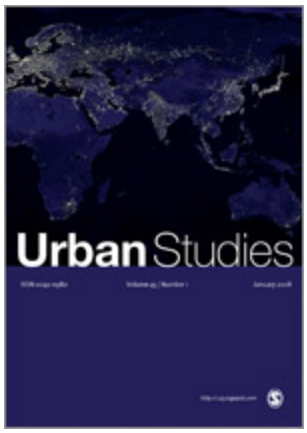

Post-political clouds: suspended failure in Google's data centre development

Journal:	*Urban Studies*
Manuscript ID	CUS-333-24-03.R2
Manuscript Type:	Special Issue
<b>Discipline: Please select a keyword from the following list that best describes the discipline used in your paper.:	Geography
World Region: Please select the region(s) that best reflect the focus of your paper. Names of individual countries, cities & economic groupings should appear in the title where appropriate.:	Europe
Major Topic: Please identify up to 5 topics that best identify the subject of your article.:	Governance, Infrastructure, Policy
You may add up to 2 further relevant keywords of your choosing below::	Data centres, Google

Post-political clouds: suspended failure in Google's data centre development

Abstract

Digital corporations and governments alike are driving a post-political agenda around the expansion of data centres—the infrastructural backbone of expanding cyberworlds. With qualitative methods, the political socioeconomic context of a Google data centre project in Luxembourg was reconstructed. It is seen that the project resulted from both the country's pursuit of a niche within global economic flows and Google's international agenda to secure its business position. An eight-year narrative materialized with local dissent on one side, and the refusal of big business and big politics to disclose information to the public on the other. We argue that the 'suspended failure' of the project benefited Google, disrupted local politics, tested the limits of local spatial planning practices, left communities in a state of uncertainty, and ensured post-political urban governance throughout.

Keywords

governance, infrastructure, policy, data centres, Google

Introduction

Alphabet Inc., Amazon.com, Meta Platforms and Microsoft have positioned themselves as world leaders in digital development. Indeed, the technologies and assets that they possess—least of which are financial—provide them with the means of leading innovation (e.g. patents), dominating messaging (e.g. search engines, platforms), and providing the related hard infrastructures (e.g. cloud and/or logistics). In this way, they constitute a handful of companies with outsized influence in shaping respective markets, capturing desired profits, and by extension controlling the modes of imagining and navigating urban social worlds (Rosen and Alvarez León, 2022). To follow the urban theory of Lefebvre (1991), their influence changes, perhaps even redefines, how urban social space is perceived, conceived, and lived. Scholars have long discussed the relationship between urban development and technology (Cugurullo et al., 2023; Karvonen et al., 2019; Vanolo, 2024). However, the political maneuverings of self-styled 'big tech' and their methods of power-brokering (Carr and Hesse, 2020, 2022) are worthy of closer scholarly attention, not only because of their exaggerated

leverage in various domains, but also because their behaviour signposts how urbanity is produced, along with its social, spatial, and political economic ramifications. In this article, we unpack the urban politics and political processes involved in the provision of one specific kind of urban digital infrastructure—a Google data centre (DC).

DCs are resource-intensive infrastructural backbones of cyberworlds (Dodge and Kitchin, 2001), and the support structures of global digital businesses. Alone the size of DCs and the volume and variety of their resource needs (water, canalization, electrical grids, roads, people) is a reminder that urban digital worlds are not weightless (Hardacker, 2025), and that their expansion can dramatically alter the spaces and flows—to draw on Castells (2009)—of urban and regional landscapes. The expansion of larger DCs also paves the way for new actors to enter the field of urban spatial planning and development. In the past, the usual suspects involved in land use planning and development have typically been landowners, architects, town planners, mortgage and insurance brokers, and/or developers (Albrechts et al. 2003; Carr, 2021). With DC development, various new businesses enter the field, staking claims to land (Monstadt and Saltzman, 2025), including global digital corporations. When the latter enter the field, not only do their infrastructural agendas implicate possible social spatial change, their means of negotiation may also pose new challenges to local practitioners and their practices of urban planning and governance.

This article focuses on Google—a subsidiary of Alphabet Inc. and an industry leader in DC development alongside Amazon.com, Microsoft and Meta Platforms—and how the company impacts urban governance. Google opened its first DC in Oregon, long ago in 2006, but recent investments in DCs have increased exponentially as its cloud business had grown. The further boom in AI—and cryptocurrency (Taşkale, 2025)—has only added additional growth pressure. Already by mid-2024, Alphabet Inc. (2024: 45) had announced that it spent $25.2 billion on investments in technical infrastructures including DCs in support of their long-term business objectives and AI development.

Simultaneously, competitors also reported quartal expenditures of approximately $19 billion for DCs (Nadella et al., 2024).

Amidst this development pressure, Google reported that its impact on the environment is also worsening. In its Annual Environmental Report, Google (2024) announced that its carbon emissions had increased by 13% over 2023, and its DCs consumed 17% more electricity—the equivalent of up to 10% of DC electricity consumption worldwide. DCs are also known to need enormous quantities of water for cooling, competition for which has been the main ground for contestation of Google DCs in Chile and Uruguay (Lehuedé, 2022; Feliba, 2023; Rone 2024). Adding pressure further still, projections have also emerged—since the establishment of the new presidency in the USA—that Amazon.com, Microsoft, Alphabet.Inc and Meta Platforms will together spend up to $300 billion on AI infrastructure in the coming months (Swisher and Galloway, 2025).

In this article, we zero in on a Google DC project in the Grand Duchy of Luxembourg (hereafter called Luxembourg) and demonstrate how digital corporations and governments alike drive a post-political agenda (Beveridge and Koch, 2016; Mouffe, 2005; Wilson and Swyngedouw, 2014) around this kind of digital infrastructure expansion. Of course, Luxembourg, as a global business centre that does not suffer severe water or energy shortages, looks very different from places like Chile or Uruguay. The Google DC project in Luxembourg stands out, however, because it is characterized by eight years of uncertainty and it remains unbuilt as of this writing.

The Google DC project was the product of both Luxembourg's drive to carve out a niche economy in global flows (Hesse and Wong, 2020) and Google's agenda of fortifying its business. Involving big politics and global political economic maneuvering, the planning of the Google DC in Luxembourg was a process that ultimately disregarded transparency and circumvented local voices and local political processes—a dynamic that recalls research on the relationship between mobile urban development policies and post-politics (MacLeod, 2013). It also recalls a sub-orbit of the policy mobilities literature on 'policy failure' (Temenos and Lauermann, 2020), because crucially, the

tension generated around the Google DC in Luxembourg unfolded against the background of prolonged suspension of the project. Throughout the 8 years, Google maintained a consistent sense of uncertainty about whether it would abandon the project or not. This lingering threat of impending failure presented a new kind of 'failure' (Temenos and Lauermann, 2020), which we term 'suspended failure', which disrupted local politics, tested the limits of local spatial planning practices, left communities in a state of uncertainty, ensured that the whole process remained post-political, and above all benefited Google.

We build our argument by, first, explaining what DCs and some of their problematic aspects are. Second, we break down the notions of 'failure' as defined by Temenos and Lauermann (2020) and post-political urban governance, engaging Mouffe's (2005) definition. Third, we present the empirical case of a Google DC project in Luxembourg, unraveling the ways in which a post-political agenda was exposed during eight years. Fourth, we explain how the prevailing suspended failure that characterized the saga of this Google DC in Luxembourg impacts urban governance, planning and development, and indeed, the social spatiality of digital futures.

Critical Data Centre Studies

A 'data centre' is any building, warehouse, or dedicated space used to accommodate, secure, and run computing equipment. These usually comprise servers, racks, cables, and equipment for back-ups, as well as electrical, monitoring, and cooling systems. As DCs have grown in size, and as data production and consumption demands have increased, there has been more focus on hyperscale DCs—a term commonly used in the DC industry to refer to the large DCs owned by companies like Google and Amazon.com that provide 'extreme scalability capabilities and are engineered for large-scale workloads' (IBM, 2025). In other words, hyperscale DCs are the infrastructures needed for digital platforms and AI. Hyperscale DCs are usually built on campuses, which are greenfields or

industrial zones repurposed to also house collections of DC warehouses, providing space for broader and more complex systems of operating and managing data storage and processing.

Early studies of internet infrastructure noted the urban character of the internet as a backbone network of cables and telecommunication infrastructures concentrated in cities (Malecki, 2002; Tranos and Gillespie, 2011). In Europe, smaller colocation DCs—facilities that rent out space for servers—have often been located in cities, which were understood as nodes of the internet backbone (Tranos and Gillespie, 2011). DC campuses, by contrast, are increasingly built in areas peripheral to urban centres—but not only—where DC operators have access to cheaper land, but are still close enough to concentrations of digital infrastructure (roads, pipes, cables) and people (market, finances, knowledges) (Greenstein, 2018).

DCs have received critical attention in various fields in recent years. Environmental concerns have been well documented (Fleischer, 2020). DCs have also become politically contested because they compete with communities for local resources (Rone, 2024). Because of their soaring carbon emissions (Google, 2024), corporations also claim that governments ought to provide new sources of energy, such as 'past one hundred' (Gates, 2024) new nuclear power plants. Addressing these pressing issues, an important interdisciplinary field of research known as Critical DC Studies (CDCS) (Edwards et al., 2024) has emerged that focuses on the societal dimensions and ramifications associated with DCs (Burrell, 2020; Johnson, 2019). In so doing, CDCS has also shed light on the challenges ahead for urban spatial planning and development, whose practitioners will not only need to acknowledge that resources are already in short supply but that DC input needs will require coherent spatial arranging.

CDCS has shed light on the extractive nature of DCs, referring to the large quantities of resources that they consume (Brodie, 2025). Sometimes, DCs consume amounts of energy that are comparable to entire towns (Bast et al., 2022; Carr et al., 2022). Corporations are purchasing renewable energies for their DCs, thereby not only boosting competition for these resources and straining grids, but also

increasing the net land uses (Brodie, 2025). Libertson and colleagues (2021) called it ‘energy gentrification’, describing how ‘clashes over energy can displace energy users’ (Libertson et al., 2021: 157). Water, a key means of cooling DCs, is another resource that these infrastructures compete with communities for, particularly in drought-stricken regions (Rone, 2022; Lehuedé, 2022).

There is also increasing evidence that DC expansion is happening with minimal consent from local neighbouring communities. In the Netherlands, Rone (2024) observed that local activists protested the expansion of a DC, objecting to the lack of democratic decision-making and transparency in the development process. It has also been observed that opacity was maintained as corporations and politicians repeatedly used misleading narratives to win quick community support, such as the promise of jobs or the DC as a means of recovery from economic downturn (Burrell, 2020; Johnson, 2019). In this vein, employment projections were often inflated as DCs usually required only a few highly specialized employees (Mayer, 2020). The sector also sought automation as a means of further reducing labour costs (Costa et al., 2022; Mayer and Velkova, 2023).

In a submission to the European Commission, the Minderoo Centre for Technology and Democracy, University of Cambridge (MCTDUC) (2024), explained that researchers and activist groups in the UK, Netherlands, Spain, and Ireland were united in their views that DC development was undemocratic and highly problematic. They listed four domains that required urgent attention in policy (MCTDUC, 2024): (i) improving transparency with improved reporting standards and environmental impact assessments; (ii) encouraging digital literacy to combat false narratives about DCs; (iii) promoting less extractive DC practices through incentives; and (iv) imposing moratoria on DCs so that local communities can take the time to fully assess the implications of DCs.

Some scholars have also looked at failed DC projects, elucidating the relationships between companies, state authorities, and the actors or institutions that contribute to local planning and land-use debates. Brodie (2020) explored how 'the complex mess of culture, history, capital, politics, and the environment entangled at the site' (Brodie, 2020:15) in rural Ireland contributed to Apple’s

decision to withdraw its DC project altogether, leaving residents confused and wondering about what might have been had Apple stayed. Brodie and Velkova (2021) explained how Ericsson suddenly ceased DC operations ten months after its construction in the outskirts of Montreal. Still standing and occupying an area equivalent to eight football fields, the abandoned DC is now a reminder of the futuristic discourses and 'equally empty promises they had given rise to, seemingly frozen in time' (Brodie and Velkova, 2021: 881). It also raised questions about how DC structures could be maintained over the long-term, and who should take responsibility.

Suspended failure as a means of maintaining post-political urban governance

Conscious of Beveridge and Koch's (2016) critique of reductionist and dualistic analyses, we engaged Mouffe's (2005) definition of 'post-politics' as a mode of governance where opposing disputes are absent in deliberations. Post-political urban governance arises when 'politics', that is 'the set of practices and institutions through which an order is created' (Mouffe, 2005: 9) is divorced from 'the political', that is the sociopolitical spaces of agonistic debates (Wilson and Swyngedouw, 2014). Looking at the production of digital cities as post-political has also taken up traction: Vanolo (2014) argued that post-political smart city discourses favoured 'disciplined cities' (Vanolo, 2014: 884), while suffocating different ideas and positions. Several scholars (Carr and Hesse 2020, Filion et al., 2023) have also argued that Alphabet's moonshot project in Toronto was post-political, as it was organized by Sidewalk Labs in concert with the Canadian government to the exclusion of local stakeholders who asked the hard (and unanswered) questions. Similarly, in Luxembourg, post-political governance took shape as Google entered into discussions and made deals with central government officials to the exclusion of local stakeholders. The development process was ultimately characterized by local dissent on one side, and the refusal of big business and big politics to disclose information on the other, maintaining the post-political condition. Further, we posit that a special kind of failure—'suspended failure'—helped maintain this situation.

Research in CDCS on the lessons of failure align with the literature often referred to as 'policy failure' (Temenos and Lauermann, 2020), itself a branch of literature on 'policy mobilities' (MacLeod, 2013; Peck and Theodore, 2010). Generally, scholars of policy mobilities examine how policies move from place to place, how policies are adjusted to new contexts, and how networks of actors and institutions shape these processes. Policies are understood as both contextually grounded and the products of governance processes in specific social spatial contexts (Peck and Theodore, 2010). Policies are neither spontaneous endogenous innovations nor are they templates that can simply be copied from one place to another. While mobile urban development policy recipes like eco-urbanism, New Urbanism, or smart cities were neither particularly innovative nor effective (Chang, 2017; McCann and Ward, 2011; Wiig, 2015), they did reflect modes of governance and policy-making, particular to specific times and spaces.

Temenos and Lauermann (2020) deepened these debates by focussing on 'policy failure', referring to policies that fail to launch or deliver, have negative effects, or are what Brodie and Velkova (2021: 871) called, 'dead-end experiences'. To be clear, understanding policy failure is not about the presence/absence or the success/failure of a policy, as such dualities are not absolute but mutually constituted (McCann and Ward, 2015). Rather, failure offers a spectrum of analyses related to the governance of urban development. Failure—contrary perhaps to its connotation—can even foster the multiplying of neoliberal development agendas across sites and scales (Brenner et al., 2010). Chang (2017) demonstrated that while the eco-city of Dongtan failed, parts of it endured and influenced subsequent ecotowns. Similarly, Lauermann (2015) observed that failed Olympic bids left legacies that were detectable in future decision-making processes. The outcomes of failure are therefore just as illuminating as the mechanisms leading to failure.

We contribute to policy failure literature (Temenos and Lauermann, 2020) by demonstrating that failure does not need to be a foregone conclusion or *fait accompli*. In Luxembourg, there was the threat of failure looming over the Google DC project for eight years. There was never a moment when

one could look back and learn from a plan or policy and reflect on its failure to deliver. Instead, the threat of failure—or prolonged, inconclusive, 8-year suspension of the project—hung in the air, prolonging and maintaining post-political urban governance that favoured the interests of big politics and big business over local communities. We term this 'suspended failure'.

The role of failure in maintaining post-political governance is also a pertinent analytical lens because failure is a recurring phrase expounded by 'big tech' as exemplified by the following statement by the CEO of Alphabet Inc.:

> By definition you're not aiming big enough if you don't have a few failures (Pichai, 2024).

Aimed at innovating and developing new markets, indeed 'Silicon Valley thinks it has failure figured out' (Daub, 2020: 86), with failure is a sign of boldness in the pursuit of technological innovation, rather than something to be averted (Weiner, 2022). Clearly, this concept of 'failure' differs from that defined by Temenos and Lauermann (2020), whose work examined urban development and governance, rather than technological innovation. Certainly, if applied in an urban setting—affecting people and places—Silicon Valley's version of failure would be a reckless approach to business development that could lead to the mode of suspended failure observed in Luxembourg.

With its DCs, Google may also be embracing 'failure' by pursuing several projects simultaneously. This could be a form of so-called 'fault tolerance'—the practice of building redundancies to ensure that systems continue without interruption, even if one or more of its components fail. During the eight years that the DC project in Luxembourg was under discussion, Google also opened two large DC campuses in the Netherlands and Denmark, while constructing several other DCs in Belgium, Norway and the UK. While the exact mechanisms behind their decisions are difficult to substantiate—their business decisions are ultimately secret—what is observable is that Luxembourg was just one of several parallel projects, and Google's ability to cancel

on a moment's notice arguably served as an important component in its political maneuverings—a post-political approach to cities and people.

Methods

We pursued a qualitative research methodology to understand the making of urban governance surrounding the Google DC project in Luxembourg, which is both a sovereign nation and a cross-border urban agglomeration (Carr, 2019; Krueger et. al., 2018). First, we surveyed documents and secondary sources to reconstruct Google's DC development trajectories and Luxembourg's pursuit of a digital economy. Second, we reviewed Luxembourgish spatial planning procedures, attended public meetings, and conducted qualitative interviews to better understand the range of political processes of DC development in Bissen, the small town of about three thousand inhabitants north of the City of Luxembourg—and part of the urban agglomeration—where the site of a prospective Google DC was situated. Eight in-depth interviews were held: four with governing officials, one with activists from a local organisation, one with a local IT expert knowledgeable of DC infrastructure, one with an international expert on DCs, and one with a local DC industry expert. The goal was to collect viewpoints from different actors in the field to achieve a fuller picture of diverse standpoints that constituted governance patterns in Luxembourg.

When the big company meets the small country

In the following sections, we discuss the Google DC project in Luxembourg. First, we explain how the pursuit of a digital economy in a small state with flat governance structures set the scene. Second, we show how the central government rolled out the red carpet for the tech giant and maintained unwavering support for the project despite growing contestation. Third, we discuss how Google maintained a prolonged sense of uncertainty, while Luxembourg governing officials continued to work providing initial approvals.

i. Setting the scene

Google's plan to invest in Luxembourg was first announced through social media in December 2016, when the then Minister of the Economy tweeted a picture of himself with the co-founder of Google at the Breakthrough Prize ceremony in San Francisco (Bingenheimer, 2016). While Google was searching the globe for new locations for its DCs, Luxembourg was on the perpetual search for a new economic niche amidst global international flows—not particularly unusual for Luxembourg (Hesse and Wong, 2020). After the cross-border steel industry's economic downturn in the 1970s, the financial sector emerged as an economic engine (Hesse and Wong, 2020, Krueger et al., 2018); following the 2008 financial crisis, the government looked at the digital sector as a means to diversify its economy (Moore, 2022).

The saga of the Google DC in Bissen unfolded during the course of the coalition government formed after the Luxembourg national elections in 2013. The same coalition remained in power after the 2018 elections, uniting three parties with purportedly diverging political positions: the 'pro-business' Democratic Party (*Demokratesch Partei,* DP), the Luxembourg Socialist Workers' Party (*Lëtzebuerger Sozialistesch Aarbechterpartei,* LSAP), and The Greens (*déi Greng*). The pursuit of a digital economy was high on the agenda of the coalition government, while the main opposition party at the time was the conservative and equally 'pro-business' Christian Social People's Party (*Chrëschtlech-Sozial Vollekspartei*, CSV).

2015 constituted a turning point in Luxembourg's digital transformation as the government invited Jeremy Rifkin's consulting group to devise a strategic plan for a so-called 'Third Industrial Revolution' (TIR) for Luxembourg (Ahlborn et al., 2016). The resulting 'Rifkin Plan' proposed a series of measures to bring about a 'paradigm shift to a sustainable smart Luxembourg' (Ahlborn et al., 2016), focussing on investments in digital infrastructures, facilitating the integration of digital technologies in Luxembourg, and supporting ICT start-ups (Ministry of the Economy (MoE), 2019). The Ministry for Digitalisation (MfD) was also set up to facilitate digital transformation within the

different ministries and state bodies (MfD, 2024). This pursuit of digitalisation also went hand in hand with efforts to attract industry players that could provide the skills and technologies needed in advancing digitalisation objectives (MoE, 2019). Seen as being 'in the spirit of the TIR' (Léonard, 2020), the Google DC project thus enjoyed broad consensus among the main political parties. Even The Greens refrained from raising concerns over environmental aspects. When asked if the Google DC project was producing tensions within the government, the Minister of the Economy responded,

> I will be transparent: There is a clear and unequivocal commitment [...] from the entire government, to the [...] Google data centre in Bissen. (Léonard, 2020)

The saga also unfolded in the context of Luxembourg's relatively flat governance structures, which sometimes typify small states. Luxembourg's population of circa 670,000 is governed by a 2-level government structure, constituting a central government and local municipal government with no regional authority (e.g. province or state) between them. In this setting, it is not uncommon for actors to meet informally to influence policy (Affolderbach and Carr, 2016). It is an insular, familiar, often conflictual, decision-making structure, and members of the central governmental Chamber of Deputies are also often members of Executive Municipal Councils (*Schoffenräte*) (Affolderbach and Carr, 2016). While there were no members of the Bissen Municipal Council who were also Chamber Deputies during the eight year saga, the proximity between the central government and municipality created a situation where few Council members dared oppose a project that their parties were largely and openly enthusiastic about.

ii. A red carpet for the tech giant despite contestation

>>Insert Figure 1 here>>

The eight-year saga (Figure 1) can be perceived as a convergence of agendas: the country's pursuit of a niche digital economy and Google's international agenda to secure its business positions. The project began in secrecy early in 2016—prior to the social media announcement—when Bissen was approached and tasked with finding a site of approximately 30 hectares for the project which was given the code name 'Pascal' (Léonard, 2019). Local observers calculated that any such property of this size in Luxembourg would be worth roughly 35 million Euros (Sinner, 2017). A site for the DC was identified but one of the land owners refused to sell (Léonard, 2019). When, in July 2017, a suitable site had not yet been secured, Google threatened to abandon the project altogether (Luxembourg Times, 2017). The state responded by appointing agents to speed up the search (Léonard, 2019). A second site was chosen, this time closer to the inhabitants of Bissen. Again, one of the land owners refused to sell, bringing the project to a standstill. Whether responding to pressure or simply the right price, the landowner agreed to sell his plot and in December 2017, LB Technology S.à.r.l purchased the 33.7-hectare site on behalf of Google (Ram, 2017). The Prime Minister and the Minister of the Economy then officially announced the project at a press conference, and a Memorandum of Understanding (MoU) was signed between Google (represented by LB Technology S.à.r.l), the central government, and Bissen.

Following the purchase of the site, Bissen initiated the necessary spatial planning procedures. The first procedure entailed modifying its general development plan (*Plan d'aménagement général*, PAG). In Luxembourg, the PAGs detail municipal land-use zoning regulations. At the time of its purchase, the site intended for the DC was farmland, a 'Green Zone' (*Zone Verte*). In order to allow the construction of a DC on the plot, the land had to be redesignated to 'Special Zone - DC' (*Zone spéciale - Datacenter*)—a change that needed a first 'provisional' vote and a second 'definitive' vote by the Bissen Municipal Council. At the first vote held in January 2019, all Council members were unanimously in favour (Schartz, 2019).

Between votes, the PAG amendment procedure demanded a 30-day interval during which the proposal was accessible for public comments. During this period, the *Mouvement Ecologique* (MECO), a member group of Friends of the Earth International, formally opposed the reclassification (MECO, 2019), arguing that there was insufficient evidence attesting to the long-term benefits of the project that would warrant the PAG amendment. MECO also raised concerns over the lack of details regarding the DC's energy and water consumption needs. At the same time, two citizens' initiatives—Pro-Bissen and Un der Atert—began raising awareness about the downsides of DCs. Those living closest to the site became worried that they would be impacted by the noise generated by the DC. Bissen then received 76 objections to the proposed PAG amendment.

On the day of the second vote held in June 2019, Bissen inhabitants protested in front of the town hall. This time, only four out of eleven Council members voted in favour. These included the CSV mayor and three of his associate party members. Meanwhile, two other CSV members voted against the amendment leading to internal conflicts in the party and to the resignation of the mayor and two supporting party members. Nevertheless, the PAG amendment process went forward as five Council members had abstained. Meanwhile, MECO lodged a complaint with the Ministry of Home Affairs (MoHA) opposing the reclassification. Their complaint was rejected on the basis that further information would be provided at a later date along with the Environmental Impact Assessment (EIA). While MECO appealed, they eventually lost the case in 2022.

The first procedure was concluded and the land was reclassified. MECO next requested access to the MoU, seeking to understand the commitments made by the different parties involved in the DC project. However, even though the Commission of Access to Documents (CAD) approved this request, the MoE and Bissen refused to submit it. Pressing on, MECO appealed to the Administrative Court. Eventually, the MoU was disclosed (only) to the Chamber of Deputies, as the Administrative Court ruled that the document need not be public.

A new mayor was elected in Bissen in October 2019. Google then convened an information session in Bissen that was attended by over 400 people, who were largely unsatisfied with Google's vague responses to their many questions regarding water and electricity consumption, noise and visual impact of the DC.

The second procedure of the approval process was a vote by the Bissen Municipal Council on the Special Development Plan (*Plan d'Aménagement Particuliers,* PAP), which details fine-tuned regulations of building constructions. Yet, the PAP for the Google DC once again provided vague information, only mentioning that the DC would initially require approximately 7% of national electricity consumption and 12% later. The document also provided no estimates regarding water consumption. Bissen received 170 objections to the PAP. Nevertheless, Bissen's vote on the PAP in October 2020 obtained 10 out of 11 votes in favour.

iii. Long periods of silence, signs of progress and general uncertainty

After passing these administrative hurdles, Google fell silent, neither moving forward with administrative procedures nor communicating its intentions. In November 2021, Google announced that it had investment plans for Belgium where it was already operating a DC, leading to speculations in the Luxembourg press about the cancellation of the project in Bissen. By March 2022, MECO had lost both court cases, and Google's silence persisted. When asked whether the company had started the EIA process—the next procedure in the progress of the project—the Minister of the Environment replied that the ministry had not been contacted by Google (RTL Today, 2022).

The PM finally visited Google in March 2023, upon which it was revealed—without providing any specific explanations—that Google no longer considered the DC in Bissen a priority (RTL Today, 2023). Local politicians in Bissen only learned about these developments through the press (Mouzon, 2023). In March 2024, after a new round of general elections and the formation of a new CSV-DP coalition government, the central government announced—again without providing any details—that

talks with Google had resumed (Hansen, 2024). This announcement was again followed by almost a year of silence. These periods of suspension of the Google DC project were not without consequences for Bissen. During this time, major infrastructure works on a 2 km stretch of road prone to accidents were put on hold because of the uncertainty regarding whether the infrastructure required for the DC would need to be incorporated in the spatial plans. In January 2025, the Mayor of Bissen broke the silence by announcing that an agreement had been signed with Google the previous month concerning infrastructure works necessary for the realisation of the DC project (Thinnes, 2025). This agreement was signed while the awaited EIA report is still pending, indicating yet another decision made while important details regarding the impact of the project are unknown.

The suspended failure of Google's DC maintains post-political urban governance

CDCS rightly and timely shed light on DC infrastructure. Affirming the MCTDUC (2024), Rone (2022), Brodie (2020), and Monstadt and Saltzmann (2025), the Luxembourg case also demonstrated that DCs bring numerous socio-environmental and political challenges, broadly and for urban development in particular. Ultimately, the tale of Google's DC in Luxembourg was one where Google dangled promises of digital economic dreams before Luxembourg political leaders, while leaving local politicians, practitioners, and publics unable to ascertain the extent of their resource needs or even commitment. It is a story that has implications beyond Luxembourg itself.

The saga of the Google DC in Luxembourg demonstrated how Google and big politics work, seemingly driving a mutually beneficial post-political agenda, borrowing on Mouffe (2005). Reminiscent of the Google-government interactions in Toronto (Carr and Hesse 2020), Google's DC project aligned with the Luxembourg central government's goals of advancing economic growth through digitalization, 'reproducing the sense of promise that [would come with] a large-scale, global investment opportunity' (Brodie and Velkova, 2021: 877) and thus symbolizing a new economic pillar in Luxembourg. Both Google and the central government acted post-politically by maintaining

secrecy (code names, shell companies, MoUs), and deeming it unnecessary to inform the inhabitants of Bissen about how the DC would affect them and their neighbourhoods.

Referring to the policy mobilities literature (McCann and Ward, 2011; Peck and Theodore, 2010), when the mobile traveling development agenda arrived in Luxembourg, it was clearly met with a governance context specific to it. This paper focused on Temenos and Lauermann's (2020) concept of 'policy failure'—a branch of the mobile policies literature—introducing a new kind of failure that we term 'suspended failure', whereby the mere notion of failure through prolonged uncertainty exposed deficits in urban governance. Both Lauermann (2015) and Chang (2017) argued that failed projects live on; In Luxembourg, failure operated like an open question mark. The empty field in Bissen represented this special kind of failure: With a recurrent pattern of small steps forward followed by periods of silence on the part of Google, the project appeared simply suspended. The story of the Google DC in Luxembourg showed that development can be shrouded in uncertainty, appearing as suspended failure, posing challenges for urban planning practitioners, as well as activists and local stakeholders. Stalls, delays and strategic opacities fed this ongoing post-political condition, ultimately occluding their concerns.

Suspended failure and the consequences for urban planning and development

Numerous scholars have illuminated the nexus of technological development and digital cities (Cugurullo et al., 2023; Karvonen et al., 2019). Adding to these debates, it appears that DCs will bring new challenges as pressure on DC development has surged in 2025: Even if just a fraction of the DCs that tech CEOs claim that they need are built, more DC's are on the horizon. Clearly too, as resource-intensive infrastructures, their planning and development will pose new challenges for city administrations and planning practitioners who coordinate land use and organize underlying infrastructures. So far, hyperscale DCs developed by Google have unfolded within the context of

post-political urban governance, and the case of Luxembourg revealed a particular routine of failure (Temenos and Lauermann 2020). 'Suspended failure' is thus instructive in several ways.

First, 'suspended failure' benefited Google. For one, it left the door open for negotiations: Google could continue assessing the socioeconomic landscape, collecting research and data, and adapting their private business objectives, all while avoiding firm commitments. Throughout the process Google passed key administrative hurdles, obtained a number of approvals, and thus retained the site on stand-by should it decide to pursue the project further. Also, the secrecy may have boosted Google's leverage over negotiations: Considering that a small country like Luxembourg could arguably only support one large DC campus, suspension may have prevented competitors.

Second, 'suspended failure' served to disrupt local politics. Google entered Luxembourg via permission from central governing officials, and negotiations excluded local stakeholders, producing an overall asymmetry of knowledge and decision-making with big politics and big business possessing critical pieces of information on the one hand, and local communities lacking these on the other. Generating significant media attention (another kind of pressure), the project prompted a shift in the local municipal government, generated considerable amounts of work for all local actors involved—costing them time, energy and money—and diverted their attention away from other needs.

Third, 'suspended failure' exposed the shortcomings of planning procedures, designed to safeguard the environment, modes of civic participation, and coherent spatial development (Albrechts et al., 2003). Spatial planning instruments (e.g. information sessions, plans, assessments, meetings, votes), designed ostensibly to improve participation were engaged, but to little avail. This paralysis of the available palate of planning instruments and procedures in Luxembourg perhaps throws the MCTDUC's (2024) call for improving reporting standards into question. The set of urban planning procedures available to Bissen that were designed to ensure coherent, democratic and participative land-use planning were insufficient in guaranteeing meaningful transfer of information and

safeguarding the accountability of decision-makers towards their constituents. This raises questions about reporting and planning procedures, and how exactly they should be designed.

Fourth, 'suspended failure' produced prolonged uncertainty for local stakeholders—not least, planning officials. Even in the best of circumstances, the construction of a DC would demand the planning and distribution of related urban infrastructures. That is, DCs impact the spaces and flows of urban spaces, which require coordination and planning: Cables need to be laid, roads paved, water channelled, labour housed, their children educated, and public transport along with other services provided. These, in turn, demand the procurement of construction materials, and specialised labour such as engineers and urban planners. The latter are those in charge of coordinating land use, the design of optimal spatial layouts reflecting coherent spatial logics, and managing the various stakeholders (Albrechts et al. 2003; Carr 2021). These tasks become rather difficult if decision-makers in these domains are not informed about whether the DC will be built at all.

Fifth, 'suspended failure' ensured that the entire process of bringing a Google DC to Luxembourg remained post-political. The numerous delays, deliberate uncertainties, silences, and opacities all functioned to sustain an ongoing post-political condition. The story of Luxembourg is thus a cautionary tale. DCs are the critical infrastructures that, first and foremost, global digital corporations require in order to maintain their technologies, grow their assets, and retain dominance over markets and profits: In short, they need DCs to build their business. Yet the arrival of a DC is not trivial for people and places. DCs are not weightless: DCs matter (Monstadt and Saltzman, 2025). They involve the embodied inputs of people (labour, politicians, land use stakeholders and planners), material resources (construction materials, natural resources), and impact the spaces and flows of social worlds. But that is not all: The story of Luxembourg shows that DCs have the potential to steamroll practices and routines of local governance itself. As pressure for more DCs continues to rise—in response to the accelerating demands of AI infrastructural needs for example—we should all be concerned.

Acknowledgements

The authors thank the Luxembourg National Research Fund for supporting this research. We are also grateful to Prof. Markus Hesse, the editors, and the reviewers for their insightful and constructive feedback to previous versions of this paper. Thank you for the dialogue!

Declaration of conflicting interests

There is no conflict of interest in pursuing this research. The authors have neither financial interest nor do they receive any benefit as a result of this research.

Funding

This work was funded by the Luxembourg National Research Fund (grant number C-C20/SC/14691212/DIGI-GOV).

ORCID iDs

Constance Carr 0000-0003-1491-536X

Karinne Madron 0000-0002-9201-7904

References

Ahlborn P, Allegrezza S, Bliek F (2016) *The Third Industrial Revolution Lëtzebuerg*. Available at: https://www.troisiemerevolutionindustrielle.lu/wp-content/uploads/2016/11/TIR-Strategy-Study_Short.pdf (accessed 7 March 2024).

Affolderbach J and Carr C (2016) Blending scales of governance: Land-use policies and practices in the small state of Luxembourg. *Regional Studies* 50(6): 944–955.

Albrechts L, Healey P and Kunzmann KR (2003) Strategic spatial planning and regional governance in Europe. *Journal of the American Planning Association* 69(2):113–129.

Alphabet Inc. (2024) Quarterly Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934. For the quarterly period ended June 30, 2024. Available at: https://abc.xyz/assets/ae/e9/753110054014b6de4d620a2853f6/goog-10-q-q2-2024.pdf (accessed 17 May 2025).

Bast D, Carr C, Madron K, et al. (2022) Four reasons why data centers matter, five implications of their social spatial distribution, one graphic to visualize them. *Environment and Planning A* 54(3): 441–445.

Beveridge R and Koch P (2016) The post-political trap? Reflections on politics, agency and the city. *Urban Studies.* 54(1): 31–43.

Bingenheimer V (2016) Etwas ganz Großes an der Angel. Available at: https://www.wort.lu/politik/etwas-ganz-grosses-an-der-angel/863208.html (accessed 7 March 2024).

Brenner N, Peck J and Theodore N (2010) After Neoliberalization? *Globalizations* 7(3): 327–345.

Brodie P (2020) Stuck in Mud in the Fields of Athenry': Apple, Territory, and Popular Politics. *Culture Machine* 19(2020): 1–34.

Brodie P (2025) Smarter, greener extractivism: Digital infrastructures and the harnessing of new resources. *Information, Communication & Society* 28(6): 1061-1080.

Brodie P and Velkova J (2021) Cloud ruins: Ericsson's Vaudreuil-Dorion data centre and infrastructural abandonment. *Information, Communication & Society* 24(6): 869–885.

Brownill S and Carpenter J (2009) Governance and 'Integrated' Planning: The Case of Sustainable Communities in the Thames Gateway, England. *Urban Studies* 46(2) 251–274.

Burrell J (2020) On Half-Built Assemblages: Waiting for a Data Center in Prineville, Oregon. *Engaging Science, Technology, and Society* 6(2020): 283–305.

Carr C (2019) Introducing Luxembourg: Ephemeral Sustainabilities. In: Krueger R, Freytag T, Mössner S (Eds.) *Adventures in Sustainable Urbanism*. New York: SUNY Press, pp.137-154.

Carr C (2021) Background on Urban and Regional Planning. In: Brinkmann R (Ed.) *The Palgrave Handbook of Global Sustainability*. Cham: Palgrave Macmillan, pp.1373-1386.

Carr C and Hesse M (2020) When Alphabet Inc. plans Toronto's waterfront: New post-political modes of urban governance. *Urban Planning* 5(1): 69–83.

Carr C and Hesse M (2022) Technocratic urban development: Large digital corporations as power brokers of the digital age. *Planning Theory and Practice* 23(3): 476–485.

Carr C, Bast D, Madron K, et al. (2022) Mapping the clouds: The matter of data centers. *Journal of Maps* 18(1): 106–113.

Castells M (2009) *The rise of the network society.* 2nd Edition. Oxford: Blackwell Publishing.

Chang ICC (2017) Failure matters: Reassembling eco-urbanism in a globalizing China. *Environment and Planning A* 49(8): 1719–1742.

Costa E, Lange PG, Haynes N, et al. (2022) *The Routledge Companion to Media Anthropology*. London: Routledge.

Cugurullo F, Caprotti F, Cook M, et al. (2023) *Artificial intelligence and the city: Urbanistic perspectives on AI*. London: Routledge.

Daub A (2020) *What Tech Calls Thinking*. London: Macmillan.

Dodge M and Kitchin R (2001) *Mapping Cyberspace*. London: Routledge.

Edwards D, Cooper ZGT and Hogan M (2024) The making of critical data center studies. *Convergence* 31(2): 429-446.

Feliba D (2023) In Latin America, data center plans fuel water worries. Available at: https://www.reuters.com/article/idUSL8N3AU1PY/ (accessed 7 March 2024).

Filion P, Moos M and Sands G (2023) Urban neoliberalism, smart city, and Big Tech: The aborted Sidewalk Labs Toronto experiment. *Journal of Urban Affairs* 45(9): 1625–1643.

Fleischer A (2020) Cooling our insatiable demand for data. Hyperscale data centers provide challenges and opportunities for energy use. *Science* 70(6518): 783–784.

Gates B (2024) Bill Gates on "Face the Nation," June 16, 2024. *CBS News*, 16 June2024. Available at: https://www.cbsnews.com/news/bill-gates-transcript-face-the-nation-06-16-2024/ (accessed 11 August 2024).

Google (2024) Environmental report 2024. Available at: https://www.gstatic.com/gumdrop/sustainability/google-2024-environmental-report.pdf (accessed 17 May 2025).

Greenstein S (2018) The technology tel. *IEEE Micro* July/August 2018. Available at: https://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=8430633 (accessed 7 March 2024)

Hansen Y (2024) Google's Luxembourg data centre back on the cards, minister says. Available at: https://www.luxtimes.lu/businessandfinance/google-s-luxembourg-data-centre-back-on-the-cards-minister-says/10119197.html (accessed 1 August, 2024).

Hardacker S (2025) From bytes to bricks: Advocating for a turn toward platform-led infrastructuralization in economic geography. *Progress in Economic Geography* 3(1): 100038.

Hesse M and Wong C (2020) Cities seen through a relational lens. *Geographische Zeitschrift* 108(2020/2): 74–98.

IBM (2025) What is a hyperscale data center? Available at: https://www.ibm.com/think/topics/hyperscale-data-center (accessed 1 February 2025)

Johnson A (2019) Data Centers as infrastructural in-betweens: Expanding connections and enduring marginalities in Iceland. *American Ethnologist* 46(1): 75–88.

Karvonen A, Cugurullo F and Caprotti F (2019) *Inside Smart Cities: Place, Politics and Urban Innovation*. London: Routledge.

Krueger R, Gibbs D and Carr C (2018) Examining regional competitiveness and the pressures of rapid growth: An interpretive institutionalist account of policy responses in three city regions. *Environment and Planning C* 36(6): 965–986.

Lauermann J (2015) Temporary projects, durable outcomes: Urban development through failed Olympic bids? *Urban Studies* 53(9): 1885–1901.

Lefebvre H (1991) *The Production of Space*. London: Blackwell.

Lehuedé S (2022) Big tech's new headache: Data centre activism flourishes across the world. Available at: https://blogs.lse.ac.uk/medialse/2022/11/02/big-techs-new-headache-data-centre-activism-flourishes-across-the-world/ (accessed 7 March 2024).

Léonard N (2019) Le tapis rouge pour Google à Bissen. Available at: https://paperjam.lu/article/le-tapis-rouge-pour-google (accessed 25 July 2024).

Léonard N (2020) The entire government supports Google. Available at: https://delano.lu/article/delano_entire-government-supports-google (accessed 7 July 2024).

Libertson F, Velkova J and Palm J (2021) Data-center infrastructure and energy gentrification: perspectives from Sweden. *Sustainability: Science, Practice and Policy* 17(1): 152–161.

Luxembourg Times (2017) Google gives Luxembourg an ultimatum. Available at: https://www.luxtimes.lu/luxembourg/google-gives-luxembourg-an-ultimatum/1213630.html (accessed 7 March 2024).

Malecki E (2002) The economic geography of the internet's infrastructure. *Economic Geography* 78(4): 399–424.

Mayer V (2020) From peat to Google power: Communications infrastructures and structures of feeling in Groningen. *European Jouranl of Cultural Studies* 24(4): 901–915.

Mayer V, Velkova J (2023) This site is a dead end? Employment uncertainties and labor in data centers. *The Information Society* 39(2): 112–122.

MacLeod G (2013) New Urbanism/Smart Growth in the Scottish Highlands: Mobile Policies and Post-politics in Local Development Planning. *Urban Studies* 50(11): 2196–2221.

McCann E and Ward K (2015) Thinking through dualisms in urban policy mobilities. *International Journal of Urban and Regional Research* 39(4): 828–830.

McCann E and Ward K (eds) (2011) *Mobile urbanism: Cities and policy making in the global age.* Minneapolis, MN: University of Minnesota Press.

MCTDUC [Minderoo Centre for Technology and Democracy, University of Cambridge] (2024) Written evidence submitted to the European Commission consultation on digital infrastructure. Available at: https://www.mctd.ac.uk/wp-content/uploads/2024/07/Response-to-European-Commission-Consultation-on-Digital-Infrastructure-June-2024.pdf (accessed 10 July 2024).

MfD [Ministry for Digitalization] (2024) The Ministry. Available at: https://mindigital.gouvernement.lu/en/le-ministere.html (accessed 11 August 2024).

MoE [Ministry of the Economy] (2019) The data-driven innovation strategy for the development of a trusted and sustainable economy in Luxembourg. Available at: https://gouvernement.lu/dam-assets/fr/publications/rapport-etude-analyse/minist-economie/The-Data-driven-Innovation-Strategy.pdf (accessed 6 March 2024).

Monstadt J and Saltzman K (2025) How data centers have come to matter: Governing the Spatial and Environmental Footprint of the 'Digital Gateway to Europe'. *International Journal of Urban and Regional Research.*. Epub ahead of print 10 February 2025. DOI:10.1111/1468-2427.13316

Moore K (2022) Minister of the economy Franz Fayot on Luxembourg's transition towards a green economy. Available at: https://www.forbes.com/sites/karlmoore/2022/07/01/minister-of-the-economy-franz-fayot-on-luxembourgs-transition-towards-a-green-economy/ (accessed 8 March 2024).

Mouffe C (2005) *On the Political*. London: Routledge.

MECO [Mouvement Ecologique] (2019) Nein zur geplanten 'Zone Spéciale – Datacenter' in Bissen! Available at: https://www.meco.lu/de/blog/documentcenter/nein-zur-geplanten-zone-speciale-datacenter-in-bissen-gegen-eine-umklassierung-des-areals-ohne-vorherige-klaerung-der-offenen-fragen-aus-umweltsicht-und-den-nachweis-des-r/ (accessed 7 March 2024).

Mouzon M (2023) Ce que la décision de Google signifie pour Bissen. Available at: https://www.virgule.lu/luxembourg/ce-que-la-decision-de-google-signifie-pour-bissen/1327007.html (accessed 8 March 2024).

Nadella S, Hood A and Iverson B (2024) Microsoft Fiscal Year 2024 Fourth Quarter Earnings Conference Call. Available at: https://www.microsoft.com/en-us/investor/events/fy-2024/earnings-fy-2024-q4 (accessed 13 June 2025).

Peck J and Theodore N (2010) Mobilizing policy: Models, methods, and mutations. *Geoforum* 41(2): 169–174.

Pichai S (2024) Google CEO Sundar Pichai and the Future of AI. The Circuit. Available at: https://www.youtube.com/watch?v=5puu3kN9l7c (accessed 24 July 2024).

Ram A (2017) Potato farmer uprooted for €1bn Google investment. Available at: https://www.ft.com/content/0ab10a40-9ee5-11e7-8cd4-932067fbf946 (accessed 24 July 2024).

Rone J (2022) The politics of data infrastructures contestation: Perspectives for future research. *Journal of. Environmental Media* 3(2): 207–214.

Rone J (2024) The shape of the cloud: Contesting data centre construction in North Holland. *New Media & Soc*iety 26(10): 5999-6018.

Rosen J and Alvarez León LF (2022) The Digital Growth Machine: Urban Change and the Ideology of Technology. *Annals of the American Association of Geographers* 112(8): 2248–2265.

RTL Today (2022) Ministry of Environment has had "no contact" with Google. *RTL Today*, 8 December. Available at: https://today.rtl.lu/news/luxembourg/a/2002404.html (accessed 23 September 2024).

RTL Today (2023) The data center in Bissen is currently not a priority for Google. *RTL Today,* 15 March. Available at: https://today.rtl.lu/news/luxembourg/a/2041381.html (accessed 7 March 2024).

Schartz N (2019) Google à Bissen: le feu vert unanime du conseil communal. Available at: https://www.virgule.lu/economie/google-a-bissen-le-feu-vert-unanime-du-conseil-communal/255374.html (accessed 7 March 2024).

Sinner M (2017) Vom Ackerbau zur Serverfarm. Available at: https://www.land.lu/page/article/145/333145/FRE/index.html (accessed 1 August 2024).

Swisher K and Galloway S (2025) DeepSeek Shockwaves, Nvidia's Plunge, and Target's DEI Rollback. Pivot. Available at: https://podcasts.apple.com/us/podcast/deepseek-shockwaves-nvidias-plunge-and-targets-dei/id1073226719?i=1000686193261. (accessed January 31, 2025)

Taskale AR (2025) Silicon Valley: from Tech Utopia to Reactionary Dystopia. Available at: https://www.goldperc.uk/project_posts/silicon-valley-from-tech-utopia-to-reactionary-dystopia/ (accessed January 31, 2025)

Temenos C and Lauerman, J (2020) The urban politics of policy failure. *Urban Geography* 41(9): 1109–1118.

Thinnes D (2025) Datenzentrum: Warum Bissen mehr als 13 Millionen Euro von Google erhält. Available at: https://www.wort.lu/luxemburg/zentrum/datenzentrum-warum-bissen-mehr-als-13-millionen-von-google-erhaelt/33590772.html (accessed 28 January 2025)

Tranos E and Gillespie A (2011) The urban geography of Internet backbone networks in Europe: roles and relations. *Journal of Urban Technology* 18(1): 35–50.

Vanolo A (2014) Smartmentality: The Smart City as Disciplinary Strategy. *Urban Studies* 51(5) 883–898.

Weiner E (2022) The golden child who loves to fail. Available at: https://www.bbc.com/travel/article/20160919-the-golden-child-who-loves-to-fail (accessed 28 January 2025).

Wiig A (2015) IBM's smart city as techno-utopian policy mobility. *City* 19(2-3): 258–273.

Wilson J and Swyngedouw E (2014) *The Post-Political and its Discontents: Space of Depoliticisation, Spectres of Radical Politics*. Edinburgh: Edinburgh University Press.

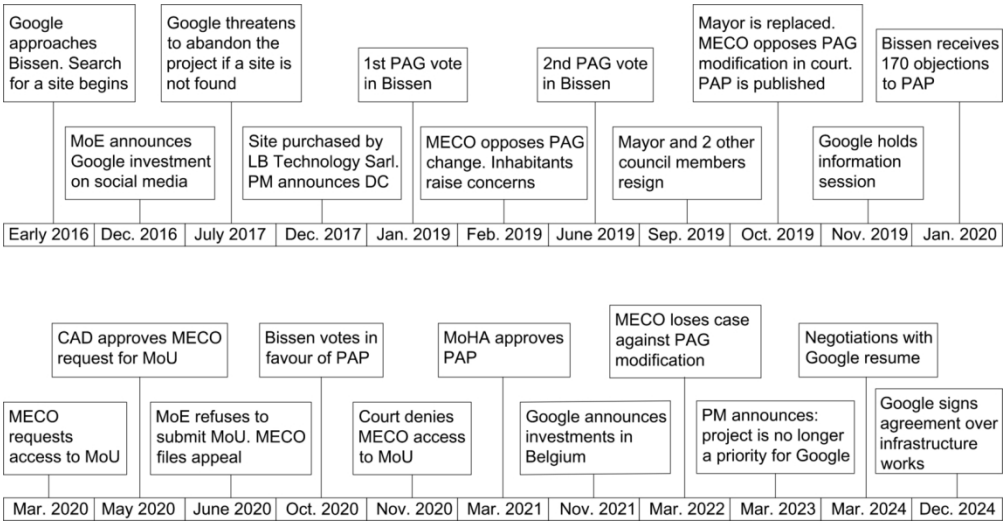

Figure 1. Timeline of the Google DC project in Luxembourg

284x147mm (150 x 150 DPI)