

Workshop, 16-17 June 2022, EPFL

Sustaining Knowledge and its Infrastructure

Digital knowledge infrastructures at the crossroads of governance practices

The development of digital technologies as ubiquitous tools for both computing and communicating entails important changes in the way knowledge is designed, produced, circulated, and assessed. During the last decade, *infrastructure* emerged as a key concept to understand the issues at stake in this reconfiguration, for example in the context of data management or open science. Digital knowledge infrastructures are diverse: from digital libraries (e.g., Gallica) to repositories (e.g., Zenodo, Dataverse), but also research tools (e.g., Gephi, Zotero), indexes (e.g., the DOAJ), or collaborative platforms (e.g., Google docs). Most of the current discussions about the role of digital knowledge infrastructures revolve around the issue of *sustainability*. In that perspective, the major question is not only how to grow and sustain infrastructures in general in a digital environment, but also, more deeply, how to design infrastructures that are themselves fit for the specific purpose of knowledge production in various contexts.

As socio-technical systems, digital knowledge infrastructures are essentially heterogeneous and unstable objects. We can conceive of them as precarious assemblages of:

1. a **layered composite** made up of skills, conventions, software, and materials;
2. a **network of stakeholders** that come with their own professional cultures and cooperate together as staff, financial sponsors, users but also non-human proxies;
3. a **set of trading zones** acting as the loci of interaction and mingling of languages, powers, and skills.

Such complexity is both a blessing and a curse: the tensions generated by the interplay of all these elements are at once the driving force of an infrastructure, as well as an ever-present threat to its integrity. Within the framework of this rudimentary model, constant maintenance work is needed to ensure that the infrastructure holds and adjusts to ever changing internal and external conditions. It is therefore necessary to unfold the intricacy of what constitutes an infrastructure from a socio-technical perspective.

Furthermore, complementary to this perspective, a cross-cutting interest in the politics of infrastructures is vital. Indeed, while digital knowledge infrastructures usually appear as mere technical devices governed by instrumental rationality (and consequently evaluated in terms of efficacy, services, technicity), they actually embed systems of values brought in by

the various types of stakeholders that interact with them. This raises the fundamental issue of their *governance*.

Understood broadly, governance is the set of processes that distribute power and power relations between all the stakeholders involved—e.g. actors *intuitu personæ*, as well as legal persons such as institutions and businesses—by assigning and framing roles and responsibilities within a socio-technical system such as an infrastructure. Governance practices are the social and material operations through which actors themselves negotiate such processes on the field. Considering governance as what lies at the junction of technical systems and sets of values, the issue here is to understand how infrastructures specifically articulate these two types of rationality. The careful weaving of multiple governance practices is indeed essential to ensure the sustainability of digital knowledge infrastructures.

Building on a year of research seminars held at EPFL, this workshop aims at shedding further light on how diverse governance practices may play together in digital knowledge infrastructures to guarantee their sustainability. Understood broadly, sustainability encompasses not solely financial safety, but also technical and structural resiliency, coordination of means, or users community involvement, practically amounting to the infrastructure's ability to endure. This workshop will address three complementary aspects of infrastructural sustainability:

- Legitimacy: how infrastructures open the access to resources, enable different users, support knowledge ecosystems, thereby justifying the investment they require;
- Maintenance: how infrastructures are constantly curated to "hold together" and keep consistent in spite of their composite nature;
- Governance: how power relations are negotiated by stakeholders within infrastructures, and how critique can be seen as an iterative process of sustaining governance.

Gathering researchers, practitioners, and users of digital knowledge infrastructures, this workshop will be organized around two keynotes and three roundtables, with ample room for discussion and debate, each dedicated to one of the previously mentioned aspects of infrastructural sustainability. Parallel to the workshop, all participants will be able to partake in a shared visual reflection on how these modes of governance may assemble and articulate to ensure the sustainability and openness of digital knowledge infrastructures (this will be held on collaborative boards open to all).

Detailed Program

Day 1. Thu. 16th June 2022

- 13h30 - 14h **Welcome speech**
- 14h - 14h30 **Public initiation** to the use of Juncture (or other platform) for visual reflection
- 14h30 - 15h30 **Keynote 1. Dominique Pestre** on the changes brought about but the digital to research infrastructure in the 20th century (presentation by Jérôme Baudry)
- 15h30 - 16h Coffee break
- 16h - 18h **Roundtable 1. Legitimacy:** how infrastructures interact with their ecosystem and make the case for their usefulness, to justify the investment they require

Day 2. Fri. 17th June 2022

- 9h30 - 10h30 **Keynote 2. Christine Borgman** on the scientific work with data (presentation by Charlotte Mazel-Cabasse)
- 10h30 - 12h30 **Roundtable 2. Maintenance:** on the endless curation work necessary to hold together in tension the heterogeneous elements of infrastructures, and adapt them to internal and external conditions
- 12h30 - 14h30 Lunch break
- 14h30 - 16h30 **Roundtable 3. Governance:** on the design and critique of power structures for the sustainability of infrastructures
- 16h30 - 17h Coffee break
- 17h - 18h **Closing discussion** and feedback on the boards