

Rebuilding and Strengthening Ukrainian Science and Innovation in Support of Economic Recovery**Breakout Session 2: Current Research and Training Initiatives with Ukraine****March 19th****Project Abstracts****Mapping Ukraine – Verified geospatial information for moving from destruction to reconstruction***Andreas Wieser**Professor of Geosensors and Engineering Geodesy, ETH Zürich*

The full-scale invasion of Ukraine by Russia has resulted in overwhelming damage to the country's civil infrastructure and the destruction of more than 1.5 million homes. This devastation has been documented in unprecedented detail, using a large variety of technologies from mobile phones to sophisticated 3D reality capture solutions and satellite imagery.

Mapping Ukraine (MU) is a digital platform initiated at ETH Zurich to provide open and intuitive access to this documentation. Images, videos, 3D models, volunteered information and publicly available data shall be automatically collected, located, verified, tagged, and integrated. This leads to spatio-temporal evidence of the impact of war on homes, civil infrastructure, and land in Ukraine.

Once the automated processes are in place and the platform is openly accessible, it will serve as a register of damage which can be used by professionals such as researchers, engineers, policy makers, economists, or journalists but also by the broad public. It will be valuable in charting the course of the war and its effects. It can help to assess and verify restitution claims from individuals. It can be instrumental in quantifying the full extent of the destruction and organizing effective reconstruction. And it can serve many other purposes. At a time when it is becoming increasingly difficult to distinguish fact from fiction, MU will serve as a powerful archive bridging the gap between data collection and use.

The presentation will give an overview about data already included, the current state of the platform, potential use cases and the challenges ahead.

“Light for Ukraine” Project*Luc Patthey**Titular Professor at the University of Fribourg**Head of the Laboratory for Advanced Spectroscopy and X-ray Sources (LSX), Paul Scherrer Institut*

Rebuilding Ukraine's research infrastructure is a process that should start immediately.

The aim of the “Light for Ukraine” project is to build a Ukrainian beamline at the SOLARIS storage ring and to contribute to the reconstruction of the Ukrainian scientific community in the field of photon science.

Initiated by the League of European Accelerator-based Photon Sources (LEAPS), this project will make a significant contribution to the scientific community by providing access to state-of-the-art technical facilities and cutting-edge equipment. This will create key conditions for conducting high-level research in areas with major societal impact, with applications ranging from energy and environmental sciences to research on health related topics.

The budget for such a project is about 5-6 million CHF for a first “beamline”. This budget is currently unfunded but PSI is very actively involved. We will transfer crucial elements, such as undulator and optical components worth about 1 million CHF as in-kind contributions.

We are also planning to work closely with local companies to build this "beamline" so that we can develop and transfer technological know-how.

Rebuilding the Microelectronic Ecosystem in Ukraine

Maksym Yarema, Institute for Electronics, Dept. Information Technology and Electrical Engineering, ETH Zurich

Despite the ongoing war, Ukraine is strategically planning its future development. The 2030 Innovation Vision by the Ministry of Digital Transformation and the Ministry of Education and Science of Ukraine is a key initiative in this regard (<https://winwin.gov.ua/en>). The concept aims to propel economic development rapidly by fostering innovation, implementing deregulation, and involving international cooperation. The 2030 Innovation Vision has outlined a dozen priority sectors, in which building the ecosystem for microelectronics takes the central avenue. Motivated by a proclivity towards deglobalization (such as nearshoring) and recognizing the current imbalance in the production and usage of microchips, the rebuilding of the microelectronic sector in Ukraine also holds promise for Europe, the US, and other democratic economies. In my talk, I will share insights into the timeline and recent progress of the microelectronics ecosystem in Ukraine. This encompasses educational, research, and industrial opportunities for collaboration, serving as steppingstones towards the overarching goal of establishing a Silicon foundry in Ukraine.