ARCHITECTURE OF
TERRITORY
Power to the People

The Production of Cloud

Investigating Swiss Data Infrastructures

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Your TikTok scroll, a robotaxi's u-turn, a question to ChatGPT – every byte lives somewhere in the cloud, gulps megawatts, and silently redraws territory. In public discourse, however, all we are presented are images and icons of something resembling a cloud on a bright blue background. Behind the seemingly immaterial digital facade of the cloud, lies a heavy planetary metabolism with black smoke – extracting minerals, depleting water resources, generating e-waste, and exploiting labor in remote regions. All accelerated now by the explosive growth of AI. The physical location of data centers now dictates data sovereignty, concentrating control within a handful of tech giants who privatize public data and spark a geo-political race for computing power.

To understand AI's material footprint in the physical world, we start the journey on our doorstep here in Switzerland. The typology of the data centre is not new, the first data centre from the Swiss military went live in 1969. Although its architecture has evolved since then, many buildings have been adapted to the changes in technology and are still being used today. The core requirements – server space, energy, and cooling – are consistent. What has changed is the amount of human labour needed to run a data center. Whereas just a few decades ago, data centres could have their own cantine, tennis courts and childcare unit, today the only people needed to run a data centre are maintenance personnel and security guards. The history of the data centre is a history of automation and dehumanisation.

Today data centers are literal black boxes: hermetic, windowless cubes, sitting in the landscape, with little or no public information of their content, layout or ownership. Even workers and data center operators often do not know what kind of private or corporate data is stored. This invisibility of their program is only spatialised through their very visible defensive architecture of fences, gates and security cameras. The program has been eclipsed as a compliment to the security demands of the corporate clients.

How can we study spaces where human presence has been minimised and public information is kept to an absolute minimum? Can we investigate an object without knowing its content, simply by studying its externalities, by looking at what goes in and what comes out?

Taking the data centre as the starting point of investigation, we expand our research transscalar. How are data centres connected within Switzerland's extended data and energy network? What is the political economy, and the social and environmental impact of the Swiss cloud landscape? What is the material cost of AI in Switzerland? Who owns these infrastructures? Who bears the burden of their expansion and what do they contribute to society?

According to a recent study, data centres are projected to consume 15% of national electricity (or a whole nuclear power plant) by 2030. In Zurich alone, the EKZ, a major energy provider, registered 100 requests for new data centers within the last five years.

Despite their immense energy consumption, data centers produce very few jobs and offer little public benefit and attract little limited investment into the community. Although the Canton of Zurich obligates newly built data centres to provide waste heat for district heating, many of these networks are already served by other sources—or its construction would be too costly to expand.

We want to speculate about a future and design data centres that are not simply black boxes, but that act as publicas a public assets. How do data transparency and security find an equilibrium? How can policy promote a just energy transition and equitable use of private data? Can the production of cloud in Switzerland become a service public?

Throughout the semester, you will work on multiple scales, from local to global: from understanding the spatial logic of a single server rack to representing data centres in their urban context to visualising the global supply chains of cloud infrastructures. You will examine the major corporate and public governance structures of cloud production in Switzerland, as well as understand the architectural features of a data centre in detail.

Using narrative cartography, you will visualise Swiss cloud infrastructures as they have formed the territory: from hyperscale data centres powering large language models, ultra-secure server facilities in former military bunkers to vast underground optic fibre cable networks.

At the same time, each student team will be assigned a specific data centre in Switzerland as a study site. You will conduct on-site fieldwork, creating a video reportage of your site and its context. You will be asked to capture the spatial reality of the cloud infrastructure through your own lens, examining the urban context and interviewing locals and experts. The video reportage will help us contextualize, "ground," the cloud.

Throughout the semester, you will work with renowned experts in the field and receive inputs on GIS cartography, visual communication and journalism to understand the complex relations behind cloud infrastructures.

POWER TO THE PEOPLE

Power to the People is a studio series at Architecture of Territory dedicated to improving the social and environmental outcomes of the energy transition. The process of energy transition is understood to go deeper than just a shift in technology that supports the status quo of increasing resource consumption; rather it is seen as a fundamental reorientation of the social values and practices toward repair and regeneration. The studio series is affiliated with the Urban Energy Landscape (UEL) research network. Citizens, experts, fellow designers, and artists accompany us in the process.

PROCESS AND RESULTS

The semester consists of investigative journeys and intensive studio sessions. Architecture of Territory values intellectual curiosity, commitment, and team spirit. We are looking for avid travellers and team workers, motivated to make strong and independent contributions. Our approach enables students to work with a range of methods and sources pertaining to territory, including ethnographic fieldwork, drawing techniques, writing, videography, and online publishing. Experts and guests will help us on that journey. Students work in groups of two to three.

CORE COURSE: MY CLOUD

This semesters core course MY CLOUD investigates questions around data and the Countryside, is highly recommended as an addition to the studio. Focusing on agriculture, the series will draw upon relationships of care and reciprocity with soil and biodiversity from the past and present, to help move beyond consumerist techno-fixes, and toward more self-sufficient and ecological land practices.

CREDITS

The semester offers a total of 17 credit points. The Design Studio 14 credits, the Integrated Discipline (Planning) 3 credits. The accompanying Master's core course My CLOUD offers 2 credit points.