Project Proposal

Mapping the ZHAW Sustainability Landscape in Research and Education

Team
- Dr. Christian Glahn (glah, project management)
- Daniel Bajka (bajk)
- N.N. (wima)

Background

ZHAW focusses on transformative research for future proof and resilient societies as part of the school's general guiding principles. As part of this initiative, ZHAW aligns its research and education with the UN Sustainability Goals.

ZHAW has several databases and services covering its research and education.

The team at the Institute for Applied Simulation (IAS) has analysed the ZHAW's prospectus (Evento) on the digital skills covered in the B.Sc. curricula at the department of Life Sciences and Facility Management (ZHAW LSFM). The team also analysed the skill expectations in the Swiss professional market in life science industries using data from public job postings in a major Swiss job portal. These studies were possible by the application of targeted text mining and topic modelling techniques.

Research Question

What teaching and research are related to ZHAW's sustainability goals?

It is expected that related activities left traces in the school's educational and publication databases. Therefore, it should be possible to identify relations between the ongoing education and research at ZHAW and the school's sustainability activities.

Objectives

Map and index the ZHAW directories and databases for teaching and research so that our sustainable development activities are more visible. The analysis builds on text analysis and topic modelling techniques. It the outcomes with the additional information such as authors, study programs or departments to draw a map of the sustainability related activities at ZHAW at large.

For this purpose the proposed project analyses explicit mentions of sustainability related terms in the following databases:

- Evento (ZHAW course catalogue)
- Digitalcollection (ZHAW publication repository)
- Research catalogue (if and as provided by the research rectorate)

- Course Catalogue of Dept. W

Dept W Links:
- https://modulmanagement.sml.zhaw.ch/#!/login
- https://filestore.sml.zhaw.ch/modultafeln/master/17_modultafel_ac_msc_en.html

The Evento database provides a comprehensive overview on the courses and modules of all ZHAW study programs. The database contains rich metadata on the study organisation besides the information on the title, syllabus, lecturer and study program.

The Digitalcollection database provides a comprehensive overview on the research output of ZHAW researchers. This database addresses the effective results of the research conducted at ZHAW. Compared to the project database, it contains more details on the subjects addressed by the research.

The key challenges for the project are twofold:

Firstly, the provided Sustainability term matrix is provided in English, whereas the majority of the information in the course catalogues and many resources in the publication repository are provided in German. An unidentified number of records is also provided in the other Swiss official languages French and Italian. This requires the translation of the provided terms. The project will translate the terms using automated translation services. The result of this translation allows to unify the analysis of all records provided by the databases across languages. The outcome can be reused and repurposed for related use cases and future projects.

Secondly, the external structure of the databases differs significantly. This requires specialised extraction tools for the different databases. The base technique has been implemented for the *Evento* database, already. This needs to get modified for the *Digitalcollection* database in order to extract the correct information. The related outcomes are specific to the related database and cannot get repurposed for other databases.

Expected outcomes
- Translated SDG Matrix in DE, FR, and IT
    - Extensive SDG Matrix
    - Elsevier SDG Query Terms
- SDGs covered in ZHAW's B.Sc. and M.Sc. programs
- SDGs covered in ZHAW's publications.
- SDGs covered in ZHAW's research database.
- Relations between ZHAW departments/study programs and sustainability goals
- Expert list between ZHAW researchers and sustainability goals
- Relations between ZHAW's research topics and the sustainability goals

Expected Costs

Task	Hours			Costs	
	glah	bajk	wima		CHF
SDG Translation DE, FR, IT	12	0	80		6920
Database extraction from Evento and Digitalcollection	6	14	90		8360
Data integration	2	16	40		4620
Topic modelling	4	40	20		5840
Author – SDG Mapping (Expert List)	1	0	40		2910
Department – SDG Mapping	1	0	40		2910
Study program – SDG Mapping	1	0	40		2910
Visualisation (presentation rep.)	5	10	80		7150
Reporting	8	20	40		5680
Overheads	50	0	0		5500
Total	**90**	**100**	**480**		**52800**