

## From digital dependence to digital autonomy – executive summary

Growing concerns are being expressed in journalism, politics and academia about the power of big tech companies and their increasing influence on society. Public, political and academic debates often focus on the impact of social media platforms on the functioning of democracies, including elections and other democratic processes. There are also concerns about the influence of big tech in public domains such as education and healthcare. The financial sector likewise warns of the influence exerted by big tech companies.

The Rathenau Instituut has therefore conducted research into the factors that explain the digital dependence of Dutch society, the consequences and risks associated with it, and ways of building digital autonomy. Below you will find an English translation of the research findings that are also relevant beyond the Netherlands.

### 1 Behind the power of big tech

In a **background study**, we map out the explanatory factors behind the influential and unique position of big tech companies in our society. Politicians and policymakers can draw on this study to examine how current and proposed policies aimed at curbing the power of big tech address the underlying factors that sustain that power.

The research project *Eurostack – A European Alternative for Digital Sovereignty* shows that big tech companies have become crucial in key components of the digital stack. The stack is a conceptual model that presents in a single overview the full range of raw materials, chips, software and hardware required to make IT systems function. The power of big tech can be described with reference to the stack: big tech companies have obtained a central position in multiple layers of the digital stack. It is no coincidence that the European Commission has designated several providers of widely used digital services in Europe as ‘**gatekeepers**’.

Although the services of big tech firms differ from one another, they share common features in terms of power concentration and dynamics. In our report, we examine the factors that explain how big tech companies have acquired this central position in the digital stack, and the dynamics that enable this position to grow ever stronger: what lies behind the power of big tech companies?

There are three ways in which big tech companies have obtained, strengthened and can further expand their position.

#### 1. Self-reinforcing dynamics

Big tech companies have benefited from self-reinforcing effects through their original services, such as Google with Google Search and Meta with Facebook. These self-reinforcing effects include network, learning and scale effects. A platform becomes more valuable as it attracts more users. As a platform gains more users, it also gains more insight into user data, enabling it to offer better services. Because a digital platform

operates with very low marginal costs, it can scale up easily. These effects cause established platforms to grow ever larger, leading to a winner-takes-all dynamic.

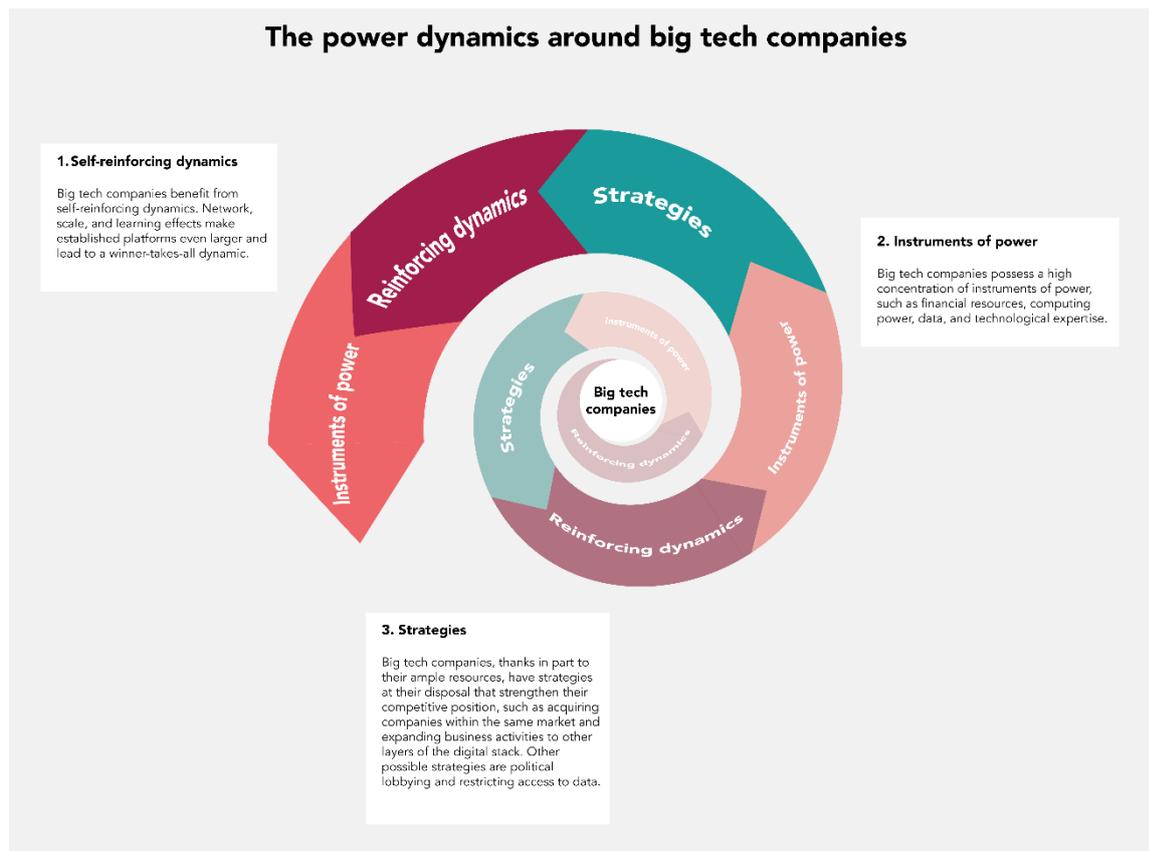
## 2. Instruments of power

The companies possess a high concentration of power resources, such as financial means, computing power, data and technological expertise. These resources reinforce their position and give them a favourable starting point for expanding into new markets.

## 3. Strategies

Thanks to these instruments of power, the companies are able to deploy strategies that enhance their competitive position, such as horizontal and vertical integration: acquiring other companies within the same market and expanding business activities into other parts of the production chain. The shielding of data and the use of political influence can also be employed to consolidate and further expand their position.

The combination of these factors results in a significant concentration of power in the hands of a small number of companies. This concentration of power is felt not only in markets, but also in public domains.



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It is unlikely that this form of power concentration will diminish on its own. The rapprochement between the Trump administration in the United States and big tech

companies, combined with the increasing use of AI in society, is expected to further strengthen the position of big tech.

The power held by big tech differs from that of other multinational corporations due to the scale at which these companies operate, the financial resources they possess, and the knowledge they derive from large volumes of high-quality datasets. Another distinctive feature is that these companies are able to steer the behaviour of billions of users through the design of their digital services. Through social media, search engines, video platforms and generative AI applications, several big tech companies even exert a direct influence on the shaping of public debate.

By describing the central position of big tech, we highlight a systemic issue. The ability of big tech companies to influence markets, the economy and society calls for checks and balances.

## 2 What's at stake?

In a [visual overview](#), we present signals of digital dependence across various Dutch public domains: education, science, healthcare, government, and news media & journalism (in Dutch).

Public organisations in these domains are digitising predominantly with the help of big tech services. As a result, these organisations are becoming increasingly dependent on big tech companies to carry out their public tasks and responsibilities. This dependence is problematic, because it gradually reduces the ability of public organisations to maintain control over their core processes. In other words, they lose their autonomy. This makes our society vulnerable.

## What's at stake?



**Acute threats**

- U.S. government can demand access to systems and data.
- The dependence on one party makes us vulnerable to hackers and outages.
- Dependence can serve as a geopolitical pressure device.



**Loss of control over core processes**

-  There is insufficient insight in technology
-  Organisations' technical expertise is declining
-  Control over how systems function is diminishing
-  The range of available options is narrowing
-  Negotiating power is limited



**Gradual change in direction**

Organisations that choose big tech services gradually hand over control of core processes. As a result, control over public domains shifts slowly but surely to these companies, without this being a conscious choice.

**What can we do?**

Read our full research on digital dependence for options for action (in Dutch): [rathenau.nl/nl/digitale-afrekening](https://rathenau.nl/nl/digitale-afrekening)

This visual is based on journalistic and scientific sources. See for accountability (in Dutch): [rathenau.nl/nl/verantwoording-praatplaat](https://rathenau.nl/nl/verantwoording-praatplaat)

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The above figure summarises the consequences of increasing dependence on big tech within the public domain. This overview is intended to inspire and stimulate discussions on digital dependence in public domains among relevant stakeholders. The consequences of digital dependence in public domains apply not only to the Netherlands, but also to other highly digitalised European societies.

### 3 Charting a course towards digital autonomy

How can we reduce society's digital dependence on big tech companies and increase its digital autonomy? We offer a set of possible courses of action to help build digital autonomy within public domains. Although our report is written for Dutch stakeholders, it also contains several insights that may be useful for other European member states and for the European Union as a whole.

#### 3.1 Three strategies

In its research on digital dependence, the Rathenau Instituut examined, among other things, the ways in which governments and public organisations seek to address their one-sided dependence relationship with big tech companies. We distinguish three strategies:

1. Restricting the power of big tech companies;
2. Increasing the power of public organisations in relation to big tech companies;
3. Increasing the independence of public organisations from big tech companies.

Of these strategies, only the third directly focuses on building digital autonomy. **To become less dependent on big tech companies, genuine alternatives must be developed and actually adopted.**

Reducing dependence on big tech companies is not a goal in itself. The goal is to ensure that public organisations remain in control when carrying out their societal responsibilities. Investing in alternatives to big tech services helps to spread the risks associated with digital dependence and strengthens digital autonomy.

#### 3.2 Courses of action in four categories

We distinguish four categories for building digital autonomy.

##### 1. Procure differently

By choosing more frequently for alternatives to big tech services, governments and public organisations can reduce their dependence on big tech companies and stimulate the growth of alternative digital services.

### Relevant recommendations:

- Develop a new, comprehensive framework for evaluating the procurement of digital products and services, in which digital autonomy is a criterion and the procurement of IT services is treated as a strategic (instead of operational) decision;
- Choose not only open-source software, but also open companies, ensuring that source code remains accessible to everyone and no exclusive rights are established in order to avoid vendor lock-ins;
- Create a transparent overview of the costs associated with digital services, including the costs of switching providers and potential price increases;
- Deploy procurement power in a coordinated manner to incentivise alternative providers of big tech services to further develop;
- Maintain in-house IT capacity. It is crucial to have skilled professionals who have a broader skill set than maintenance of big tech services;
- Prepare as a government, public organisation, or public sector for potential IT system failures;
- Make an exit strategy operational: demonstrate the functioning of a realistic exit strategy and conduct periodic reviews;
- Apply procurement policies and the above recommendations also to 'free' services, such as social media and generative AI applications.

## 2. Establish equal conditions

Policymakers can create conditions that encourage the development of alternative offerings for big tech services and make it possible for users to switch to other providers.

- Enforce the Digital Rulebook and competition law. Legislation is only as strong as its enforcement. It is important to implement the Digital Rulebook and competition law decisively and to enforce them strategically. Equip regulators to carry out their tasks effectively, and evaluate the Digital Rulebook for its impact on digital dependence.
- Promote open standards for interoperability and data portability. At the European level, the Digital Markets Act and Data Act already aim to enhance interoperability and data portability. This can be further strengthened, for example by expanding interoperability requirements to cover multiple big tech services and by developing standard contracts that enforce interoperability.
- Explore opportunities within the revision of **European procurement rules** to achieve digital autonomy.

Support the development of standard contracts and templates.

Public organisations would benefit from contract templates that help them procure

alternative digital services. Experts point out that current procurement and purchasing practices often favour big tech services at the expense of alternative providers.

### **3. Invest in knowledge**

By investing in knowledge, better insight is gained into existing dependencies and risks. This helps in formulating the preconditions for digital autonomy.

Relevant recommendations:

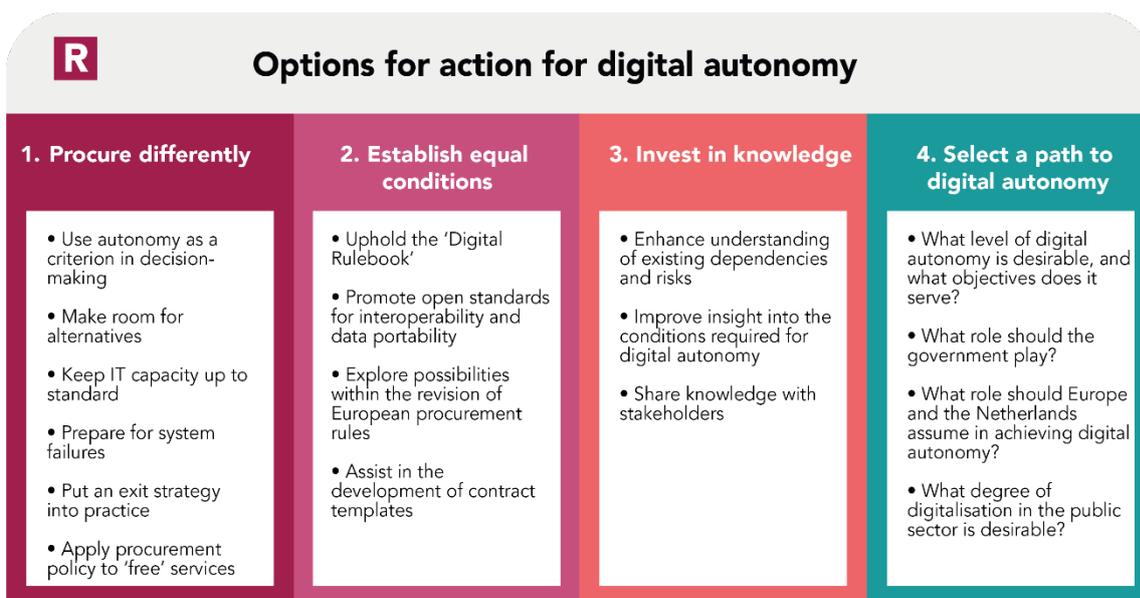
- Increase understanding of existing dependencies and risks.
- Examine how other European member states address digital dependence, such as France and Germany.
- Improve insight into the preconditions for digital autonomy. At the European level, investigate what alternative providers need to deliver their services effectively and what barriers they encounter (in the Netherlands, a permanent consultation structure for exchange with the cloud sector has recently been established (*Kamerstukken II, 36564, nr. 3, 2024*)). We also recommend that the European Commission further explores ways to better utilise or strengthen competition law to curb the power of big tech companies.
- Share knowledge with stakeholders, for example by establishing a knowledge base, following the model of the Open Source Program Office at the Dutch Ministry of the Interior, aimed at resolving internal bottlenecks in the use of open source services.

### **4. Select a path to digital autonomy**

This is an invitation to policymakers and society to further reflect on the various paths towards digital autonomy. Opinions differ on the potential solutions. Defining a path to digital autonomy requires political and societal debate. The following questions are central to this discussion:

1. What level of digital autonomy is desirable? What goal is intended to be achieved with it?
2. What role should governments and markets play in realising this ambition?
3. What role should the EU and the Netherlands assume?
4. Which aspects of public services should be digitised in the first place?

Based on the problem analysis in our research, we conclude that preventing new forms of power concentration, including among European players, is an important precondition for achieving digital autonomy.



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## About the Rathenau Instituut

The Rathenau Instituut is an independent knowledge institute strengthening democratic decision-making on science, technology, and innovation. Through research and dialogue we identify ethical and societal issues and promote political and public debate. We look into the impact of science and technology on people's lives, and we research the governance for responsible innovation in a democratic society.

The Rathenau Instituut is located in The Hague, the Netherlands.  
[www.rathenau.nl](http://www.rathenau.nl)

The full study 'From digital dependence to digital autonomy' can be found [here](#) and was published in July 2025. (in Dutch: 'Van digitale afhankelijkheid naar digitale autonomie')