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Sky-high opportunities deep underground – Callio Lab research centre

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One of the northernmost deep underground laboratories (DULs) in Europe can be found at Callio Lab, operating at the Pyhäsalmi Mine in Finland. What began as purely an underground physics centre in the early 2000s has been expanded into an international, multi- and transdisciplinary research centre known as Callio Lab. Its activities are coordinated by the University of Oulu Kerttu Saalasti Institute (KSI). Callio Lab is a founding member of the European Underground Laboratories Association, a part of the DULIA network, and a part of the national FIN-EPOS research infrastructure network. [1].

With underground mining ending in spring 2022, Callio Lab is a key element of the repurposing activities conducted under the CALLIO - Mine for Business concept. CALLIO will continue activities at the mine-site until at least 2025 [2]. Owing to the unique environment and circumstances, Callio Lab research can be conducted underground at seven deep underground laboratories found at various depths, as well as above-ground [3].

Callio Lab has conducted and facilitated research in fields ranging from particle physics and geosciences to underground food production and remote sensing. The operating environment presents versatile opportunities also in the study of circular economy, muography, and space and planetary sciences. Notable projects at Callio Lab have included the international EIT RM funded MINETRAIN, Interreg Baltic Sea Region funded BSUIN, and H2020 funded GoldenEye projects [4-6].

The operating environment at Callio Lab is well-known due to characterisation activities conducted during previous projects, datasets acquired from decades of research, and an extensive microseismic monitoring network. Callio Lab has a logistically ideal location, and the DULs themselves can be accessed via the incline tunnel or elevator shaft. The existing infrastructure and facilities, in-depth understanding and application of underground risk management and conditions, and well-established operating methodology ensures Callio Lab the capacity to successfully operate and facilitate a wide range of activities. [1,3].

[1] Callio Lab, www.oulu.fi/en/callio-lab, 11 Jan 2022

[2] Mine for Business – Callio – Pyhäjärvi, Finland, www.callio.info, 1 Jan 2022

[3] Callio Lab – Underground Center for Science and R&D, www.calliolab.com, 11 Jan 2022

[4] MINETRAIN, www.minetrain.eu, 8 Jan 2021

[5] Baltic Sea Underground Innovation Network, www.bsuin.eu, 11 Jan 2022

[6] GoldenEye EU H2020 funded project, www.goldeneye-project.eu, 11 Jan 2022