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## Reinforcement of Circular Economy Activities

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### Introduction

The systematic work to boost the industrial circular economy in the Lapland region has been done since the early 2010s. As a result of this work, the industrial circular economy has become one of the Lapland's top areas of expertise and an important part of Lapland's smart specialisation strategy. (Sitra, 2021) As a result of the development work, in 2017 Circular Economy Centre was established in the Kemi-Tornio region. Circular Economy Centre is a result of the cooperation of the City of Kemi, Kemi Digipolis Ltd., and Lapland University of Applied Sciences and in the first years the work was funded by the Finnish Innovation Fund Sitra.

The circular economy development work continues via the Industrial Circular Economy in Lapland 2.0 – Reinforcement of circular economy activities (LTKT2.0) project which is coordinated by the Circular Economy Centre. (Digipolis, 2021) In the beginning of the LTKT2.0 project the Vocational College Lappia joined to the members of Circular Economy Centre. The LTKT2.0 project is funded by the Regional Council of Lapland and supported with Leverage from the EU 2014-2020 as it is a European Regional Development Funded (ERDF) project. The project started the 1<sup>st</sup> of June 2020 and will end by the 31<sup>st</sup> of March 2023. Partners of the project are Kemi Digipolis Ltd. (Digipolis), Lapland University of Applied Sciences

(Lapland UAS), and Vocational College Lappia (Lappia). The total budget of the project is 1 864 282 € (ERDF contribution is 1 491 423 €). Figure 1 illustrates the logos of the partners and financiers as well as the running time and the budget of the project. (Lapland UAS, 2021)



Figure 1. LTKT2.0 project information with the logos of partners and financiers.

## Objectives and activities of the LTKT2.0 project

LTKT2.0 project aims to support and strengthen the competitiveness of companies in the Lapland region in their ongoing transition phase towards circular economy business models and in the implementation of the circular economy principles. Additionally, project aims to support innovation work and increase the amount of circular economy pilots in the region. The goal is to strengthen Lapland's circular economy both in terms of quantity and quality. The Lappia's involvement in the LTKT2.0 project enhanced the development of circular economy education together with Lapland UAS. Strengthening of the circular economy education, as well as the active promotion of circular economy research and innovation activities in Lapland region will most likely also have a positive impact on the circular economy actions in the companies in the area. (Lapland UAS, 2020)

## Lapland's roadmap for the industrial circular economy

The activities of the project are divided into six work packages which are implemented simultaneously throughout the project. The first five of the work packages are the ones focusing on the development of circular economy in different ways, whereas the last work package concentrates on the bureaucratic issues of the project also known as project management and administration.

The first of the work packages is focused on the development of the industrial circular economy. (Lapland UAS, 2020) The work package contains the benchmarking of existing circular economy road maps and indicators, which were compiled in a publication called "Instruments and indicators for circular economy" in the spring 2021 (published in Finnish). (Hamari & Kokko, 2021) This material was utilised for the designing of the first version of the Lapland's roadmap for the industrial circular economy. As the project is aiming to increase also the collaboration of the different stakeholders in the area, the partners organised a work shop in the September 2021 to discuss about the contents of the road map. The first version of the road map will be finished during the fall 2021 and published in the beginning of the year 2022. Most likely the partners will continue the development of circular economy indicators, due to the challenging nature of those. Measuring of the results of different kinds of activities requires a diverse and careful perspective of the overall impression of each subject of consideration.

To support the development of Lapland region circular economy knowhow, the educational organisations are collaborating to integrate circular economy into their curricula. The development of circular economy education started in the Lapland UAS already in the 2017 via the project called "CircularSchool". (Kantanen & Tyni, 2020) The experiences gained from the "CircularSchool" project are shared with Lappia to promote their development of circular economy education. In the future, this way these two educational institutes will avoid overlaps in the circular economy education, which is preferred since the considerable amount of students graduating from Lappia continue their studies in the Lapland UAS. Lapland UAS will also continue the development of circular economy in their research, development, and innovation (RDI) as well as in education. (Lapland UAS, 2020) In recent years, the Lapland UAS's Master's programme has been under development. In the fall semester 2021, several new Master's Degree Programmes were launched for the first time. One of the programmes, the Sustainable Production Development, is focused on the circular economy and sustainable

development. (Lapland UAS Master School, 2021) Next step is to continue the integration of the themes into different educational programmes in Bachelor and Master Level. In further years, the aim might be to build up an internationally available on-line programme containing also the integration of circular economy.

## Pilots and demonstrations

One of the main objectives of the LTKT2.0 project was to initiate new circular economy pilots leading to new businesses in the Lapland region (the second work package). The project aims to support companies in their innovation work by accelerating the development cycles of innovations from research data to pilots and business. Successful piloting may also lead the way towards international markets. It is also well known, that the pathway from the idea to working business is not easy. Therefore, the project aims to pull together the potential ideas for new innovations, supporting the formation of clusters around the potential ideas, as well as helping to clusters to continue towards the implementation of the pilot or demonstration. Alongside, it is crucial to maintain close contact to local authorities. Communication and collaboration with authorities will promote the flexible advancement of pilots. (Lapland UAS, 2020)

Showcasing of the potential development ideas is one way, how the project can bring up the current themes as well as potential circular economy cases. For example, in the May 2021 Lapland UAS published a report about the current state of plastic recycling in the Lapland region. Several local waste operators were interviewed for the report about the current state of the plastic recycling in the Lapland region. The case showed that there lies a potential to develop the recycling of the plastic in the region but there are still some hindrances to overcome. (Hamari & Saarela, 2021)

## Regional, National and International collaboration and networking

The third and fourth work packages focused on the development of collaboration and networking on regional, national, and international level. Project continued the development of the collaboration of the partners as a members of the Circular Economy Center. As the Lappia joined to the partners of the Center, the old collaboration model went under construction. The

partners are actively seeking new ways to improve the communication and sharing of knowledge among themselves. (Lapland UAS, 2020)

Active monitoring and a constant search for the latest information are required, since circular economy is developing rapidly. In the LTKT2.0 project this information is actively collected and disseminated especially to actors in the Lapland region, which improves the development opportunities for new innovations. Within the framework of the project partners actively participate to the activities of various networks, *e.g.* by participating in webinars, events, and workshops. Alongside of gathering the latest information, this also brings visibility to project partners and creates opportunities for collaboration on national and international level. (Lapland UAS, 2020) As a result of a project, in May 2021 Lapland UAS launched the UArctic Thematic Network of Circular Economy (UArctic, 2021) with the 18 partners around the world. The network will aim to strengthening of circular economy education and R&D activities in the arctic areas. (Tyni, 2021)

## Communication and branding

One of the steps towards a systematic change and implementation of circular economy into different fields of industries is to raise the awareness of the people. The fifth of the work packages of the project is focusing on the communication of circular economy and branding the Circular Economy Centre. From the very beginning of the project, partners have been focusing on how to bring up the latest news, current issues, as well as the on-going activities around the circular economy. In this way, the realisation of the circular economy can be promoted when everyone knows why and how it should be done so that the planet will continue to have a good life and sufficient resources. (Lapland UAS, 2020)

Communication is a challenging task, especially when the aim is to reach several different kinds of stakeholders. Therefore, the project has a comprehensive communication plan and several different media in use. Project will publish material in journals, local papers, Lapland UAS publication series, as well as in different seminars and webinars. Alongside with these traditional publication channels, the project has been utilising also social media as well as the new web pages of the Circular Economy Centre. In social media, Circular Economy Centre can be found for example from LinkedIn (<https://www.linkedin.com/company/kiertotalouskeskus-circulareconomycentre/>), where the most recent news and activities are published weekly. (Digipolis, 2021).

One of the latest achievements was the arrangement of a World Circular Economy Forum 2021 (WCEF2021) Accelerator Session (Figure 2) in the September 2021 together with Sitra, National Industrial Symbiosis Program (NISP), and United Nations Industrial Development Organization (UNIDO). “The benefits of measuring ecoindustrial parks” collected couple of hundred participants all around the world to work together in the session. (SitraFund, 2021)



Figure 2. The cover of the WCEF2021 Accelerator Session “The benefits of measuring eco-industrial parks” in the SitraFund Youtube -channel (SitraFund, 2021).

## Conclusion

The circular economy includes a wide range of different kind of means and actions to form the economic system that the world could operate within the limits of the carrying capacity of the environment. The strengthening of Lapland's circular economy has progressed from the operational phase to the implementation phase. Alongside, the transition points for industrial activities in the Lapland region are also prepared. In co-operation the Lapland region, both national and international actors together with Lapland University of Applied Sciences, Kemi Digipolis Ltd and Lappia Vocational College are developing the very important circular economy activities publicly and privately. The project is in the middle of its implementation and a lot of work has already been done. Still there are a lot to do. LTKT2.0 project is one of the many pathways to get us closer an ambitious goal for a more sustainable and green future in the region. But we also identify the length of the road. This is a marathon, not a speed race.

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