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Developing Critical Policy

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Down with Data Centres: Developing Critical Policy

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Corinne Cath

critical Infrastructure lab

Down with Data Centres: Developing Critical Policy

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Table of Contents

Impressum	**2**
1 Introduction	**3**
2 Contributions by Speakers	**4**
3 Break-out Session Summaries	**8**
4 Concrete Actions Moving Forward	**12**
About the lab	**14**

Impressum

“Down with Datacentres: developing critical policy for environmentally sustainable tech in Europe”. Report of workshop organised at Privacy Camp 2024 by University of Delft and the critical infrastructure lab at the University of Amsterdam on 24th of January 2024.

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1 Introduction

In the face of a climate crisis, the current regulation of data centres across Europe seems scattered, often favouring businesses, whack-a-mole and NIMBY (Not In My Backyard)[1] approaches, or simply insufficiently ambitious. Any current efforts to govern data centres miss the mark by neglecting shifts in the business model of the tech industry, that encourage the growth of data centres, and by assuming there is an abundance of natural resources to fuel them in perpetuity. This makes rethinking the policy approach to limit the harms from data centres one of the biggest policy challenges of our age.

At Privacy Camp 2024 in Brussels, we hosted a discussion on what a critical policy intervention should look like to ensure environmentally sustainable tech in Europe[2] . This post is a reflection of the discussion, where we summarize the contributions made by our speakers and the discussion held in the break-out sessions between audience members. We also provide several concrete recommendations that arose from the convening.

The discussion at Privacy Camp is part of our broader efforts to shift the debate about data centres in the EU. In our ongoing research, we argue for an updated political-economic framework to grasp the driving forces behind hyperscale data centre expansion. Notably, the top three technology companies—AWS, Microsoft, and Google—are cloud giants, highlighting a close link between data centre growth and the shift to the cloud in the broader industry. We also argue that a radical approach to regulating data centres should be one based on the perspective of scarcity of resources, rather than their abundance. Our future is one in which water, fuel, land, and other critical resources that enable data centres to function will become increasingly scarce.

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01 https://en.wikipedia.org/wiki/NIMBY↩

02 https://privacycamp.eu/down-with-datacenters-developing-critical-policy-for-environmentally-sustainable-tech-in-europe/↩

2 Contributions by Speakers

Corinne Cath (**University of Delft**): Corinne provided the framing and introduction for the panel. Why are we here? We need to tackle the environmental harms caused by data centres. It might feel like preaching to the choir, but we need some solid policies to rein in the carbon, water, and electricity havoc these data centres are wreaking. We're in the middle of a climate crisis, but the regulations for data centres are in need of an update—many current ones are too business-friendly and not ambitious enough.

This is, in part, because we are missing the bigger picture. Current efforts are insufficiently aware of shifts in how big tech and computing industries are developing. In our collective research efforts, we argue for the need for a fresh political-economic lens to understand why hyperscale data centres, especially the big players like AWS, Microsoft, and Google, are multiplying like mushrooms. As it turns out, these data giants are more about cloud computing than just handling data or social media clips of cute cats.

The growth of data centres is related to the shift towards cloud computing across industries, not just in tech. These insights are developed by academics like Nathan Ensmenger, Seda Gürses, and Martha Poon. Their work on the cloud as a production hub or a factory is crucial to understanding how we can halt the environmental harm caused by data centres. We need to start looking at data centres with a strong political-economic lens backed by real-life research, or we're likely to only put band-aids on symptoms, rather than tackling causes. It is impossible to deal with the environmental fallout of data centres while keeping the underlying political and economic issues that fundamentally impact the environment untouched.

Claire Pershan **(Mozilla):**

Claire Pershan presented recent initiatives by Mozilla, including a tool developed in collaboration with the Green Web Foundation. Firefox Profiler[3] is an advanced developer tool built into the Firefox web browser that now displays carbon emissions alongside performance and resource use metrics. This tool enables developers to make informed environmental decisions. She also mentioned the newest cohort[4] of the Mozilla Technology Fund, supporting open-source utilities at the intersection of AI and the environment, and Mozilla's involvement in the Green Screen Coalition.

As an entry point to discuss data centres, she suggested we think about generative AI, specifically large-scale cloud-based models. There are growing concerns about their environmental impact due to the substantial power required for both training and deployment. Generative AI requires the servers in data centres to be densely packed, generating heat and demanding water for cooling. The use of generative AI is projected to grow and, in turn, increase demand for data centres, especially for high-density, high-performance ones.

Claire highlighted themes important to digital rights, privacy, and transparency advocates throughout her talk. (1) The lack of transparency in emissions calculations and inadequate understanding of the true environmental costs. (2) The narrative of optimisation at scale, where the

biggest data centre providers have been able to boast about their efficiency and climate-consciousness even while operating at an unprecedented scale. (3) That the winner-takes-all dynamic in the cloud market, with three hyperscalers holding 65% of the market, may lead to inefficiencies and harm.

Michelle Thorne **(Green Web Foundation and Green Screen Coalition):**

Michelle Thorne spoke about the internet being the largest coal-powered machine and highlighted that there is a window of opportunity to reimagine it by transforming its fuel sources. She introduced two demands: a fossil-free internet by 2030 and meaningful connectivity for all. The principles of a fossil-free internet involve matching every hour of internet use with verifiable green energy, routing computation to greener locations, and setting net zero targets for 2050.

Meaningful connectivity requires accountability, social and organizational innovation, and community empowerment in building internet infrastructure and fostering an open, diverse, and healthy digital ecosystem. Michelle viewed the climate crisis as an opportunity for justice, emphasizing its transversal nature, challenging and transforming systems across various issues.

Fieke Jansen **(critical infrastructure lab, University of Amsterdam):**

Fieke Jansen started by connecting environmental concerns to the digital rights community. She highlighted how, after the Snowden leaks, activists tried to obstruct state surveillance by demanding limits to the water allocated to the NSA data centre in Utah. She contextualised developments of the computing industry in Europe, by quantifying the growing number of data centres and the emerging conflicts over the allocation of land, water, and energy supplies to these industrial sites. Here, it is important to stress that data centres are an increasing governance issue that plays out in a fragmented policy space. They operate in the grey areas between the local, national, and European mandates in which the industry can play municipalities and national governments off against each other.

To overcome these challenges, Fieke presented a project she and Corinne Cath (TU Delft) are working on: a critical data centre policy to set the tone for EU-wide debates, centring people and planet over profit and capital. Such an approach should weigh the purpose of data centres and computational processes against their potential social benefits and environmental costs. For example, a scarcity approach requires municipalities, national governments, and utility companies to rethink if it is desirable to allocate significant resources, i.e. land, water, and (renewable) energy to run the Metaverse[5], cloud computing or if this should be allocated to households or computation for the public interest. This Privacy Camp session was intended to engage the digital rights community in a discussion on how the data centre could be governed by the notion of scarcity.

03 https://www.thegreenwebfoundation.org/news/carbon-emissions-in-browser-devtools-firefox-profiler-and-co2-js/↩

04 https://foundation.mozilla.org/en/blog/open-source-AI-for-environmental-justice/↩

05 https://www.thegreenwebfoundation.org/news/the-politics-of-data-centers/↩

3 Break-out Session Summaries

Break-out session 1 (led by Joris van Hoboken and Corinne Cath): Burning questions surrounding the political economy of data centres

Participants delved into the nuanced terminology associated with data centres, emphasizing the need to reconsider commonly used terms. There was some initial discussion around the term "data" centre as, contrary to popular belief, data centres are not primarily involved in the business of data. Instead, the focus should shift towards terminology more closely aligned with their fundamental role as 'cloud computing' centres. This group also touched upon the conceptualisation of data centres as both black boxes and black holes. While traditionally viewed as black boxes, because of the opacity surrounding their functioning and revenue generation, the group conversation encouraged a shift in perspective towards considering them as black holes. This perspective underscores the substantial subsidies and renewable energy resources directed into these centres, prompting a critical examination of their environmental impact in terms of both inputs and outputs and how the taxpayer is footing their bill.

The group explored the entanglement between the political economy and the environmental footprint of data centres. Participants highlighted the prevalent subsidisation of data centre construction by governments in various countries, either through direct financial incentives or by offering deals on access to renewable resources, often in collaboration with local energy companies. This relationship between governments and tech companies was underscored, revealing the government's role as a strategic business ally in this context. Participants also highlighted that this leads to a dangerous situation, in which governments become reliant on cloud computing companies—inhibiting their ability, or even willingness, to regulate them.

Additionally, the discussion touched upon the influence of financialisation and venture capital (VC) in shaping the political economy of data centres. Venture capitalists put significant investments into the cloud computing industry, which in part is driving the push for cloudification and the subsequent construction of data centres today, as these VCs need to see a return on their investments. The group also underscored the secondary impacts of data centres, considering the implications for land use and natural resources, as well as the challenges in regulating cloud computing companies given their integral role in contemporary computing infrastructure. The conversation concluded by highlighting the need to explore the implications of cloud computing on European data, digital

sovereignty, and the environment, bridging the gap between concrete impacts and abstract considerations.

Break-out session 2 (led by Alex Lutz): Existing regulations and policies related to the digital economy, data centres, and environmentalism

During the group discussion, participants highlighted the intricate web of legislative initiatives that impact the broader digital economy, particularly concerning data centres. The conversation delved into various legislative efforts that addressed AI, chips, privacy, and data regulation. Additionally, the participants emphasised various initiatives addressing environmental concerns, prompting questions about their potential impact on the political economy and the materiality of data centres.

Several environmental regulations were discussed, including the European Pollutant Law[6], the Corporate Sustainability Reporting Directive[7], and the Critical Raw Materials Act[8]. Participants also explored international opportunities, expressing curiosity about whether environmental considerations for data centres had made it onto the agenda of conferences such as COP. Notably, the German government's proactive stance on environmental issues was highlighted, including their requirement for transparency regarding water usage, as well as the Bits&Bäume[9] conference held there.

The discussion extended to different efforts at the municipal level across Europe, recognising the significant role local governments play in decisions about data centres. Acknowledging that municipal authorities often have the power to approve or reject data centre proposals, at least in the first instance, participants emphasised the importance of considering local mobilisation and municipal efforts in legislative actions. Moreover, the conversation touched upon the crucial role of whistleblowers in exposing instances of bad governance and data centres violating legislation, suggesting a need to further explore this avenue for ensuring compliance within the industry.

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06 https://environment.ec.europa.eu/topics/industrial-emissions-and-safety/european-pollutant-release-and-transfer-register-e-prtr_en↩

07 https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting_en↩

08 https://ec.europa.eu/commission/presscorner/detail/en/ip_23_1661↩

09 https://bits-und-baeume.org/en/↩

Break-out session 3 (led by Claire Pershan): Defining the environmental cost of data centres

In this group discussion, participants explored the environmental costs of data centres, covering various aspects of their impact. The conversation spanned the effects on natural resources, technical components like chips and batteries, outputs, social costs, and the market and government influences shaping data centres. The discussion itemised the environmental impact on space, land, electricity, biodiversity, clean energy, water, and energy usage. Technical components with notable environmental effects, such as foundation models, chips, batteries, generators, and fossil fuels, were also discussed in the group.

Furthermore, the participants focused on the social costs, considering issues like human labour conditions, the diversion of clean energy, global heating, health impacts, living space concerns, and the generation of e-waste in Global South regions. Market relations and government involvement were highlighted, revealing extractive business-client relationships, unethical labour practices, and government subsidies that often prioritise business over other budgets due to tax avoidance by tech companies—this last topic came up in multiple break-out groups. The discussion emphasised that NIMBY (Not In My Backyard) attitudes in more privileged communities are only causing data centres to be moved to places with less vocal or marginalised communities.

This conversation ended with a question pondering alternative uses for land and natural resources, challenging the prevailing trend of dedicating them to data centres. What could we be building here instead? How could that support the local communities? This question underscored the need for more sustainable land use, warning against the environmental impact and resource-intensive nature of data centres in the pursuit of profit-driven goals.

Break-out session 4 (led by Fieke Jansen): Where does action start and how to make a difference?

In a dynamic group discussion, this group developed various strategies to address the environmental challenges posed by data centres. Participants advocated for an increase in public knowledge of the political economy of big tech, its corresponding strain on natural resources, and the political nature of data centres. Real-life examples, such as water restrictions imposed on Irish farmers to ensure the continued functioning of local data centres[10] , served as illustrations of the immediate and tangible impacts associated with these facilities. Participants suggested learning from initiatives like the Reclaim Your Face campaign[11], to advocate at the European Commission for additional regulation.

The discussion also encouraged a shift away from the carbon emission narrative promoted by companies, urging a focus on the actual issue of resource scarcity and emphasising the importance of framing the problem accordingly. Furthermore, the conversation considered the significance of grassroots actions, highlighting the often-overlooked environmental harms

associated with data centres, such as embodied impact and e-waste. Prioritising social justice as the ultimate goal, the participants explored concepts like redistribution of commercially obsolete hardware to autonomous and decentralised public data spaces, and improved access for the Global South.

Politically, the discussion delved into the regulatory landscape, urging consideration of existing and upcoming EU mandates to make them more comprehensive and ambitious. Participants contemplated the requirements of a just energy transition and explored strategies for transforming the tech market, as well as enhancing enforcement of the General Data Protection Regulation (GDPR). At the local level collaboration with local government, especially municipalities, was again identified as a crucial avenue for change (as in previous sessions). Participants stressed the need to build coalitions across municipalities to exert influence on regional and national policies, while also grappling with the integration of data sovereignty into this approach.

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10 https://www.independent.ie/news/irish-water-urged-to-make-data-centres-retrofit-technology-to-reduce-their-usage-and-preserve-supply/40678478.html↩

11 https://reclaimyourface.eu/↩

4 Concrete Actions Moving Forward

We invite anyone with an interest in this topic to follow our work here,[12] *join our climate and tech reading group,*[13] *or sign up for a monthly newsletter at the bottom of this page.*[14]

1 Highlight power dynamics:

This action aims to illustrate the broader consequences of data centres. In addressing data centres' political and economic nature, we can reveal links between the growth of data centres and paradigmatic changes in the computing industry that continue to fuel growth. Likewise, we must demonstrate the persistent political entanglement between states and companies, which bleeds into the reliance of states on tech in general[15] and cloud computing (and hence data centres) for warfare, immigration, or austerity policies in particular.

2 Use clearer terms and raise awareness through real-life effects:

The aim is to increase public and policy makers' public awareness. We suggest using simpler language and learning from public initiatives like "reclaim your face" to better explain data centres' role in society as cloud computing centres, and highlight their societal impact. More real-life examples, like water restrictions for Irish farmers due to data centres, are needed to show immediate impacts.

3 Challenge carbon talk, highlight resource issues:

This action aims to shift attention and deepen understanding of the environmental challenges linked to data centres, in a future of climate collapse. We must move away from the carbon emission talk pushed by companies and focus on resource scarcity as the real problem.

4 Push for grassroots efforts and social justice:

This action focuses on acknowledging environmental concerns and grassroots actions. We must prioritise social justice impacts, which include the costs of EU data centres to the Majority World. This includes addressing societal and environmental impacts from the ground up.

5 Improve regulations and work with (local) government:

We must examine existing regulations related to data centres and the environment, at local, national, and pan-national levels, and understand their sufficiency for the challenges at hand. This includes making regulations more ambitious, considering a just energy transition, and transforming the tech market. Collaboration with local and pan-national institutions, especially municipalities, is key to influencing these policies.

12 https://www.criticalinfralab.net/↩

13 https://www.criticalinfralab.net/2024/02/01/environment-reading-group/↩

14 https://greenscreen.network/en/↩

15 https://www.politico.eu/article/war-drones-technology-arms-industry-munich-security-conference-2024/↩

About the lab

The critical infrastructure lab researches power and contestation in transnational media infrastructures. The lab aims to create space to co-develop alternative infrastructural futures that recenter people and planet over profit and capital. We aim to do this by establishing a community around three infrastructural subtopics (geopolitics, standards, environment), producing a sound body of research, as well as developing strategic insights and actionable policy recommendations.

https://www.criticalinfralab.net/

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