Rathenau Instituut

Making better decisions about data centres (summary)

This is the summary of the report *Making better decisions about data centres; the need for a broad perspective on digital infrastructure*. This report was published on rathenau.nl on April 14, 2022 (available in Dutch only).

Summary

In December 2021, the public and political debate about data centres in the Netherlands gained momentum. The renewed interest in the topic was caused by the plans of Facebook's parent company Meta to build a so-called hyperscale data centre in Zeewolde, a small town in the province of Flevoland. To facilitate this large-scale data centre, the municipal council had voted to alter the zoning plan for the area in question (which at the time was destined for agriculture). In response to this decision, journalists, opinion makers, and politicians debated the added value, necessity, and desirability of such data centres. Concerns arose about the balance between the required energy and raw materials for data centres andtheir social and economic value. In addition, decision-making processes around the establishment of data centres were criticised.

This report examines both the social significance of data centres and the decision-making processes surrounding their establishment. It explains the nature of data centres and how they operate, which issues are involved in the data centre siting discussions, and how these issues are currently governed. The analysis is based on press reports, records of council meetings, and parliamentary debates, policy documents, and scientific and technical literature. Data from interviews with experts and stakeholders was used as additional background information, to bring different perspectives into the analysis, as well as to aid interpretation. The analysis culminates in five recommendations for good public governance of the digital infrastructure.

Data centres in the digital infrastructure
Chapter 1 explains what data centres are, what functions they fulfil, and how they are evolving. The following three assumptions form the basis of the chapter.

- Data centres can be very different from one another. Arguments in the discussion can therefore be either more or less relevant, depending on the characteristics of the data centre in question.
- Data centres are part of a larger digital infrastructure, which also consists of other physical components (such as network cables and transmission towers). In order to sell and consume digital products and services, people and organizations make use of all these interconnected components (in this sense, they are all part of a kind of

ecosystem). Therefore, when determining the social significance of data centreswe should not view them in isolation.
- The digital infrastructure is linked to other infrastructures and facilities. For example, those related to energy. This creates interactions at different scales: local, regional, national, and even global.

A range of issues

In chapter 2 we take stock of the issues involved in the discussion about data centres. The public and political debate show that different values and interests are at stake in the establishment of data centres. There are issues that cluster around values pertaining to sustainability, finance and economics, and security. Sometimes these values are in conflict with each other. We explore how the issues mentioned are relevant to different types of data centres, within larger (digital) infrastructures and ecosystems, and on different geographic and governance scales.

Issues of sustainability concern, among others, the impact of different types of data centres on basic utilities and goods, such as energy, water, and space. For example, there is a debate about how the establishment of data centres could put pressure on the availability of such goods – which are, after all, not inexhaustible. In addition, there is a discussion about the interactions between the digital infrastructure of which data centres are a part, and the technical infrastructures needed to provide basic services (such as energy grids). The chapter also addresses the efforts that are already being made to create a more sustainable way ofoperating data centres.

There are roughly two kinds of financial and economic issues. On the one hand, the debate focuses on what the establishment of data centres affords to various parties – either directly in the form of revenue for companies, individuals, or governments, or more indirectly, as a stimulus for the local, regional, or national economy. For example, to what extent do new data centres contribute to employment opportunities or attract other economic activity to a given region? New data centres can also meet the digital needs of existing businesses. How large are those benefits and to whom do they accrue? On the other hand, the discussion focuses on what data centres cost the community, and how those costs compare to the financial or economic benefits. The answers to these questions vary by type of data centre, and how it fits within the larger digital ecosystem.

The Internet is a worldwide infrastructure that does not stop at our national borders. As a result, data centres, transmission towers, and cables may be subject to geopolitical wrangling. Concerns about concentrated market power, data protection, and digital security all play a part in this geopolitical game. In a global context, the Netherlands and Europe have both shared and divergent interests. It is not always easy to determine how these interests are best served. Calls are often made for more digital sovereignty – but that is an ambiguous concept.

Public governance of issues surrounding data centres

In chapter 3 we describe the governance of issues concerning data centres as it currently takes shape at different levels of government: national, provincial, and municipal. Which

issues are sufficiently addressed in the decision-making processes around the siting of data centres? Which parties are involved in the decision-making? Is there any policy underpinning the decision-making, and how does it relate to the public debate? Are governance initiatives at different levels of government mutually aligned?

We define public governance as the collective management of societal problems. Multi-level governance implies that in this process, collaboration takes place across administrative boundaries: vertically between municipalities, provinces, and the national government, but also horizontally, between municipalities or regions amongst each other and with the involvement of stakeholders relevant to a given level of government. In dealing with issues surrounding the establishment of data centres, collaboration currently takes place at various locations and involving different levels of government. A growing number of issues are being addressed in the decision-making processes, and at multiple administrative levels policies are being developed to manage the establishment of data centres. Yet even so, the existing forms of multi-level governance are insufficient to adequately govern the various issues discussed in chapter 2.

There are three reasons for this.

- Within the current forms of multi-level governance, not all relevant issues and interests are systematically considered in the decision-making process. Financial and economic issues are clearly institutionalised; other issues, however, are institutionalised to a far lesser extent.
- The existing national policy frameworks for the establishment of data centres do not provide sufficient guidance for implementation at lower levels of government. Among other reasons, the existing policy suffers from fragmentation: it focuses on individual components of the digital infrastructure (such as access networks or data centres, but not their interrelationships). In addition, current policy lacks a clear stance on the goals that the growth of the data centre sector should serve.
- The roles that different parties play in the decision-making process are not clear. For citizens and their political representatives it is difficult to judge how different interests are weighed against each other as decisions are being made. The participation of various stakeholders is not well-organised.

Recommendations

In chapter 4 we make five recommendations to the cabinet for good public governance of issues surrounding data centres. To this end, we call for the development of a national policy framework for the digital infrastructure in the Netherlands, with broad societal support. We make suggestions for the development of this policy and for the process surrounding it. We also stress the importance of societal debate and reliable knowledge.

The recommendations in short:

1. Develop an integrated, national policy framework for the Dutch digital infrastructure.
2. Initiate a broad societal benefit-and-necessity discussion to fuel policy.
3. Use the principles of Dutch energy policy as a model for digital infrastructure policy.
4. Safeguard the democratic governance of the digital infrastructure.

5. Establish a research programme to generate knowledge for public debate and digital infrastructure policy.

Recommendation 1 – Develop an integrated, national policy framework for the Dutch digital infrastructure

In the upcoming months, the Dutch cabinet plans to develop a national vision on the siting of hyperscale data centres. The Rathenau Instituut advocates to make this vision part of an integrated, national policy framework for the whole Dutch digital infrastructure. Data centres – including hyperscales – do not perform in isolation. Moreover, there are many different issues at play simultaneously. An integrated policy framework, therefore, requires coordination across multiple departments.

Recommendation 2 – Initiate a broad societal benefit-and-necessity discussion to fuel policy

An integrated policy framework should start by answering the question what kind of digital infrastructure the Netherlands needs, instead of the question where in the country data centres can be sited. Which social and economic needs should the Dutch digital infrastructure meet? Formulating this point of departure requires a broad societal debate on the benefits and necessity of data centres. Values are central to this discussion; citizens should therefore have at least as much input as administrators or experts. However, the national government should play a coordinating role in getting the debate going.

Recommendation 3 – Use the principles of Dutch energy policy as a model for digital infrastructure policy

Although the digital infrastructure is almost entirely owned by private parties, it has become so crucial to our economic and social activity that it has gained the characteristics of a utility: an essential service of public interest. In the governance of this infrastructure, it is public values that should provide direction. Our research shows that relevant public values for the digital infrastructure are very similar to those underlying Dutch energy policy. Here too, reliability and safety, but also affordability, sustainability and good spatial integration are important values. Energy policy could therefore serve as a model for a national digital infrastructure policy.

Recommendation 4 – Safeguard the democratic governance of the digital infrastructure

Given the public interests at stake, our digital infrastructure should also be governed in a democratic way. This means that the national government and lower authorities should be able to set conditions for its design and use, and that elected representatives of the people at various governmental levels can oversee those conditions. This requires efforts to curb the power of large technology companies. In the European context, the Netherlands is already contributing to such efforts. But democratic governance also calls for more transparency in the national, regional, and local public and political debate and decision-making surrounding the siting of components of our digital infrastructure.

Recommendation 5 – Establish a research programme to generate knowledge for public debate and digital infrastructure policy

In order for the public and political debate about data centres to be effective, there must be sufficient reliable information available. The current debate is still plagued by uncertainties in several domains. This threatens to frustrate the formulation of policy for our digital infrastructure. The national government should set up a research programme that meets the concrete needs in the domain of knowledge for policy.

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