A Digital Minerals Library for the Twin Transition

Name of supervisors:
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Preferred background of candidate(s):
We are looking for an interdisciplinary team of master students with one or more of the following backgrounds/skills:
- Design background, such as user experience (UX) or interaction design
- HTML skills
- Visualisation skills
- Interdisciplinary background or interest to work in an interdisciplinary team
- Interest in digitalisation, energy transition, sustainability, Anthropocene, just transition, minerals, etc.
- A variety of backgrounds are of interest for this project: anthropology, chemistry, (human) geography, geology, informatics, sociology, etc.

Number of available projects:
One project for 4 students

Preferred project period:
Six weeks in the period June 1st until mid-August 2024

Outline of project work including expected outcomes/deliverables:
The digitalisation and electrification of society, also referred to as the Twin Transition, requires an enormous amount of minerals.[1] Some of these minerals are mined in very small quantities (rare earths), some are of strategic importance (critical minerals), while others are widely available. Some minerals are mined in conflict areas (conflict minerals) or are planned to be extracted through deep-sea mining.

In the Sustainability Lab at the department of Informatics, we have started a Materials Library for the Twin Transition. We have a collection of 56 minerals, and more are coming. We would like to make this collection available online.

There are many ways in which we can organise minerals. Chemistry has a particular way of organising minerals. In this project, you will take a different approach. First, each mineral will be accompanied by a text explaining the mineral (Is it rare? Critical? Where is it mostly mined? In what technologies is it used?). Then, minerals will be organised around the technologies they are used in, such as in an electric car battery, a wind turbine, a data centre, an electric scooter, a laptop, etc. The purpose of the digital mineral library is to be an informative tool.

In 2024, summer students worked on a map of mining minerals in Norway. It shows what kind of platform we will use for the digital minerals library and some ideas on how to present the minerals: https://kumu.io/sustainabilitylab/mining-for-twin-transition.

The project plan is as follows:

[1] https://www.britannica.com/science/mineral-chemical-compound

Week 1: Familiarise yourself with the Materials Library project at the Sustainability Lab and the Kumu platform that will host the digital minerals library. Collect information about the different minerials and some of the technologies in which they are used.
Week 2 and 3: Create a digital version of the Materials Library.
Week 4 and 5: Organise the minerals around the selected technologies and test the digital minerals library with some users.
Week 6: Create the final draft of the digital minerals library based on feedback from the user testing and write the project report, which will also form the basis for a public presentation.

What we offer:
• A workplace at the Sustainability Lab
• Access to some funding if needed
• Access to experts in metadata creation
• Knowledgeable supervisors and weekly supervision