Before the Lock In

Rethinking the Future of AI Infrastructure in UK and Ireland

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Table of Contents

Acknowledgements & Statement of Authorship

I, Asmita Mehta, confirm that the work presented in this book is my own. Any collaborative elements such as workshops, interviews, or external contributions have been clearly acknowledged. Where other sources have been used, they have been appropriately cited in the text and bibliography. This project was undertaken as part of the requirements for the MDes Design Futures programme at the Royal College of Art during the academic year 2024–2025.
I acknowledge the use of generative AI tools, including ChatGPT, which were used to support editing, and refinement of this written work. All content remains my own unless otherwise cited or referenced.

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To my parents – thank you for your unwavering support, love, and belief in my work. This project would not have been possible without you.

Project Context

This project was developed as part of Asmita's Master's thesis in the MDes Design Futures programme at the Royal College of Art, London (2024–2025). Spanning over six months, the work was situated within the RCA's Independent Research Project (IRP) framework and supported by tutors, peers, and critical review sessions. The project investigates the design of equitable, sustainable, and adaptable AI infrastructures through a futures-oriented and systems-led design approach.

Externally, the project collaborated with a local authority based in Ireland, where a strategic backcasting workshop was conducted to co-develop long-term visions and planning approaches for AI infrastructure. Additional insight was gained through expert interviews with David Davies (Director, Data Centres at Arup) and Hanna Barakat (Research Manager, Computer Says Maybe), helping to ground the research in current industry and policy perspectives.

The project outcomes were showcased at the RCA School of Design Expo from July 17-19 2025, as part of the Royal College of Art's annual graduate exhibitions.

Executive Summary

This project investigates how we can intervene in the design and governance of AI infrastructure, especially data centers, before their long-term environmental and social impacts are locked in. As governments and corporations rapidly scale digital infrastructure across the UK, Ireland, and globally, questions of visibility, accountability, and public participation remain largely overlooked.

Framed through the lens of design futures and transition design, the project explores the material politics of data centers and asks: Who gets to shape our digital future and on whose terms?

Using a mixed-method approach that combines literature and practice review, expert interviews, case study analysis, influence mapping, speculative scenario building, and participatory strategy design, the research surfaces key governance tensions and opportunities. It draws attention to the limited role local councils currently play in shaping infrastructure that directly affects their communities, despite being expected to approve, manage, and live with its consequences.

The project outputs include four future scenarios exploring governance pathways for AI infrastructure, a strategic roadmap to a preferred vision and a speculative Policy & Planning Toolkit for local councils. The toolkit acts as a provocation and participatory tool, helping local authorities and communities collectively imagine, question, and influence the siting and design of data centers in their regions.

Ultimately, this project advocates for more transparent, adaptive, and community-informed models of AI governance, beginning not in national tech strategy documents, but at the edge of towns where concrete meets the cloud.

Introduction

AI Growth Zones in the UK signal a new era of infrastructural lock-in. These designated regions are being fast-tracked with incentives, streamlined planning, and large-scale digital infrastructure, particularly data centers, to attract investment and establish the UK as a global AI leader. [1] But behind this accelerated rollout lies a risk: the entrenchment of centralized, energy-intensive systems that drain local resources, concentrate control, and shape environmental and social futures for decades.

This project asks:

How might we intervene in the design and governance of AI infrastructure today to prevent locking in extractive, centralized data systems by 2040?

While AI is often framed around algorithms, automation, and ethics, its physical foundations- sprawling data centers, high energy and water demands, exploitative supply chains remain largely invisible. [2] These infrastructures often land in marginalized communities with minimal public input, offloading environmental and social costs in the name of innovation. The result is a growing disconnection between AI's promised futures and the material realities it generates.

This project stems from an urgent need to intervene before decisions become irreversible. Design futures approach allows to question dominant narratives of AI inevitability and imagine alternative paths, especially before infrastructures are locked in through massive public and private investment.

The literature and practice review covers over 30 sources, including academic papers, reports, essays and design projects. This included work by scholars such as Kate Crawford, Jennifer Holt, Ingrid Burrington, and Anne Pasek and speculative and critical design projects such as The Human Power Plant, Getting into Fights with Data Centers and AI in the Street.
The approach to analysing them combined desk research, critical reading and influence mapping.

"Like a nation constructed around highways prematurely foreclosed on a future not defined by petroleum, the entrenching and carbon-cancelling of the data center forecloses on the possibility of questioning whether so much of this computational future is even necessary."

Ingrid Burrington

Figure1. Aerial view of a large datacenter in North Holland, The Netherlands By corlaffra (Adobe Stock)

United States Data Center Energy Usage Report

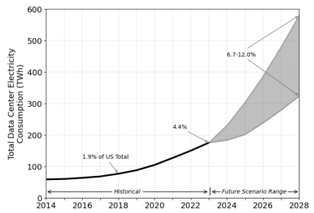


Figure2. Projected growth of data center electricity consumption

The 2024 U.S. Data Center Energy Usage Report offers a detailed analysis of the recent and projected growth of electricity consumption in the U.S. data center sector. It documents a steep rise in energy use, particularly since the emergence of AI-accelerated servers, with total consumption more than doubling from 2017 to 2023. [3]

This report underscores how AI and digital infrastructures are not just software-level phenomena, but major physical and infrastructural systems, deeply entangled with national energy strategies. The rise in GPU-intensive AI workloads is not just a technical detail- it is driving significant shifts in electricity demand, transforming data centers into key nodes in the evolving energy landscape.

For this project, the report frames data centers and AI by extension, as infrastructural actors shaping planetary futures, not just passive tools of computation.

Mining for Data- The Extractive Economy behind AI

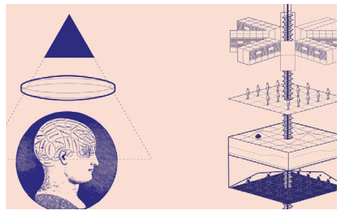


Figure4. Atlas of AI Illustration

Kate Crawford interrogates the material foundations and extractive logic of large language models (LLMs), framing generative AI as an industry reliant on data harvesting, low-paid human labour, and intensive energy and water consumption. Drawing from her research in Atlas of AI, she demonstrates that AI is not artificial nor intelligent, but instead a socio-technical system deeply rooted in physical infrastructures and global inequalities. [4]

This reframing challenges dominant narratives that position AI as an abstract or neutral solution to global problems. Importantly, it questions the unchecked expansion of AI under the guise of progress, highlighting a lack of transparency and regulatory oversight around its environmental impact.

Crawford calls for regulatory mechanisms that mandate environmental impact disclosures from AI companies, akin to standards in the automotive industry. She argues for public deliberation on where and when AI is necessary, resisting its indiscriminate application. Central to her intervention is the need to demystify AI systems, confront the structural conditions enabling their growth, and embed political accountability into technological development.

Multi-level Perspective (MLP) on transitions in socio-technical systems

Geels' article introduces a multi-level perspective (MLP) on transitions in socio-technical systems- systems like transport, energy, or information infrastructure, composed not just of technologies but also of institutions, user practices, cultural meanings, policies, and supply networks. Transitions unfold through dynamic interactions across three levels: niches (spaces for radical innovation), socio-technical regimes (dominant systems and practices), and landscapes (broad, slow-changing external contexts like demographics or climate).

One of the article's key contributions is its attention to the durability and resistance to change of socio-technical regimes. Drawing from evolutionary economics, Geels emphasizes that once a system becomes dominant, it tends to lock in through various reinforcing mechanisms: sunk investments in infrastructure, learning effects, economies of scale, alignment with regulations, professional training, user habits, and cultural norms. This interlocking of elements creates what he calls technological momentum, a form of path dependency that makes shifting to alternative systems extremely difficult even when better options exist.

This concept of lock-in is particularly relevant today as tech companies rapidly build infrastructures- data centers, AI platforms, smart city systems- that come to define how we interact, learn, and live. These infrastructures are often presented as inevitable progress, but once embedded, they narrow future possibilities and become difficult to question, let alone dismantle. Lock-in doesn't just refer to users being stuck in platforms- it's about society becoming structurally dependent on certain systems, at the level of policy, infrastructure, and everyday life. [5]

Geels's framework inspires to critically examine which systems are gaining momentum today, and whether they serve collective, long-term goals or primarily corporate interests. It warns against viewing infrastructure as neutral and instead urges us to see it as a terrain of power: choices made today about what systems to build and support will shape the path of future development and foreclose alternatives. The process of lock-in shows that once a particular infrastructure gains dominance, especially one backed by economic power and institutional support, alternatives are not just marginalized; they become almost invisible.

In light of this, designing more just and sustainable AI infrastructures requires not only imagining new systems, but also resisting premature stabilization of dominant ones. The questions that arise are: how can infrastructures remain open to revision? How do we ensure that today's dominant actors- big tech companies- do not define the terms of tomorrow's society through their infrastructures?

It suggests that interventions today- whether policy, regulation, or design- should focus on keeping systems flexible, plural, and accountable, rather than locking in proprietary platforms as the default future.
Resisting lock-in, then, is not only a technical challenge, but a political and ethical one.

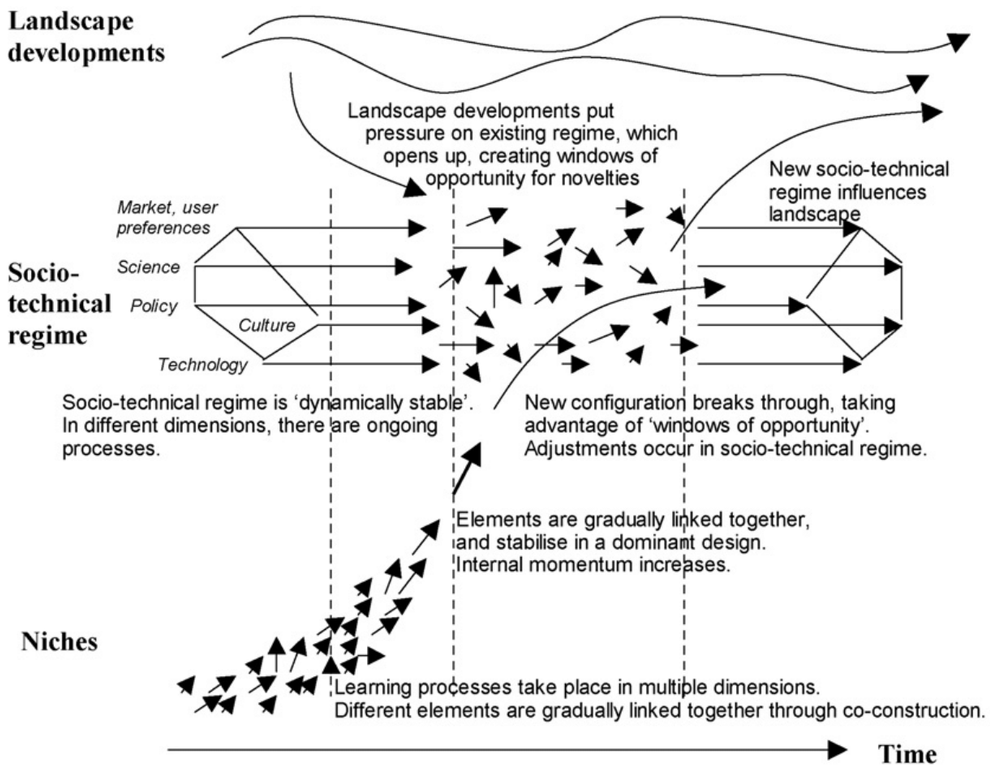


Figure4. Multi-level perspectives on transitions on socio-techno systems

Tallaght District Heating Scheme

Figure5. District heating plan from waste heat reuse

The Tallaght District Heating Scheme is a pioneering collaboration between Codema (Dublin's energy agency), South Dublin County Council, AWS (Amazon Web Services), and Heat Works, Ireland's first not-for-profit energy utility. It captures waste heat from a local AWS data center and distributes it via insulated pipes to heat nearby public buildings and homes. The system also allows for the return of cooled water to be reheated, forming a closed-loop. It's the first of its kind in Ireland, with estimates suggesting that district heating could meet 87% of Dublin's heating needs by 2050. [6]

This project represents a tangible example of coexisting with AI infrastructure, showing how waste heat - typically a negative externality of data centers - can be locally reused. It demonstrates how public-private collaborations and not-for-profit utilities can redirect big tech's footprint into community benefit. This is especially relevant in colder, high-density urban areas like Dublin, and potentially replicable in UK or Northern European contexts.
However, it risks being framed as a techno-fix or greenwashing, obscuring the broader environmental and social costs of large-scale data infrastructure.

The scheme is not a systemic solution, but rather a context-specific mitigation that may not be feasible in regions like the Global South, where heating demand is low or nonexistent. It also doesn't address upstream issues like energy sourcing, land use, or community consent around data centers. It could also entrench existing power dynamics if not questioned.

The Good Neighbour Theory

Figure6. Arup's Good Neighbour Theory

Arup's article proposes a "good neighbour" theory for data centers, suggesting a more community-integrated and socially responsive approach to their design and planning. This includes ideas like early community engagement, co-design, allocating land for public use, reusing waste heat, and developing local tech ecosystems. They position this as a way to gain social license to operate and de-risk development timelines. [7]

This reflects a growing industry awareness that community resistance can derail data center projects. The suggestion to involve communities earlier, and provide tangible local benefits, addresses some of the sector's legitimacy and visibility issues. It gestures toward a shift from anonymous "black box" infrastructure toward a more open, negotiated presence in the landscape. This could be especially relevant in regions where opposition is rising. [8]

However, because Arup is a private consultancy serving data center clients, their framing remains rooted in facilitating smooth development, not necessarily in questioning the legitimacy, scale, or environmental justice dimensions of the system itself. Community input is framed as a means to an end- accelerating planning permission- not as a rethinking of who gets to decide or what alternatives might be possible.

Getting Into Fights With Data Centers

Figure7. Snippet from Getting into Fights with Data Centers

Getting Into Fights With Data Centers is a zine created by Anne Pasek who works on the environmental impacts of digital infrastructure. The zine translates academic insights into an engaging, accessible format. It guides readers - artists, small organizations, academics, through the material realities of cloud computing and data storage, encouraging more ecologically conscious digital practices. [9]

This work shows how technical, often invisible systems (like data centers) can be made legible and actionable through design. Importantly, it shifts the tone from guilt or helplessness to one of agency, offering practical steps for everyday and professional resistance. It exemplifies how public interest technologies can build ecological awareness and digital literacy without falling into techno-solutionism.

For this project, this zine serves as a model for how to translate systems-level critiques into participatory, public-facing formats. It reminds me that form matters as much as content; communication tools can be infrastructural too.

Research Gaps

While many speculative and critical design projects effectively raise awareness of AI's extractive impacts, fewer engage directly with the infrastructural and governance layers where meaningful change can occur. My project aims to bridge this gap by examining the power dynamics and institutional forces that shape AI systems. Unlike many speculative practices that intentionally sidestep real-world power imbalances to imagine alternate futures, this project uses strategic mapping to explore, navigate and intervene in these imbalances more effectively.

Framing and Scope

This project investigates the social and environmental consequences of AI infrastructure, particularly the rise of large-scale data centers. AI systems do not exist in isolation – they are embedded in global systems of power, control, and resource extraction. While speculative and critical design often raise awareness about these issues, few projects engage with how to intervene at the infrastructural or policy level. My project aims to fill this gap by focusing on how infrastructural choices shape societal futures and proposing design-led strategies to reshape them toward more equitable, transparent, and adaptive models.

The issue sits at the intersection of society and technology, with deep implications for nature and ecosystems. Drawing on the Multi-Level Perspective (MLP) framework developed by Geels, my project treats AI infrastructure as a socio-technical system where changes are not just technological but also institutional, cultural, and political. Geels emphasizes that system transitions require not only innovation at the niche level but also shifts in regime and landscape dynamics. In this context, infrastructure is both a technological base and a manifestation of societal values and power structures. Therefore, addressing AI infrastructure means addressing the institutions, regulations, and cultural assumptions that sustain its extractive logic.

The temporal scale for this project sits in the medium-term range (5–10 years), aligning with the typical lifecycle of planning, funding, and constructing AI infrastructure such as data centers or regulatory frameworks. This timespan allows for imagining near-future alternatives and formulating actionable policy interventions while acknowl-edging the inertia built into large-scale technological systems.

The problem operates across meso and macro scales. At the meso level, it concerns regional planning, council-level decision-making, and national regulatory bodies. At the macro level, it involves transnational dynamics of AI infrastructure like the concentration of cloud services among a few global tech giants and the international race for dominance in AI capabilities. These macro structures often render local actors and councils powerless, as infrastructural decisions are shaped by corporate strategies and international agreements far beyond their reach.

Design Futures Approach

Design futures expands the range of what is politically and materially thinkable. It opens space for policies and imaginaries that prioritize ecological balance, intergenerational justice, and local agency.

In this project, Asmita's role as a design futurist is to imagine and prototype new governance pathways for AI infrastructure that resist extractive lock-ins and promote just, adaptable futures. She positions herself as both a strategic systems thinker and a civic intermediary, someone who navigates between institutional structures and community needs to mediate visions for long-term change. She engages with councils, and technical actors to envision equitable futures for data systems, while remaining attentive to current political and material constraints.

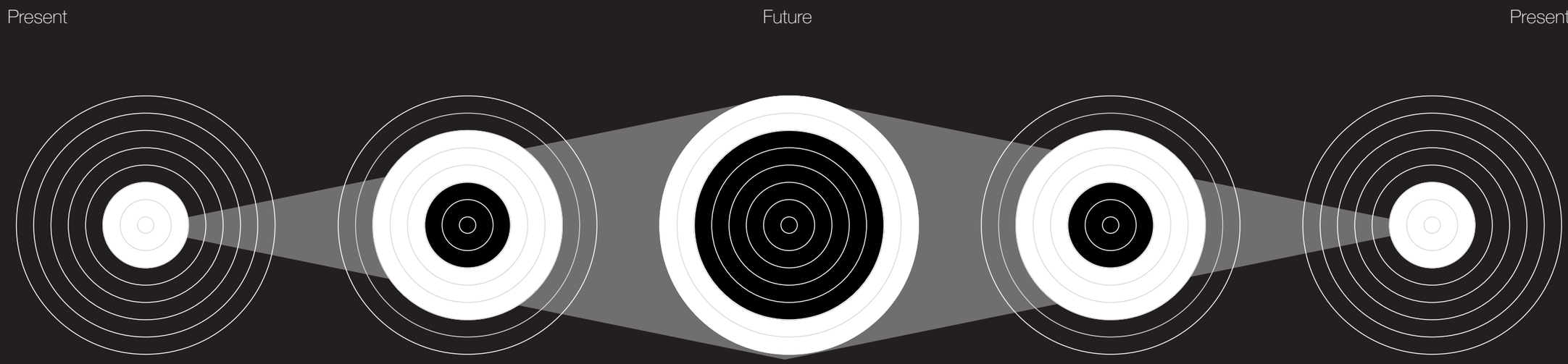
Design brings several benefits to this project. It enables abstraction and synthesis of complex information, creates spaces for participation, and helps stakeholders collectively rehearse different futures. However, its limitations lie in its potential to oversimplify systemic issues or stay in the realm of visual speculation without material follow-through. To mitigate this, she uses design as a boundary object: not to impose solutions, but to facilitate dialogue between actors from policy, infrastructure, and community spaces.

The design futures approach she draws on includes a blend of strategic foresight, co-design, and transition design to engage with the systemic, spatial, and political dimensions of AI infrastructure.

a) Transition Design, which emphasizes long-term, system-level change and aligns with the 2040 horizon of this project. It frames AI infrastructure as part of broader socio-technical transitions. As articulated by Irwin et al., "Fundamental change at every level of our society, and new approaches to problem solving are needed to address twenty-first-century 'wicked problems'. Transition Design is a proposition for a new area of design practice, study, and research that advocates design-led societal transition toward more sustainable futures." [10]

b) Co-design, to embed multiple voices (particularly local councils) into the process of imagining decentralized, flexible data systems.

c) Strategic foresight, through horizon scanning and scenario building, to identify leverage points and co-design interventions grounded in real-world constraints.



Desk Research

Scanned papers and policies to uncover how AI infrastructures are shaped

Expert Interviews

Gathered real world insights about data centers approvals and construction

Scenario Planning

Mapped four future worlds based on governance models and environmental impact

Back-Casting Strategy

Designed and facilitated a roadmapping workshop with Urban Planner, Local Council

Design Intervention

Created a toolkit to help communities and councils engage with AI infrastructures

Expert Interviews

David Davies
Director (Data Centers)
Arup

In our conversation, he shared perspectives on how data infrastructure projects are shaped in practice from corporate priorities to planning constraints. He offered examples of how Arup is working to embed regenerative principles and community engagement into data centre developments, especially in response to rising scrutiny and sustainability expectations. This helped ground the speculative scenarios in real-world tensions between ambition, regulation, and implementation.

Hanna Barakat
Research Manager
Computer Says Maybe

She contributed findings from their recent report on global data centre case studies, which examined the environmental and social impacts across Chile, the US, Mexico, the Netherlands, and South Africa. Hannah emphasized the need for increased transparency, stronger local authority involvement, and new participatory governance models. This reinforced the value of foresight tools and community-based approaches in shaping just and accountable AI infrastructure futures.

Future Scenarios

To explore alternative pathways, this project used a design futures approach to build four speculative scenarios for the governance and development of data centers.

The scenarios were developed through horizon scanning, collecting weak signals and emerging trends across Social, Technological, Environmental, Economic, and Political (STEEP) domains and mapped over short-, medium-, and long-term time horizons.

These were then organized along two key axes: Extractive vs. Regenerative models (reflecting resource and impact paradigms), and Centralized vs. Decentralized governance (reflecting power and control structures).

Together, these axes formed a 2×2 matrix exploring four plausible futures, each reflecting a different configuration of infrastructure, governance, and public involvement. One of the scenarios, Commons Cloud, was shared and discussed with a senior urban planner from a local authority, who offered valuable input, helping shape the vision with practical insights from policy and planning contexts.

These scenarios are not predictions. They are tools to provoke thought, challenge assumptions, and support strategic reflection on the futures we wanand the ones we must avoid.

Extractive

Decentralisation and innovation run ahead of governance

Blockchain/AI enabling local energy exchanges

Toshiba has created an internal organization to make itself more attractive to datacenter builders and operators [11]

Growth of community-designed small data hubs via co-design frameworks [12]

Satellite-based/orbiting AI data centres tap solar power in space [13]

Localized heat re-use becomes standard (district heating partnerships) [14]

Biological data centres using biomaterials and ecosystem services emerge [15]

Shift to edge AI [16]

Nuclear and fuel-cell backups to bridge energy gaps [17]

Rising public scrutiny of data-center water use [18]

AI used to predict grid demand and automate energy draws [19]

Fusion/SMRs provide new central energy hubs [20]

Willingness to pay more for energy - 55% hyperscalers ready to invest 50%+ more on power [21]

Skyrocketing global electricity demand for AI and electrification [22]

Public demand for AI regulation rises [23]

Data-center power demand may exceed capacity by ~45 GW by 2028 [24]

AI-driven facility optimization - Digital Realty's "Apollo AI" monitors energy/water use [25]

Overcapacity crisis in China [26]

Heatwaves and data center failures [27]

Workforce resistance to unchecked AI adoption [28]

Meta's relocation of Operation Tulip from Zeewolde to Spain when local government leaders grew skeptical of developments [29]

Environmental degradation, social unrest, and institutional breakdown start to mount

Decentralized Governance Models

Centralized Governance Models

Transition Design tools used by councils to design local infrastructure futures

Participatory governance reinvent what infrastructure means

Using foresight tools to guide tech and infrastructure planning

Growing focus on community engagement

Decentralised AI [30]

Grassroots calls for local democratic oversight of tech hubs [23]

National government needs to trust councils to deliver and devolve more powers and responsibilities to the sector [31]

Free-air & modular cooling systems roll out in cold climates [32]

AI infrastructure integrated into national nature restoration targets [33]

Data centre sites designated Critical Infrastructure under national law [34]

Circular economy metrics (CUE/ PUE/embodied carbon) become regulatory minimums [35]

Data centers with biodiversity, green facades, integrated drainage [36]

Nature-based cooling (SuDS, green walls) adopted widely in new builds [36]

Nature-impact frameworks (TNFD) start applying to data-centers [37]

Tech firms investing in solar, wind and storage [38]

Increased litigation and greenwashing scrutiny [39]

Virginia considering mandatory data-center water-use reporting [40]

EU AI Act [41]

U.S. executive order pushes clean energy connection for AI centres [42

Liquid cooling becomes mainstream – Digital Realty plans chip-level cooling in new data-centers [43]

Carbon pricing and incentives accelerate greener build

The system is mature, stable, and efficient but possibly rigid, with limited community imagination or agency

Trend

Signal

Possibility

Regenerative

AI Colonialism

Centralised // Extractive

By the mid-2030s, the UK entered a new era of AI-led growth, as national policy aggressively backs data infrastructure expansion. Designated as Critical Infrastructure, data centers are fast-tracked through planning pipelines especially in economically deprived regions, framed as tech-led regeneration. Local councils, stretched for resources, sign long-term land and energy deals with hyperscale providers, attracted by promises of jobs and digital investment. Yet these developments operate with minimal transparency, locked behind NDAs and obscure corporate structures.

During repeated summer heatwaves, energy blackouts begin to affect domestic users, while data centers continue to hum, powered by private nuclear microgrids and hydrogen cells. Communities protest rising energy bills, water shortages, and noise pollution, only to find their concerns bypassed under emergency national policy. AI is now used to predict grid load, automate energy draws, and regulate entire utility networks in favour of centralised efficiency.

The race to dominate global AI capabilities reproduces colonial logics of extraction, justified by “innovation” and “security.”

Globally, this is part of a broader shift: infrastructure giants exploit international overcapacity and weaker regulations to host overflow demand. Multinational cloud providers simply relocate to more permissive jurisdictions, or lobby governments to suppress local opposition. Austerity-weary citizens reject the framing of AI infrastructure as “the future,” questioning who benefits from automation and who absorbs the environmental cost. Worker resistance and climate lawsuits grow, but so too does state surveillance, powered by the very infrastructure now under critique.

“AI no longer lives in the cloud – it colonises the land, the grid, and the law.”

Figure8. AI Colonialism Future Scenario

AI as a Utility

Centralised // Regenerative

By the late 2030s, the UK became a global benchmark for sustainable AI infrastructure. Responding to public pressure, regulatory frameworks like the EU AI Act and TNFD are adopted and localised – placing strict environmental criteria on all data center construction. Carbon pricing, nature-based impact disclosures, and circular economy metrics (like CUE, PUE, and embodied carbon) are now regulatory baselines. National strategies align AI infrastructure to nature restoration goals, turning data centers into pilot zones for green innovation: green roofs host pollinator species, water systems use SuDS (Sustainable Drainage Systems), and cooling technologies rely on modular free-air setups instead of evaporative drains.

Tech companies compete on sustainability performance, investing in wind, solar, and battery storage to meet new mandates for 24/7 clean energy. Planning approvals are tied to biodiversity net gain targets, and public dashboards disclose operational metrics in real-time. Infrastructure is now accountable – but also tightly controlled.

Communities, however, begin to feel left out. Councils partner with hyperscalers to meet environmental and education targets – funding local schools, health centres, or parks. But as residents face rising utility costs driven by energy-hungry AI operations, many quietly relocate. A school may be built to meet the SDGs, but if families have moved away, who is it for?

Flexibility is limited. The system works – until it doesn't. When unexpected climate events or demand surges occur, its rigidity slows adaptation. Community-led experimentation, off-grid solutions, or plural AI visions are dismissed as risks to optimisation.

"What remains is a system that works beautifully on paper – yet feels increasingly hollow and inflexible in practice."

Figure9. AI as a Utility Future Scenario

Platform Fragmentation

Decentralised // Extractive

In this future, decentralisation accelerates but without robust oversight or coherent governance. Modular, mobile, and edge-based AI infrastructure proliferates across the UK and beyond, from repurposed community libraries to repatriated industrial estates. Local councils, driven by urgency and under-resourced by the state, begin experimenting with grassroots tech collaborations. Small-scale data hubs are co-designed with residents and embedded in municipal infrastructure, powering heating systems, traffic controls, and civic applications. Yet while this shift appears empowering on the surface, power remains unevenly distributed.

Many systems replicate extractive patterns – outsourcing risk, reinforcing inequality, or deepening digital divides. Public services suffer from uneven technological capacity, and those outside major nodes are left behind. Experimental architectures like orbital data centres promise sustainability, but often bypass local consent and environmental regulation.

National government, struggling to adapt to this new landscape, continues to advocate for innovation, but fails to provide the oversight or legislative frameworks needed to address emerging harms.

While decentralisation offers flexibility and responsiveness, it also creates unevenness and fragility. Innovation runs ahead of regulation. Councils call for more autonomy, but national support remains inconsistent. In the absence of shared standards or oversight, platforms set the rules.

This scenario captures a world where decentralisation has occurred without a parallel rise in institutional capacity or democratic control. The result is a complex, adaptive system – rich in potential, but riddled with contradictions.

"Without a shared plan, cloud became patchwork — brilliant in places, broken in others, and dangerous in between."

Figure10. Platform Fragmentation Future Scenario

Commons Cloud

Decentralised // Regenerative

By the 2030s, the landscape of AI infrastructure in the UK has fundamentally shifted. Local councils, once sidelined in planning conversations, now are recognised as key stewards of digital infrastructure. This shift was catalysed by growing public demand for accountability and local relevance, along with persistent grassroots advocacy calling for democratic oversight of technological systems.

Communities co-design their infrastructure futures through Transition Design tools, citizen assemblies, and foresight methods that have become standard in local planning. Involving the public in shaping AI infrastructure has sparked a broader wave of civic participation, inspiring new community-led initiatives in housing, public space design, and renewable energy projects. Community engagement extends beyond planning: vibrant exhibitions and open-air spaces showcase imaginative alternate futures of data storage – from lunar archives to embedding information in plant DNA.

These infrastructures are integrated with biodiverse rooftops, green walls, rainwater harvesting, and sustainable drainage systems. Councils use nature restoration targets and circular economy metrics like CUE and PUE to guide development.

Rather than extractive megaprojects, AI is now seen as civic infrastructure: decentralised, adaptive, and publicly accountable. While the national government provides guidance and funding, it no longer dominates decision-making. Public trust has grown as communities see tangible social and environmental outcomes from AI investments. Challenges around resourcing and uneven local capacity remain, but the Commons Cloud is a model of what's possible when power is shared, infrastructure is trans-parent, and AI is built not for scale – but for care.

"We stopped asking how AI can serve the market — and started asking how it can serve the neighbourhood."

Figure11. Commons Cloud Future Scenario

2025

Developer driven data centre devlopment rather than community led.

Council New Development Plan

2028

University Education Programs

2028

Stakeholder and Public Consultation Sessions

2030

National Biodiversity Standards Laws

2032

Co-location Office Spaces

2033

New Jobs Creation

2035

Innovations in Renewable Energy

2037

2040

Carbon neutral and community powered data centers.

Suggest to the Server is a speculative, workshop-based toolkit designed to empower local councils and communities to engage with AI infrastructure proposals, particularly data centers, at an earlier and more meaningful stage. The toolkit reframes the decision-making process by encouraging collaborative scenario exploration, community imagination, and strategic negotiation. It blends future visioning, participatory design, and systems thinking into a structured, dialogue-based process.

Who is it for?

This toolkit is primarily aimed at local councils including planning departments, policy teams, and environmental officers who often have limited power and visibility in AI infrastructure development. It is also intended to include residents, community organizations, and citizen stakeholders whose lives are shaped by these developments but who rarely have a seat at the table.

How could it be used?

The toolkit guides participants through five steps during a 60–90 minute participatory session. It can be used during public consultations, early-stage planning, or foresight sessions led by councils, planning consultants, or facilitators.

Step 1
Community Visions (Individual cards)

Participants are asked to reflect on the proposed site by imagining what else could be built alongside the data center. Using multi-sensory prompts (what it should look, feel, sound, smell like), they are invited to draw their vision and respond to questions including what excites or concerns them the most? What would they ask the data center to do more or less of? What could reduce their concerns?

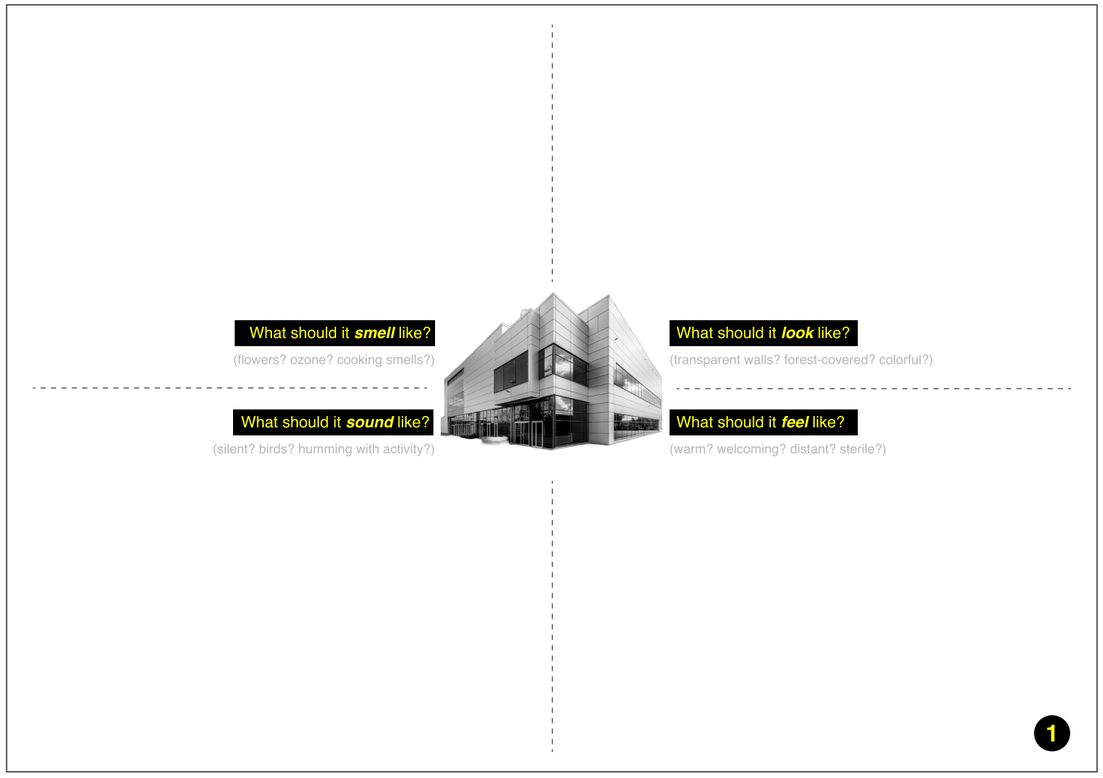


Figure12. Community Vision A5 card a) Front b) Back

Step 2
Collective Futures (Group vision)

Participants bring together their individual visions to build a shared scenario on a large chart, allowing common themes, priorities, and tensions to emerge through co-creation. Facilitators could group toegther similar themes to identify future values.

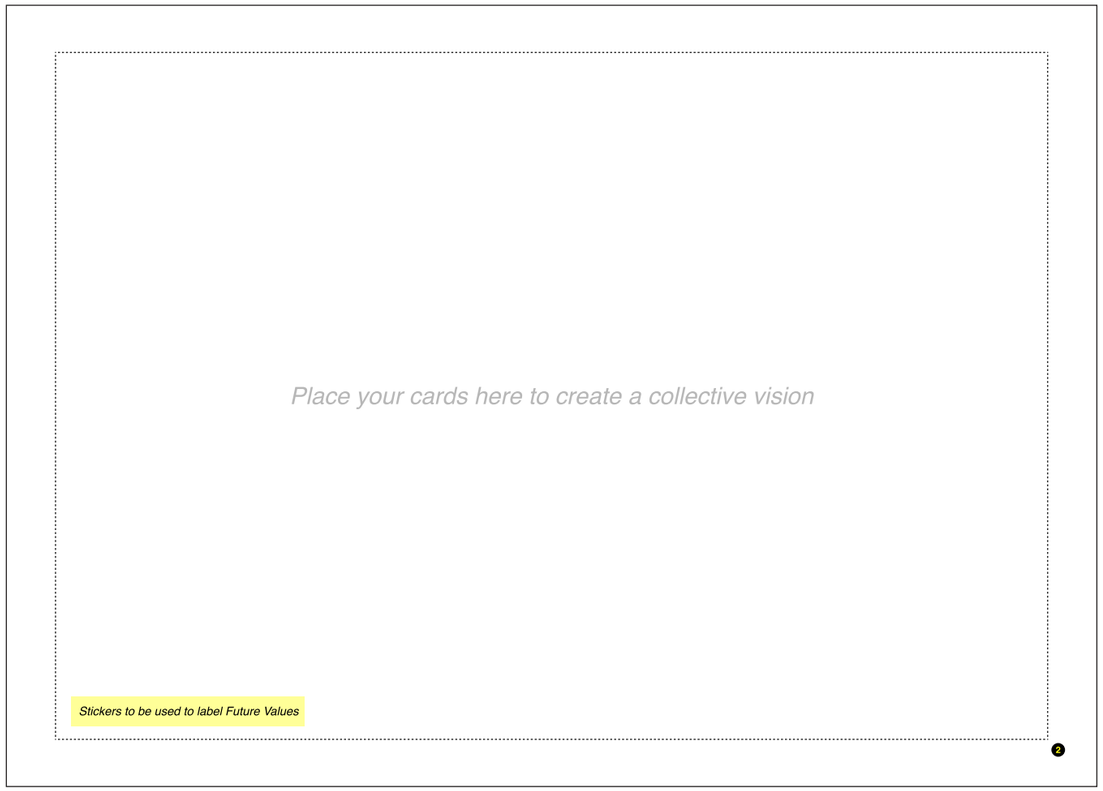


Figure13. Collective Futures Chart

Step 3
Understanding the Proposal (Information cards)

Participants are given a simplified version of the actual data center proposal (including key info on land, energy, water, jobs, and climate impact) in an accessible format. This acts as a reference point throughout the session.

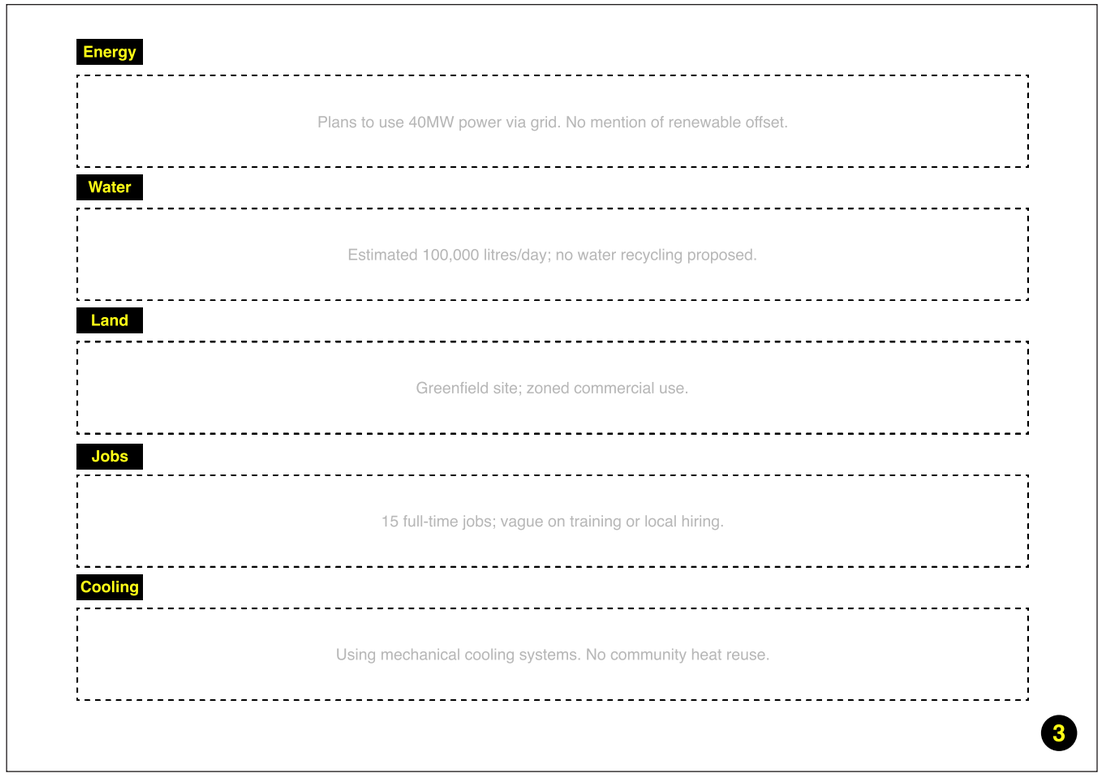


Figure14. Understanding the Proposal

Step 4
Alignment & Tensions (Mapping exercise)

Together, participants compare the official proposal with their collective vision. What aligns? What is missing? This stage invites questioning, critique, and the identification of policy tensions and advocacy points.

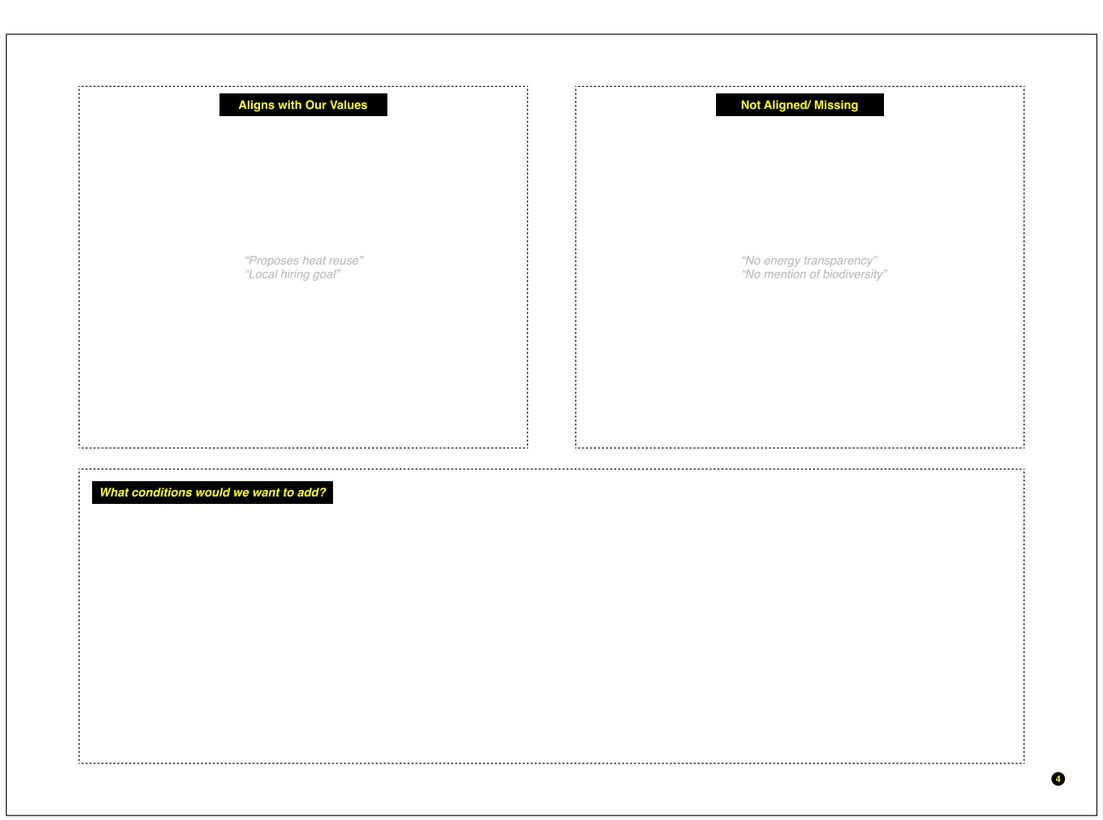


Figure15. Alignment and Tensions Mapping Chart

Step 5
Summary and Recommendations (Council Output Template)

The session concludes with the facilitator(s) drafting an advisory output for council use: capturing values, red lines, alternative ideas, and questions to take forward. It simulates what a "community-informed" response might look like in planning documents.

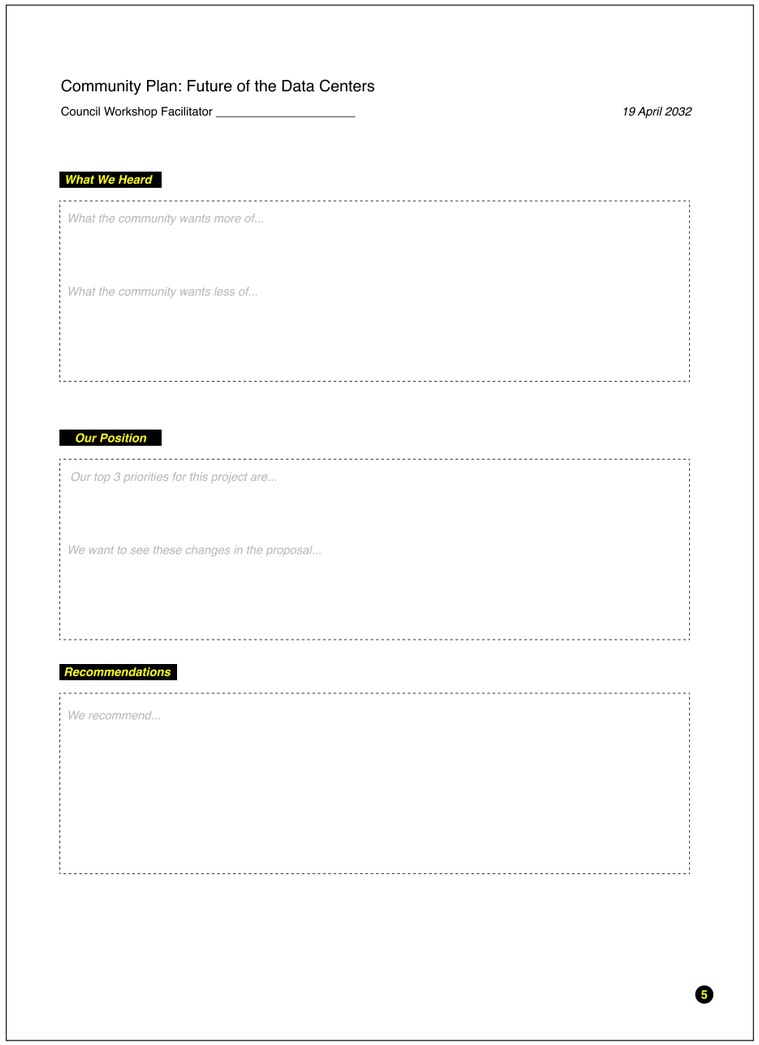


Figure16. Summary and Recommendations Template

What does it not do?

This toolkit is not a technical feasibility study or a tool for regulatory compliance. It does not promise consensus or decision-making authority. Instead, it offers a way to surface local values, tensions, and imaginations, contributions often missing from high-stakes infrastructure negotiations.

Next Steps for Development or Deployment

This version of the toolkit is a prototype, presently not tested with experts and/or local councils. Next steps would include adapting the toolkit for different planning and policy contexts, co-developing a facilitator's guide, integrating it with other participatory planning processes and exploring digital or hybrid formats for broader access.

In the long term, the toolkit could be embedded into local planning workflows as part of early engagement frameworks, giving councils and communities a stronger role in shaping the infrastructures of the future.

Conclusion, Reflection and Future Directions

This project explores how we might intervene in the design and governance of AI infrastructure before it becomes permanently locked into extractive, centralized models. As data centers multiply across the UK, Ireland, and globally, this work highlights the urgency of treating infrastructure not just as technical construction, but as a deeply social and political process. The systems we build today will shape environmental, social, and democratic futures for decades, if not centuries.

Through speculative scenarios, expert insights, and the development of a participatory toolkit, this research surfaces hidden tensions, highlights overlooked stakeholders, and proposes alternative governance and citizen engagement models. It argues that local councils and communities often excluded or undervalued, should have meaningful influence in shaping these long-term infrastructures.

Reflecting on the process, one key limitation was the lack of engagement with national-level actors and tech industry stakeholders. While local and planning perspectives were well represented, further conversations with government departments and tech firms could have offered additional dimensions of realism and political feasibility. Testing the toolkit, after refinement, with local councils and community participants is also a necessary next step both to refine the tools and assess their usability in live planning scenarios.

The potential impact of this work lies not only in AI governance, but in reimagining public engagement with hidden systems more broadly. Data centers are only one example of infrastructural lock-in; the same questions apply to energy, housing, logistics, and water systems. What if we embedded foresight and co-design in all infrastructure planning? Who would be included, and what futures would become possible?

This project proposes one response: a toolkit that invites councils and communities to imagine, question, and reshape the technologies embedding themselves into their everyday landscapes. It is a provocation for more democratic, transparent, and imaginative governance starting with what lies beneath the cloud.

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