topics/a-circular-economy/>) has led the promoting of circular economy in Finland. Sitra's "Leading the cycle: Finnish road map to a circular economy 2016-2025" (<https://www.sitra.fi/en/publications/leading-cycle/>) was the first national road map in the world describing the concrete actions to accelerate the transfer towards the circular economy in Finland. In the spring 2019, Sitra published the Critical Move - Finland's road map to a circular economy 2.0 (<https://www.sitra.fi/en/publications/critical-move-finlands-road-map-circular-economy-2-0/>). At the early stage of circular economy development, "the need for a new kind of expertise, co-operation between silos, development of the operating environment and a general change in attitudes and operating methods" was discovered. (<https://www.sitra.fi/en/projects/circular-economy-teaching-levels-education/>). Sitra launched the project "Circular economy teaching for all levels of education", in which Finnish education organizations developed circular economy education in collaboration. Lapland UAS was participated in this project, and implemented also other development activities to enhance the level of circular economy education in Lapland region (Kantanen & Tyni, pp. 2-10, https://research.chalmers.se/publication/519263/file/519263_Fulltext.pdf), as well as at the national level in the project "Circular economy competence to universities of applied sciences" (<https://kiertotalousamk.turkuamk.fi/circular-economy-competence-uas/>). The development work showed that the efficient development of circular economy requires collaboration between different fields of education, as well as collaboration between educational organizations in the national as well as in international level. Therefore, Lapland UAS is gathering the UArctic Thematic Network of Circular Economy.

What is the UArctic Thematic Network of Circular Economy?

The network of Circular Economy consists of specialists from the various fields of expertise and provides expertise in the fields of research and development as well as in the educational sector. Additionally, the network supports the local, regional, and international transformation of societies and organisations towards a circular economy and enhancement of sustainable development in the arctic areas. The expertise in the network may vary a lot. The specialists from the RDI and educational sectors with the background of e.g. natural sciences (chemistry, physics, biology, biochemistry), engineering (construction and infrastructure, mechanical, electrical and automation etc.), business, tourism, as well as social sciences and humanities are welcome to join the network.

The transition of societies into more sustainable circular economies requires not only systemic, infrastructural and technical changes but also cultural and social ones. It requires thorough transformation of everyday behaviours and practices as well as values and goals for a good and desirable life. In addition, critical assessment of the objectives and ideologies embedded in the circular economy model itself is also crucial. Hence, critical understanding of the phenomena provided by social sciences and humanities is vital for aiming towards a more sustainable future. The most important issue is that the network member is interested in the development of circular economy, and utilises his or her knowledge and expertise in this network.

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Overall Goal

Although, quite a lot of development work has been carried out in the field of circular economy, there is still a lot to be done. One of the most significant action is to maintain the development of circular economy education and R&D activities between the universities. The industrial sector, as well as the public sector have launched road maps for the transition towards a circular and more sustainable economy. This kind of a network is still missing in the higher-level educational sector, especially focusing on the development of circular economy in the arctic areas. The educators and researchers in the arctic areas have the know-how of how challenging the arctic conditions can be. This know-how can be utilised also in the development of circular economy activities in the same areas. Most of the circular economy development activities are located in the areas with a high-level of population, short distances, wide variety of business activities *etc.* When implementing circular economy development actions in arctic or other challenging areas, the situation is quite different, and most of the actions require adaptation. We already have the knowledge to work in these kinds of areas and the same knowledge can be utilised to enhance the circular economy development. Additionally, the network can compile important information about the adaptation of circular economy development actions in R&D, as well as in the educational field.

The overall goal of the UArctic Thematic Network of Circular Economy is to enhance networking and exchanging of knowledge among the experts of various disciplines on national and international level. Challenges involved in circular economy usually require a multidisciplinary expertise; therefore, the network requires knowledge and expertise from several different fields. Co-operation between the scientific organisations will provide an opportunity to learn from the specific features of each arctic area. The arctic areas are intrinsically challenging operating areas, requiring *e.g.* the knowledge of arctic conditions and impacts of long-distances on the activities. Furthermore, there has been already discussions about how the circular economy is impacting on people living in these scarcely populated areas and how the economical point of view of the circular economy is changing the possibilities to maintain population in these areas.

The discussion should also consider the indigenous issues, and how the transition towards the circular economy is impacting on them. This can be tackled via the collaboration of the network members and their existing partnerships with different regions (*e.g.* Denmark/Greenland, Canada, Russia, and the Lapland regions of Sweden, Finland and Norway). For example, the Arctic Centre of University of Lapland (<https://www.arcticcentre.org/EN>) is international and multidisciplinary research organisation focusing on the interaction between man and the nature, as well as in Sami issues. The transformation towards the circular economy requires also an understanding of the factors behind the decisions individuals are making in their everyday lives. The network of experts and organisations, who are used to operate in these circumstances, are the best ones to enhance the arctic circular economy and improve sustainable development in these areas, as well as in indigenous communities. The network will pull together the implementation plan for circular economy development actions in northern and indigenous communities, which will lead to a long-term collaboration between network members.

It will also be possible to collaborate with other networks to broaden the impact of the development activities. Due to the broad nature of the circular economy, there lies a great opportunity to collaborate also with other UArctic Thematic Networks (*e.g.* Arctic Sustainable Resources and Social Responsibility, Arctic Indigenous Skills, Collaborative Resource Management, Distance Education and e-Learning, Human Adaptation in the Changing Arctic, Natural Hazards, Renewable Energy *etc.*). The collaboration with already existing thematic networks such as Renewable Energy may contain *e.g.* co-development of education for a new generation interdisciplinary experts and researchers. In addition, shared knowledge of energy, resources, and actions towards carbon neutral future are shared interests in both thematic networks, and therefore it would be beneficial to arrange seminars/webinars together to widen the perspectives and knowledge. Alongside with this kind of collaboration, partners from different regions are recommend to collaborate also with regional clusters to strengthen the impact of actions. For example, the Arctic Smartness Cluster in Finnish Lapland, and its sub cluster "Arctic Industry and Circular Economy" (<https://arctic-smartness.eu/arctic-industry/>) are potential collaborators of the thematic network. The Circular Economy Network will benchmark other

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UArctic Thematic Networks and similar clusters to initiate collaboration with them to expand the effectiveness of the actions.

Planned Activities

The goal of the UArctic Thematic Network of Circular Economy is to develop the sustainable utilisation of natural resources as well as in a responsible way to generate economic growth in northern areas and indigenous communities. In the near future, we will need to obtain new ways to maintain the balance in the economic growth without endangering the pristine natural resources or wellbeing of the populations. Research and development can promote the path to a better future, but the alteration also requires new kinds of experts and the raise of awareness among the people around the World. The Circular Economy Network will increase the awareness of circular economy and sustainable development by arranging seminars and webinars, enhancing circular economy education at university level, as well as facilitating student and staff exchange programs.

- Gather R&D and educational specialists with different backgrounds together to develop and share the knowledge of circular economy development in northern areas and indigenous communities.
- Enhancement of international cooperation of circular economy in the arctic areas.
- Benchmark and initiate collaboration with the other Thematic Networks and similar clusters with a shared interested towards the sustainable development and circular economy in northern areas and indigenous communities.
- To arrange seminars, webinars, and workshops to establish networks and enhance the exchange of circular economy knowledge.
- Build up international-level research projects together with network partners to support the development of circular economy in arctic areas and in their communities.
- Develop education and teaching material of circular economy, especially in issues related to the arctic areas and indigenous communities.
- Co-operation in circular economy education in different educational sectors.

Quality control and work done already

The circular economy and sustainable development have become a megatrend in recent years. Researchers and scientific organisations are developing new technologies and ways to improve the use of natural resources and enhance the recycling of materials. Development projects all around the world are figuring out new solutions to the problems of 21st Century. At the same time, digitalisation has provided the spread of information around the world. More and more information, research data, and know-how are shared to people all over the world. We just have to make sure that people have the opportunity to learn. The future problem solvers are growing at the moment, and our role is to provide the best possible education for them. Therefore, we need to develop new ways to merge information and utilize it to solve these challenges we are encountering already in these days and in the future.

One of the first actions for the UArctic Thematic Network of Circular Economy will be the definition of collaboration rules. Since the network consists of the experts from various different sectors, it might be quite natural to discuss about the possibilities to arrange working into sub-networks with different core themes (*e.g.* technology, social awareness, natural resources, business *etc.*). Also, the differences between the R&D and educational development need to be taken into consideration. The Network will discuss and decide about the quality control and collaboration rules together in the initiation phase of the network.

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Lapland UAS has been one of the key actors in the development of circular economy in R&D and education in Finnish Lapland. Since 2017, Lapland UAS has been implementing the circular economy in R&D, as well as in the educational sector. We have experience in developing circular economy in the regional, as well as in the national level. The project “Circular economy competence to universities of applied sciences” (<https://kiertotalousamk.turkuamk.fi/circular-economy-competence-uas/>) was implemented together with 19 Finnish UAS’s during 2018-2020. Collaboration of the UAS’s produced more than 200 ECTS of new educational material (in Finnish, English, and Swedish, shared in the Library of Open Educational Resources: <https://aoe.fi/#/etusivu>), as well as new learning environments and pedagogical methods (https://www.theseus.fi/bitstream/handle/10024/355283/LAB_2020_10.pdf?sequence=2&isAllowed=y). The best practices from this project will be shared with the new UArctic Thematic Network of Circular Economy.

The next step will be to broaden the development of circular economy on the international level. One of our latest development projects, “Industrial Circular Economy in Lapland 2.0 - Reinforcement of circular economy activities” aims to strengthen the regional competitiveness of the circular economy in Lapland, and paves the way for the new investments and business models in the field of circular economy. The implementation of international-level circular economy collaboration is also part of the project. The project will continue till the March 2023 and the establishment and organization of the UArctic Thematic Network of Circular Economy is one of the actions in the project. Lapland UAS’s specialists from the R&D and educational sectors will be the leaders of this network, and the coordinators of circular economy development activities.

UArctic Thematic Networks Office
Thule Institute, University of Oulu
P.O.Box 7300, Finland

LETTER OF SUPPORT FOR THE THEMATIC NETWORK: CIRCULAR ECONOMY IN ARCTIC AREAS

With this letter and accompanying proposal, Lapland University of Applied Sciences (Lapland UAS) is pleased to support the proposed establishment of a new Thematic Network on Circular Economy in Arctic Areas at the University of the Arctic (UArctic).

By establishing the proposed UArctic Thematic Network on Circular Economy in the Arctic Areas, we aim to reinforce the interaction and cooperation of experts in the fields of circular economy and arctic areas. The network provides multidisciplinary expertise in the fields of research and development as well as in the educational sector and it also supports the local, regional, and international transformation of the societies and organisations towards the circular economy and enhancement of sustainable development in the arctic areas.

Lapland UAS fully supports Ph.D. Sanna Tyni, Principal lecturer, Senior specialist (Bio and circular economy) and project manager ensuring the aim and goals of the proposed Thematic Network are met and sustained. Lapland UAS will secure the financing of travel costs, activities and work hours necessary for fulfilling the obligations of the network for the leader of the thematic network.

Yours sincerely,



Riitta Rissanen
Rector
Lapland University of Applied Sciences