Report for Nasjonal kommunikasjonsmyndighet (Nkom)

A survey of internet-based services and platforms in the Norwegian market

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1 Executive summary

The market for online services is large and complex. Players range from online microbusinesses that sell a handful of products to end-users, to global conglomerates with a broad service portfolio and substantial economies of scale. A few companies, such as Microsoft and Google, are vertically integrated in many areas and hold a presence within most digital service categories. National borders do not pose a significant barrier to entry for many online services, particularly online platforms. In addition, cloud computing services enable rapid scalability as and when demand increases.

These developments have created high value and opportunities, but also challenges. Online platforms and intermediary services can have a major influence on users and their decision-making patterns, and as a response to this shift in power, the EU has adopted the Digital Services Act (DSA) and the Digital Markets Act (DMA).

The regulation imposes a wide-ranging set of new obligations on internet-based platforms and service providers regarding illegal content, transparency in advertising and disinformation. Together, the DSA and DMA form a single set of rules that apply across the European Economic Area. The wide scope of the DSA package means that it will apply to many companies. These companies vary substantially in terms of service offering, location, size and degree of vertical integration.

Analysys Mason has undertaken a survey of internet-based services in the Norwegian market and categorised these according to the DSA. The purpose of the project is to provide an overview of companies and other commercial actors in Norway that are categorised as 'intermediary services' according to the DSA. In the report we refer to this overview as the DSA Database.

We have found no single data source that can identify all relevant companies, and we do not believe that such a source exists. Instead, we based our survey on 21 data sources to identify DSA subjects. These data sources were used to investigate the most popular websites and applications. In addition, we used a manual, bottom-up approach combined with several expert interviews to populate the DSA Database. Surveying the market based on the bottom-up category approach does not, however, ensure a collectively exhaustive list of services that are subject to the DSA.

The DSA database consists of 1565 internet-based services that target Norwegian users. These services are mapped into 34 service classes and five DSA categories. The largest DSA category is 'Mere Conduit' with 423 services, followed by 'Online Platform' with 250 services, and 'Hosting' with 213 services. Also, we found 587 services that we do not believe are subject to DSA and 13 services that we were not able to classify. For each service, we collected data on 12 other attributes such as organisation number and the size of the active user base.

Of the identified services, a significant proportion was duplicate instances, where only the data source differed. For instance, the service Finn.no has seven different rows in the DSA Database, most of which come from different sources. In addition, many of the services belong to larger

conglomerates, which is the case for Finn.no, part of the Schibsted umbrella. Such market dynamics further complicates the landscape and makes the activity of mapping the digital services market even more intricate.

Norwegians are keen users of internet-based services. Compared to other European countries, Norway has a very high internet penetration rate (99%) and high use of social media. Based on this, we believe there are at least three issues that will be important for Nkom for its work with DSA regulation:

- identifying and classifying regulatory subjects
- calibration of the regulatory burden and regulatory regime
- cooperation with EU authorities and other regulatory bodies.

2 Introduction

The internet has been a huge success since its inception more than 40 years ago. Evolving from its initial academic roots, the internet today is a successful but also complex communications ecosystem that underpins the operations of businesses and governments and the social and professional lives of individuals across the globe.

These developments have created high value and opportunities, but also challenges. Online platforms and intermediary services can have substantial influence on users and their decision-making patterns. As a response to this shift in power, the EU has adopted two EU regulations:

- Regulation (EU) 2022/2065 commonly referred to as Digital Services Act (DSA)
- Regulation (EU) 2022/1925 Digital Markets Act (DMA).

Together, the DSA and DMA form a single set of rules that apply across the European Economic Area (EEA). It is important to note that we use 'the DSA package' to refer to the entire legislative package (i.e. both DSA and DMA), while using 'DSA' to refer to the individual DSA act.

The DSA package imposes a wide-ranging set of new obligations on platforms and service providers regarding illegal content, transparency of advertising, and disinformation.

Although the DSA and DMA come as one package, the two legal acts target different digital services with different aims and purposes. While the DSA focuses on creating a set of rules that *all* intermediary service providers must follow, the DMA is focused on promoting fair competition among the largest and most powerful digital platform providers in the European market. Together, the DSA and DMA form a central element of EU's digital strategy.

The purpose of this project is to create a 'DSA Database', which is intended to provide an overview of companies and other commercial actors in Norway that are categorised as 'intermediary services' and/or 'online platforms' according to the DSA.

An intermediary service can be one of three types of services depending on how much of the information provided by the user is stored by the service itself:

- a 'mere conduit service' such as internet service providers and domain registries
- a 'caching service' such as content delivery networks
- a 'hosting service' such as cloud computing and web hosting services (of which 'online platform' is a sub-category).

An online platform is a type of hosting service that stores and disseminates information to the public as a central feature of the service provided. The European Commission expressly states that social networks, online marketplaces, app stores, online travel and accommodation websites, content-sharing websites and collaborative economy platforms qualify as online platforms. In a Norwegian

context, online forum Kvinneguiden.no and the marketplace Finn.no are examples of online platform whereas the comments sections at vg.no are not.

The report is structured in five parts:

- Chapter 3 introduces important concepts and definitions in the DSA
- Chapter 4 describes the methodology we used to populate the DSA Database
- Chapter 5 documents findings from the study
- Chapter 6 provides European benchmarks
- Chapter 7 discusses issues that are likely to be important for Nkom's work with DSA regulation
- Chapter 8 (Annex 1) introduces the important concepts and definitions in the DMA

3 Intermediary services

3.1 The purpose of the Digital Services Act

The Digital Services Act (DSA) is a targeted set of uniform and mandatory rules that applies to providers of intermediary services with a substantial connection to the EU. In includes different provisions for different categories of intermediary services. The purpose of the DSA is to give better protection to internet users, establish transparency and accountability and provide a single, uniform framework across the EEA. The DSA creates rules for a "safe, predictable and trusted online environment that facilitates innovation and in which fundamental rights […] are effectively protected."[1]

The DSA builds on the e-Commerce Directive (Directive 2000/31/EC) adopted in 2000, which is the foundational legal framework for online services in the EU. Much has changed in the online sphere since the turn of the millennium. Cross-border information flow and trading have increased and new opportunities for innovation and consumers have emerged. However, certain services have been subject to accusations of abusing market power, dissemination of illegal content or sale of illegal goods or services. Furthermore, since the e-Commerce Directive did not specify any cooperation mechanism between member states, the implementation of regulation and of protection for citizens has varied across the EEA. The DSA was therefore created to establish a single overarching regulatory framework that protects all EEA citizens and ensures aligned regulation across the EEA. The DSA entered into force on 16 November 2022 after being published in the EU Official Journal on 27 October 2022. It will be directly applicable from 1 January 2024.[2]

3.2 Types of intermediary services

According to the DSA, 'intermediary services' are certain types of 'information society services' as defined as 'services' in Directive (EU) 2015/1535 Article 1(b). Here, 'services' are defined as "any service normally provided for remuneration, at a distance [without both parties being simultaneously present], by electronic means [sent by wire, radio or optical means or other electromagnetic means] and at the individual request of a recipient of services [service provided through the transmission of data on individual request]."[3] In other words, an intermediary service is a service that is provided remotely, via electronic means and at the specific request of one user (as opposed to being disseminated to many users simultaneously and without prior request). If this intermediary service has a substantial connection to the EU, it will be bound by the legal obligations outlined in the DSA.

1 DSA Article 1(1)

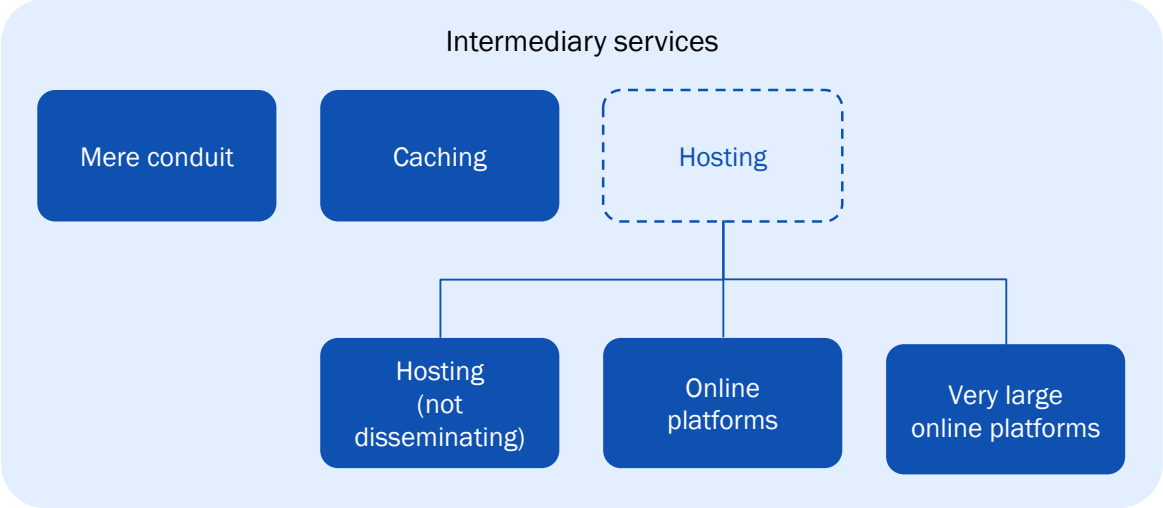
2 Ref: https://digital-strategy.ec.europa.eu/en/policies/digital-services-act-package

3 Directive (EU) 2015/1535 Article 1(b)

There are multiple different categories within the high-level classification of intermediary services. It is important to have clarity as to the definition of such categories of intermediary services because the categorisation determines a service's level of obligation under the DSA.

According to the DSA, intermediary services are one of the following information society services: 'mere conduit', 'caching', and 'hosting' services. Furthermore, under 'hosting' services, the DSA also distinguishes between (non-disseminating) 'hosting' services, 'online platforms' and 'very large online platforms.' 'Online search engine' and 'very large online search engine' are included in the online platform and very large online platform category buckets. This chapter provides and overview of the different types of intermediary services.

Figure 3.1: Types of intermediary services



The classification of intermediary services according to the DSA definitions is not a trivial task. The DSA highlights in Recital 29 that an intermediary service can be provided in isolation, or as a part of another type of intermediary service *or* simultaneously with other intermediary services. In other words, one part of an internet-based service's offering may be classified as an intermediary service and thus be affected by the DSA while another part of that same service may not be. Moreover, the DSA provides that the classification of intermediary services as 'mere conduit', 'caching' or 'hosting' depends solely on the underlying technical functionalities of the service. These technical functionalities may differ between two services that are considered the same type of service, which can lead two online services considered to have the same product offering to be subjected to different levels of DSA obligation. For instance, one direct messaging service may not store (host) any data on its own central servers, and as such merely transmits data from one user to another without any form of data retention. This service would likely be classed as a mere conduit. An apparently comparable alternative direct messaging service may store messaging data centrally instead of using end-to-end data transmission technology. It would therefore qualify as a hosting service or an online platform. Consequently, classifying intermediary services according to DSA's definitions becomes a forensic task. Both a strong technical understanding of how different digital services work and a thorough understanding of the regulation are needed to accurately classify intermediary services.

3.3 'Mere conduit' services

Mere conduit providers are intermediary services that transmit or deliver information to recipients of the service without any alteration or modification of the transmitted content and without involvement in the communication between the senders and receivers. These providers are only responsible for establishing and maintaining the physical and logical infrastructure that enables data transmission. Mere conduit providers can be considered 'passive' service providers. They have the lowest level of obligations under the DSA. (Source: DSA Article 4)

The DSA states that "a 'mere conduit' service [consists] of the transmission in a communication network of information provided by a recipient of the service, or the provision of access to a communication network."[4] A mere conduit service does not have control over the content transmitted. Therefore, according to the DSA, mere conduit providers are not liable for the information transmitted or accessed through their service, on condition that the provider:

(a) Does not initiate the transmission;
(b) Does not select the receiver of the transmission; and
(c) Does not select or modify the information contained in the transmission.[5]

Generic examples of mere conduit services include fixed broadband providers, mobile network operators, internet service providers (ISPs), internet exchange points, direct messaging services, voice over internet protocol, virtual private networks, wireless local access networks (WiFi/WLAN), domain name system (DNS), top-level domain (TLD) name registries, domain name registrars and certificate authorities that issue digital certificates.[6,7]

Direct messaging services are not to be confused with instant messaging (IM) services.

- Direct messaging services, which fall within the scope of mere conduits as per the DSA definition, are messaging services which, by definition, do not store information, either for a limited time or indefinitely, as is the case for caching and hosting services.

- IM services involve real-time messaging either through a standalone application or embedded software.[8] IM services can include the generic mere conduit category of direct messaging services as provided in Recital 29 of the DSA. However, IM services which do not merely conduit information, such as Facebook Messenger or Apple's iMessage, may be considered hosting services or perhaps online platforms.

4 DSA Article 3(g)(i)

5 DSA Article 4

6 Ref: https://www.allenovery.com/en-gb/global/news-and-insights/digital-services-act/layer-one-providers-of-intermediary-services

7 DSA Recital 29

8 Ref: https://www.techtarget.com/searchunifiedcommunications/definition/instant-messaging

3.4 'Caching' services

Caching services are intermediary services that transmit or deliver information to recipients of the service while engaging in automatic, intermediary and temporary storage of that information for efficiency-related purposes. Caching services are not liable for illegal content on their service, provided they meet the conditions laid out in the DSA. Caching services have the same level of obligations to comply with in the DSA as do mere conduits. (Source: DSA Article 5)

According to the DSA, "a 'caching' service [consists] of the transmission in a communication network of information provided by a recipient of the service, involving the automatic, intermediate and temporary storage of that information, performed for the sole purpose of making more efficient the information's onward transmission to other recipients upon their request."[9] Unlike a mere conduit service, a caching service does not merely transfer information but also stores the information for a period of time. A caching service is not liable for the automatic, intermediate and temporary storage of that information on its platform, on condition that the provider:

(a) Does not modify the information;
(b) Complies with conditions on access to the information;
(c) Complies with rules regarding the updating of the information;
(d) Does not interfere with lawful use of technology to obtain data on the use of the information;
(e) Removes access to information it has stored when informed that the initial source of the information has been removed or access to the information disabled.[10]

Examples of caching services include content delivery networks (CDNs), reverse proxies and content adaptation proxies.[11]

- A CDN stores data for the purpose of improving access efficiency for users. CDN providers typically store copies of web content on geographically distributed servers, known as edge servers, to provide content to users from a nearby location, reducing latency and bandwidth consumption. For example, when a person in Bergen has clicked on a movie they want to watch on Netflix, the request is not sent all the way to Netflix's servers in the USA. Rather, the request is sent to Netflix's nearest CDN appliance, which includes a server containing the Netflix library located in a data centre in Stavanger. According to the requirements stipulated in the DSA, a caching service cannot modify the information it stores.

- A proxy server is an intermediary server that acts as a gateway between a client device, such as a computer, and another server.[12] When a client makes a request for a resource, such as a web site, the request is first sent to a proxy server, and the proxy then retrieves the data for the user, before sending it back to the user. This is an example of reverse proxy because the proxy server

9 DSA Article 3(g)(ii)

10 DSA Article 5(1)

11 DSA Recital 29

12 Ref: https://www.fortinet.com/resources/cyberglossary/proxy-server

sits in front of the web server; a user sends a request to the service over the internet and the request is then directed to the reverse proxy (the reverse proxy answers on behalf of the service). In contrast, a forward proxy sits in front of the user, meaning users access the internet *via* the forward proxy.[13] A reverse proxy server can serve many purposes, one of which being to cache web resources on the proxy server, bringing the content closer to the client and reducing bandwidth usage and latency for the request. ISPs typically use proxy servers as part of their network infrastructure to optimise operations and improve the internet experience for their customers.

- A content adaptation proxy, on the other hand, is a proxy that adapts web content before delivering it to the client. The purpose of a content adaptation is to improve accessibility of web content, compatibility with client device (e.g. adaptation of content for smartphone screens) and/or the performance of the web resource.[14] Such content adaptation may go through a proxy, in which case a content adaptation proxy is used.[15]

Another category of services that may also be included within the scope of the caching service definition is web caching services, usually provided by web browsers. Web caching involves the caching (local storage) of web resources (such as HTML pages, images and scripts) closer to the user to reduce need to fetch web resources from the server every time they are requested. The cache is stored locally on the user's device, typically within the web browser's cache directory.

3.5 'Hosting' services

Hosting services are intermediary services that store information provided by, and at the request of, a recipient of the service. Hosting services are not liable for illegal content stored on the service provided the hosting service has no knowledge of the illegal activity and acts quickly to remove any illegal content upon obtaining knowledge of it. Online platforms and very large online platforms are two additional types of hosting services to which additional obligations apply. (Source: DSA Article 3 & 6)

According to the DSA, a 'hosting' service [consists] of the storage of information provided by, and at the request of, a recipient of the service."[16] Unlike caching services, hosting services do not store information only temporarily. Rather, information storage is a central feature of the hosting service, and hosting providers typically offer infrastructure for customers to host their web content and applications. According to the DSA, the hosting service is not liable for the information stored at the request of a recipient of the service, on condition that the provider:

(a) Does not have actual knowledge of illegal activity or illegal content or is aware of circumstances from which illegal activity or illegal content is apparent;

13 Ref: https://www.cloudflare.com/en-gb/learning/cdn/glossary/reverse-proxy/

14 Ref: https://www.w3.org/standards/webofdevices/independence#uses

15 Ref: https://wiki.squid-cache.org/SquidFaq/ContentAdaptation

16 DSA Article 3(g)(iii)

(b) Acts expeditiously to remove or disable access to illegal content upon obtaining knowledge or awareness of its existence.

The EC provides examples of generic categories of hosting services in Recital 29 of the DSA. Hosting providers include categories of services such as web hosting services, cloud computing, paid referencing services and services that enable sharing information and content online, including file storage and sharing.

Web hosting services include shared hosting, virtual private server hosting and dedicated hosting.[17] Colocation hosting is also often considered a web hosting service.[17] However, colocation hosting is likely not considered to be a hosting service according to the DSA, since the customer (usually larger businesses) owns its own infrastructure and merely leases space in a cooled and secure data centre facility. A colocation hosting service does not directly host data, but rather 'hosts' the servers on which that data is stored. Most Norwegian data centres have colocation hosting as their business model.

Cloud computing services means the delivery of computing services over the internet. Such computing services include servers, storage, databases, networking, software, analytics and intelligence. Most cloud computing services fall into four broad categories:[18,19]

- **Infrastructure as a Service (IaaS)** provides virtualised computing resources over the internet. It offers fundamental resources such as physical and virtual servers, storage and networking abilities on a pay-as-you-go basis that requires little up-front capital expenditure.
- **Platform as a Service (PaaS)** provides an on-demand platform (including hardware, complete software stack, infrastructure and development tools) for running, developing and managing applications.
- **Software as a Service (SaaS)**, also known as cloud-based software or cloud applications, refers to application software that is hosted on the cloud and accessed via a web browser, a dedicated desktop client or an API (i.e. a mobile or desktop application).
- **Serverless computing:** the cloud service automatically provisions, scales and manages the infrastructure required to run the code without the management of the infrastructure being visible to the developer (i.e. customer).

Paid referencing services may refer to search engine advertising (SEA), which is the process of improving a website's visibility in search engines by paying for sponsored links.[20] SEA allows

17 Ref: https://elementor.com/blog/types-of-web-hosting/

18 Ref: https://azure.microsoft.com/en-us/resources/cloud-computing-dictionary/what-is-cloud-computing

19 Ref: https://www.ibm.com/topics/cloud-computing

20 Ref: https://greatcontent.com/search-engine-advertising/

customers to directly display a paid advertisement among the search results in a search engine, such as Google and Bing, on a pay-per-click (PPC) basis.[21]

The DSA also includes content sharing services in its categorisation of 'hosting' services.[22] This would include the sharing of any content or service where information is not 'disseminated to the public' (a condition for online platforms, see definition below) but instead has a controlled potential audience. Examples of such content sharing services could include file transfer services (e.g. WeTransfer) and cloud storage services such as Google Drive, Apple's iCloud, Microsoft OneDrive and Dropbox. Communication platforms such as Slack and Microsoft Teams may also be considered 'hosting' services according to the DSA, since the 'dissemination to the public' requirement does not hold (see 'Online platforms' chapter below).

Online platforms and very large online platforms (VLOPs) are two additional types of hosting services to which additional obligations apply.[23]

3.5.1 Online platforms

The DSA provides that an online platform is "a hosting service that, at the request of a recipient of the service, stores and disseminates information to the public."[24] Online platforms, which also include online search engines, are considered hosting services, and hosting services are, according to the DSA, not liable for the information stored at the request of a recipient of the service on condition that the provider does not know of the illegal activity or content and that the provider acts to remove the content expeditiously upon learning the illegal content or activity exists. That said, additional obligations apply to online platforms over and above those that apply to hosting services.[25]

Examples of online platforms include online marketplaces, app stores, social media platforms and collaborative economy platforms.[25]

According to the EC, collaborative economy services are defined as services with business models that meet the following criteria simultaneously:

(a) Business transactions takes place between three parties – the service provider, the online platform and the customer;
(b) Service providers offer access to their goods, services or resources on a temporary basis;
(c) The goods, services or resources offered by the service provider are otherwise unused;

21 Ref: https://instapage.com/blog/search-engine-advertising/

22 DSA Recital 29

23 Online platforms are a type of hosting service (ref: DSA Article 3 [i]) and VLOPs are online platforms with more than 45 million monthly active users in the EU (ref: DSA Article 33[1]).

24 DSA Article 3(i)

25 Ref: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/digital-services-act-ensuring-safe-and-accountable-online-environment_en

(d) The goods, services and resources are offered with or without compensation (i.e. for profit or non-profit/sharing).[26]

Moreover, the EC states that 'collaborative platforms' are online platforms that connect collaborative economy service providers with their customers.[26] Collaborative economy platforms may for instance include rideshare apps (e.g. Uber, Lyft) and room rental services (e.g. Airbnb).

Dissemination to the public

Online platforms are hosting services that (at the request of the users) disseminate information to the public. 'Dissemination to the public' is defined in the DSA as "making information available, at the request of the recipient of the service who provided the information, to a potentially unlimited number of third parties."[27] Recital 14 in the DSA further explores the concept of 'dissemination to the public' and establishes two conditions that must be met for the dissemination criteria to hold.

First, "where access to information requires registration or admittance to a group of recipients of the service, that information should be considered to be disseminated to the public only where recipients of the service seeking to access the information are automatically registered or admitted without a human decision or selection of whom to grant access."[28] In other words, if a service does not allow for the automatic admittance of new users to the group of users on the platform, that information should not be considered publicly disseminated. This would be the case for information shared on services like Teams and Slack, which are communication platforms for which an invitation is required to access the service. Rather, such invitation-based communication platforms may fall into the category of hosting services. However, certain social networking platforms can offer both public and non-public dissemination of information. For instance, many groups on Facebook are closed and users need an invitation to join. A non-legal interpretation would then suggest that the information shared within these closed communities on Facebook and on other online platforms (e.g. private subreddits on Reddit or group chats on Snapchat) should not be considered disseminated to the public. Consequently, the liability exemption should hold for information shared between users in such private channels on these online platforms.

Secondly, DSA provides certain limitations to what constitutes the *public* in 'dissemination to the public'. In Recital 14, the DSA states that the information is disseminated to the public when it is made "easily accessible to recipients of the service in general without further action by the recipient of the service providing the information being required, irrespective of whether those persons actually access the information in question." Recital 14 in the DSA further provides that "interpersonal communication services[29], such as email or private messaging services, fall outside

26 European Commission: Study to monitor the economic development of the collaborative economy at sector level in the 28 EU Member States. Ref: https://data.europa.eu/doi/10.2873/83555 (p. 7)

27 DSA Article 3(k)

28 DSA Recital 14

29 'Interpersonal communication services' are defined in Directive (EU) 2018/1972 Article (1)(5) as "a service normally provided for remuneration that enables direct interpersonal and interactive exchange of

the scope of the definition of online platforms as they are used for interpersonal communication between a finite number of persons determined by the sender of the communication." Consequently, these interpersonal communication services may be classified as hosting or mere conduit services based on the DSA definitions. That said, it is important to note that the classification should depend on the technical functionalities of the service.[30] Each interpersonal communication service, as is true with any hosting or online platform service for that matter, should be evaluated on a per-service basis, and not grouped by 'type of service' before a classification activity, because different underlying technical functionalities may apply for the same 'types' of intermediate service. For example, the generic category of direct messaging services may be considered as mere conduit services[30] while the generic category of email services may meet the conditions for hosting services. Nonetheless, both generic groups of services could be considered interpersonal communication services.

Additional delineations to reduce bureaucratic burden

To further limit the number of services that should fall into the 'online platform' subcategory and thus the bureaucratic procedures businesses will need to follow, the DSA introduced two additional specifications for online platforms.

Firstly, in order to avoid overly broad obligations, the DSA stipulates that the dissemination to the public activity should not yield an 'online platform' designation when that dissemination activity is merely a minor or purely ancillary feature of the service (either intrinsically linked to another service or as part of the principal service) and that functionality cannot, for technical reasons, be used without the principal feature.[31] For example, DSA Recital 13 provides, "the comments sections in an online newspaper could constitute such a feature" where it is clearly ancillary to the main service, which, in the case of online newspapers, is the publication of news under editorial responsibility of the publisher. In contrast, Recital 13 provides, "the storage of comments in a social network should be considered an online platform service where it is clear that it is not a minor feature of the service offered, which is online networking services." The DSA also provides that dissemination of information to the public done by web-hosting services and cloud computing services should not be considered an online platform when this dissemination activity is a minor or ancillary feature of the principal service. The same is true for the underlying infrastructure owned by these cloud computing and web hosting services, which should not in itself be considered as disseminating to the public and therefore not be considered as online platforms. In summary, an online platform is a hosting service that, at the request of a recipient of the service, stores and disseminates information to the public.

information via electronic communications networks between a finite number of persons, whereby the persons initiating or participating in the communication determine its recipient(s) and does not include services which enable interpersonal and interactive communication merely as a minor ancillary feature that is intrinsically linked to another service."

30 DSA Recital 29

31 DSA Recital 13

Secondly, the EC has imposed certain exclusions for micro and small enterprises offering online platform services within the obligations laid out for online platform services. More specifically, micro and small enterprises that provide online platform services do not need to follow the additional obligations for online platforms stipulated in the DSA.[32] According to EC's own definitions[33], a small enterprise is defined as an enterprise which employs fewer than 50 people and whose annual turnover and/or annual balance sheet total does not exceed EUR10 million. A microenterprise employs fewer than 10 people and has an annual turnover and/or an annual balance sheet total which does not exceed EUR2 million. These smaller enterprises are excluded from certain additional provisions in the DSA that at the outset fall into the DSA's definition of online platforms.

3.5.2 VLOPs and very large online search engines (VLOSEs)

As outlined in the DSA, VLOPs and VLOSEs are considered hosting platforms to which additional obligations apply. Pursuant to Article 33 in the DSA, online platforms are considered VLOP/VLOSE when the number of average monthly active recipients of the service in the EU is equal to or higher than 45 million, or 10% of the population of the EU.

On 25 April 2023, the EC issued its inaugural designation decisions pertaining to the classification of certain online platforms as VLOP or VLOSE as per the DSA requirements.[34] Currently, a total of 19 VLOPs and VLOSEs have been identified, each boasting an active monthly user base exceeding 45 million. Figure 3.2 provides an overview of the European Commission's first set of VLOPs and VLOSEs.

Figure 3.2: First set of VLOPs and VLOSEs (Source: European Commission[34], Lexology[35])

VLOPs	VLOSEs	VLOP candidates under investigation
Alibaba AliExpress	Bing	Airbnb
Amazon Store	Google Search	Pornhub
Apple AppStore		Spotify
Booking.com		Telegram
Facebook		
Google Play		
Google Maps		
Google Shopping		
Instagram		
LinkedIn		
Pinterest		
Snapchat		
TikTok		

32 DSA Article 19(1), DSA Article 29(1)

33 Recommendation (EC) 2003/361

34 Ref: https://ec.europa.eu/commission/presscorner/detail/en/IP_23_2413

35 Ref: https://www.lexology.com/library/detail.aspx?g=cbf168f9-651e-47b8-92b8-080f4dba685e

Twitter Wikipedia YouTube Zalando		

The companies behind these services must comply with the full set of new obligations under the DSA within four months after the designation (i.e. end of August 2023).

As for the VLOP candidates, these are large online platforms which claim to have monthly average user numbers in the EU below 45 million. The EC is currently investigating the user data of these services, and potentially others.[35] As such, a second wave of VLOP/VLOSE designations may follow.

VLOPs/VLOSEs versus gatekeepers

While the DSA targets VLOPs/VLOSEs, the DMA targets 'gatekeepers'. It can be easy to confuse the two terms, but they are two distinct concepts. First, while VLOPs/VLOSEs are (very large) online platform *services*, the 'gatekeeper' term refers to *undertakings* behind certain online services. Google Play, Google Maps, Google Shopping and Google Search are four distinct VLOPs/VLOSEs designated by the EC. The corresponding gatekeeper according to the DMA would be Alphabet (Google's parent organisation). While VLOPs/VLOSEs are specific large online services, gatekeepers are undertaking behind large online services.

Second, the designation of VLOPs and VLOSEs as per the DSA is made based only on the DSA requirement which states that the service must have more that 45 million active users in the EU.[36] In contrast, the designation of gatekeepers as per the DMA is based on requirements that are more restrictive than only the number of active monthly users in the EU. More specifically, the gatekeeper designation is also based on financial performance and market capitalisation of the gatekeeper candidate (see Annex 1: The Digital Markets Act). As such, the list of designated gatekeeper organisations as per the DMA will likely contain fewer gatekeeper organisation than those corresponding to the VLOP/VLOSE designation above (Figure 3.2).

In summary, the EC reserves the term 'gatekeeper' for the context of the DMA while the VLOP/VLOSE terms refer to designations based on DSA regulation. See Annex 1: The Digital Markets Act for a longer discussion on the DMA.

36 DSA Article 33(4)

3.6 Substantial connection to the EU

The DSA further stipulates that its obligations will apply to all intermediary services that have a 'substantial connection to the Union [EU]'.[37] The DSA establishes an intermediary service to have a such a connection to the EU when one of the following three conditions applies[38]:

- The service provider has an establishment in the EU.
- The service provider has a significant number of recipients in one or more member states (number of recipients of the service in one or more member states is significant in relation to the population thereof).
- The service provider targets activities toward one or more member states.

What constitutes a 'substantial number of recipients' is not entirely clear from the DSA. For the VLOP/VLOSE qualification, the 'significance level' is set at 10% of the EU population (i.e. 45 million).[39] If one were to assume a similar significance level to apply to the 'substantial connection' criteria, that would mean that an intermediary service – be it mere conduit, caching or hosting – with more than 550 000 active monthly users in Norway would meet the 'substantial connection' criteria in Norway.

What is more, the targeting of activities is also determined on more judgmental grounds and can be determined based on a number of different circumstances. For example, use of currency and language, employing the member state's top-level domain, local advertising, availability of application in local app store, or in some other way pursuing professional or commercial activities in the EU member state would suffice to meet this criterion.[38]

The condition of substantial connection is likely to exclude many non-EEA services. For instance, smaller foreign online platforms (e.g. a niche Indonesian online forum) with main activity outside the EEA and with only a few users within the EEA area would not be subjected to the DSA regulation since the online platform has no establishment in the EU and does not target European users actively.

37 DSA Recital 7

38 DSA Recital 8

39 DSA Recital 76

4 Methodology

We used a range of approaches to survey the Norwegian market of internet-based services and categorise services according to the DSA's classifications. The key delineations are between 'mere conduit', 'caching' and 'hosting' services (including 'online platforms' and VLOPs/VLOSEs).

4.1 Sources used

Many sources were used to collect data on providers of internet-based services. The number of unique sources used increases with the DSA categorisation (i.e. fewer sources were used to identify 'mere conduits' than to identify 'online platforms').

Ekomstatistikken from Nkom

ISPs constitute a large proportion of 'mere conduit' providers. Therefore, Nkom's ekomstatistikken was used to identify ISPs selling internet access in Norway. Ekomstatistikken further providers data on number of customers (users) per service (per ISP), leading this source to be of high value to the survey work.

Medietall.no

Medietall.no is Mediebedriftenes Landsforening's documentation portal for members and other stakeholders. Medietall.no provides daily user numbers ('persontall') and daily traffic (as an average over a week) for the largest Norwegian websites. The survey work considered both the number of users and the volume of data traffic generated. While the number of users can be collected as a 'digital total' over all different access methods (mobile handset, tablet, computer), the traffic numbers were collected by adding together the numbers for handsets ('Mobil'), tablets ('Nettbrett') and computers ('PC'). The category 'eAvis' was excluded from the traffic total sum.

The user numbers are obtained from Kantar while the traffic numbers come from Kilaya. Data from Medietall.no for week 20, 2023 have been used in the DSA Database for this delivery.

Norid

Norid is the Norwegian domain name registry for all domains directly under the .no top-level domain. On the website, Norid provides a full list of domain registrars ('domeneforhandlere') that offer the .no domain. The DNS translates domain names (such as finn.no) into the corresponding IP address. The domain registrars are responsible for managing the registration and ownership of domain names and may as such be considered 'mere conduit' services according to the DSA. Many registrars provide hosting services as well.

Data.ai

Data.ai is a mobile data analytics tool that estimates user data on handset and tablet applications in Norway. The Data.ai source provides an overview of

the most popular mobile applications in Norway over the month of April 2023, including average monthly number of unique active users on the platforms.

Tranco's list of top 1 million domains

The Tranco list is a list of the daily top 1 million most queried domain names on the internet. The Tranco ranking consists of data from a number of available rankings over a period of 30 days. As such, the Tranco list can be considered an '"internet average" of different domain name rankings. From the Tranco list, all domain names ending in '.no' were filtered out, and the 100 highest ranked .no sites were added to the DSA Database. Two Tranco lists were used: Tranco (old) is from August 2022 whereas Tranco (new) is from May 2023. There is a large area of overlap between the two lists, and only unique instances from the Tranco (new) top 100 list were added to the database. For the benchmarking done in Chapter 6.2.3, the Tranco list from August 2023 was used.

Cisco's list of top 1 million domains

Like the Tranco list, Cisco also offers a daily list of the one million most queried domain names from Umbrella, which is a domain name system operated by Cisco. Similar to the treatment of the Tranco list, all domain names ending in '.no' were filtered out of the Cisco list, and the 100 highest ranked .no sites were added to the DSA Database. While the Tranco list mainly contains user-facing domain names sites, the Cisco list contains a significantly larger portion of URLs that are used for CDN and API purposes. As such, there was a higher level of duplication in the Cisco list. For instance, the highest-ranked .no Cisco domain was 'met.no' while the next item on the same list was 'api.met.no'. Consequently, we prioritised investigating the data from the Tranco list when performing the market survey. The same Cisco list was also used during the benchmark analysis in Chapter 6.2.2.

The European Commission on its first designation of VLOPs/VLOSEs

As mentioned in Chapter 3.5.2, EC published its first designation of VLOPs and VLOSEs in April, 2023.[40] The designation is not necessarily final, and there are several candidate services that have no designation but may still qualify once user data numbers become clearer (such as the accommodation rental service Airbnb or music streaming service Spotify).[41] These candidate services are marked as 'VLOP Candidate' for the Grey Zone attribute in the DSA Database and are also listed in Figure 3.2.The EC designation currently consists of 17 VLOPs and two VLOSEs, and there are at least four VLOP candidates.

40 Ref: https://ec.europa.eu/commission/presscorner/detail/en/IP_23_2413

41 Ref: https://www.politico.eu/newsletter/brussels-playbook/big-tech-faces-eu-heat-huawei-spooks-berlin-another-eva-kaili-probe/

Norsk Datasenter Industri Norsk Datasenter Industri is a Norwegian business association that works to enable stability in the regulatory landscape for data centre businesses in Norway. The organisation has members from all stages of the data centre value chain. The full member list[42] has been added to the database, although only about half of the members are data centre providers.

Statista Statista data has been used for three different service classes: global social networks ranked by number of users worldwide (January 2023), most popular websites worldwide as of November 2022 by total visits, and leading websites in Norway by total number of visits in November 2021. Statista has also been extensively used during the benchmark analysis.

Schibsted Schibsted ASA is a large media conglomerate with activity in the Nordic region. The company has ownership of a range of different media houses and other intermediary services such as online marketplaces. Schibsted's own brands cover four categories of services: news media, ventures, marketplaces and financial services[43]. Schibsted also has a large European presence through its 28% ownership of Adevinta ASA (Ebay International Holding is the only larger shareholder with a 33% ownership of Adevinta). In Chapter 5.2, we discuss the role of Schibsted in more detail.

Google Search For a number of the service classes, a simple Google search method was applied to find relevant blog posts or website publications from which information on relevant online services could be collected. For some of these online sources, traffic or user data existed which were used to provide an indicative (albeit potentially less accurate) measure of size of different services. The sources found through Google Search were as follows:

- *Beebom* for video sharing services[44]
- *Bonzer* for content management systems[45]
- *BuiltWith* for web hosting platforms[46] and content delivery networks[47]
- *G2* for content management systems[48]
- *IT-Maniacs* for online forums[49]

42 Ref: https://www.datasenterindustrien.no/members

43 Ref: https://schibsted.com/about/

44 Ref: https://beebom.com/video-sharing-sites/

45 Ref: https://bonzer.no/blogg/topp-50-norske-nettbutikker

46 Ref: https://trends.builtwith.com/hosting

47 Ref: https://trends.builtwith.com/cdn

48 Ref: https://www.g2.com/categories/web-content-management

49 Ref: https://it-maniacs.com/best-and-most-popular-forums-message-boards-and-online-communities-top-30/

In addition, Google Search results were used in isolation for several other service classes in database. For instance, for the service class 'online forums', keywords like 'online forums', 'reddit' and 'kvinneguiden' were used to find relevant services directly in the Google Search results field. For the following service classes, the latter Google Search method was used: certificate authorities, content delivery networks, file transfer services, internet browser games, online game stores, online gaming platforms, online marketplaces, online review platforms, other web hosting services, streaming services and video sharing services.

Proff.no Proff.no was used to collect the organisation numbers for the Norwegian undertakings as well as the official company names (e.g. 'Verdens Gang AS' for VG).

4.2 Service attributes

During the market survey, a number of different attributes were collected for each identified intermediary service. Below is a list of the attributes gathered for the internet-based services. The service attributes are listed according to the column number each attribute has in the DSA Database.

A. Service Class. The class to which the internet-based service belongs and, at times, the source from which the instance is discovered, e.g. 'video-sharing websites', 'web hosting services' or 'popular .no domains (Cisco)'. The service class is a pragmatic classification of services that explains on what background the data is discovered and collected. It may or may not directly relate to the source of the data, as is the case for 'popular .no domains (Cisco)', which is retrieved from the Cisco list. For most of the instances in the database, there is a direct relationship between the service class and source attributes, because the origin of the Service class is also the origin of the source (as is the case for e.g. Cisco). For other categories, such as 'video-sharing websites', no single overarching source existed to capture the whole service class. Instead, a more practical method was applied to identify relevant services for these service classes, most typically Google search. It is important to note here that the same service has in some instances been captured from multiple sources and thus has duplicate instances in the database marked by different service class names. This is for example the case for the service 'Finn.no', for which duplicates exist from the sources Tranco, Cisco, Data.ai, Medietall.no, Statista and Schibsted. In addition, Finn.no was added during the more pragmatic portion of the market survey; to capture the online marketplaces potentially not yet identified during the survey work, the additional service class 'Online Marketplaces' was included (with Google Search as source attribute), and Finn.no was added as an instance to this list as well. Consequently, multiple service classes capture a single service name, and this is why there are duplicates in the DSA Database. For a full list of service classes, please refer to Figure 4.1.

B. **Service Name**. The name of the intermediary service, e.g. 'Blix Solutions', 'Alibaba Cloud Solutions' or 'Finn.no'.

C. **Company Name**. The name of the company owning the service. For companies with a Norwegian undertaking, that undertaking was indicated in this category. For instance, for Facebook platforms, 'Facebook Norway AS' was assigned as the company name.

D. **Description of Service Provided**. A few words explaining what the service offers.

E. **DSA Category**. A discretionary assessment of type of intermediary service according to the DSA. Each service is categorised as one of the following: Mere Conduit, Caching, Hosting, Online Platform, VLOP, VLOSE. As discussed in detail in Chapter 3, the DSA categorisation should be made based on the underlying technical functionalities of the service. This makes the categorisation activity significantly challenging, because a thorough technical understanding of the service may be needed to make an informed decision.[50] Moreover, Recital 29 highlights that different parts of the same service may be affected by the DSA in different ways. In other words, one instance in the DSA Database offers services spanning multiple DSA categories. Therefore, it may be wrong to assign only one DSA category to one service, as different layers of the same service may have different obligations as per the DSA. For example, the social networking platform Facebook has been designated an online platform. However, parts of the service, such as information sharing between users via chat functionality or in private (invitation-based) groups, may not be affected by the DSA regulation in the same way (such communication channels may not qualify as online platform services). Therefore, during the DSA categorisation activity there has been a focus on providing a suggestive DSA category to indicate what DSA category the principal feature of an intermediary service may fall into.

F. **Organisation Number**. Where applicable, the company's Norwegian nine-digit organisation number.

G. **Country Code (HQ)**. The two-letter ISO country code for the country in which the head office of the company owning the service resides (e.g. 'US' for 'Facebook Norway AS').

H. **Rank**. A ranking number has been assigned to services that were sourced from a ranked list. This is the case for data from sources like Tranco, Cisco, Data.ai and Statista. For other lists, such as Domain Name Registrars, the ranking attribute was determined based on ranking in Google Search results (number 1 being the first relevant service below the advertising results to show up in the Google Search field).

I. **#Active Users/Sites (World)**. The number of active monthly users or sites connected to the service in the world. For end-user applications, this number reflects the number of unique persons who use the service at least once per month. Meanwhile, for other services such as

50 DSA Recital 29

caching or web services, this number reflects the number of active (online) websites that use or are connected to the service.

J. **#Active Users/Sites (Norway)**. The number of active monthly users or sites connected to the service in Norway.

K. **Traffic (Monthly)**. The number of visitors that come to a website via a search engine each month. This number does not reflect unique visitors, but rather counts the number of times a new session on a website has been initiated.

L. **#Visitors (Daily).** The average number of unique users to have accessed a service via mobile, tablet or desktop over the last week. All #Visitors (Daily) data for the Online Media Class is collected from Medietall.no, with data sourced for Week 20 of 2023. Data for other classes is collected from Statista (November 2021).

M. **Grey Zone**. Certain services are marked with an 'x' or a comment for instances where it is unclear whether the service is categorised correctly according to the assessment done in Column E: DSA Category.

N. **Source**. The source used to find the digital service. For certain groups of services, there is a single source for all instances in a service class (e.g. the source 'Ekomstatistikken' for all instances in the service class 'Internet Service Providers'), however, this will not always be the case. A frequently cited source is 'Google Search' when Google Search has been used to identify digital services within a service class (e.g. for the service class 'Online stores').

4.2.1 The service class attribute and use of sources

Different methods were used to collect different groups of data, and the service class attribute reflects this diversity in method used during the data collection. On the one hand, a more top-down approach was used when looking at Tranco and Cisco lists of most popular .no domains and using Data.ai to collect data on the most popular mobile and tablet applications used in Norway. However, there is no guarantee for collecting a collectively exhausting list of types of services when using such a top-down approach. As such, to supplement the data from Tranco, Cisco and Data.ai, the data collection work also included a pragmatic approach whereby the digital market was surveyed based on qualitative categories of services. These categories are reflected in the remaining service class names (please see Figure 4.1).

4.2.2 The 'Grey Zone' attribute

The Grey Zone attribute is employed to identify services that may or may not be deemed the DSA Category they have been assigned in the DSA Database. As mentioned in bullet E in Chapter 4.2 above as well as earlier in the report (in Chapter 3), the task of assigning DSA categories is not straight forward. The DSA states that the categories should be determined based on the underlying technical functionalities of the platform. In other words, it is necessary to have a deep understanding

of the functionalities of an intermediary service beyond surface-level knowledge. Moreover, sometimes it is not sufficient to merely understand the underlying technical functionalities of a platform to determine its DSA Category. It may be necessary to have a deeper understanding of how the business transactions behind the platforms work as well. This is the case for Zalando and Spotify, which both are considered online platforms by the EC.[51] Lastly in this sub-chapter is a discussion on the role of comments and reviews sections in a potential online platform designation as per the DSA guidelines.

The case of Zalando

Because Zalando is on the EC's list of designated VLOPs (see Figure), it is a (very large) online platform. This means that Zalando must, in part, function as an intermediary between the end-user and business users (i.e. the people purchasing products and the businesses selling products). At the same time, the bulk of the revenue Zalando generates comes from a commission Zalando applies to the products it buys in bulk (and thus owns) from wholesalers or manufacturers.[52] Next to this, however, part of the stock Zalando makes available to customers is not owned by the company itself but is retained by Zalando's partners.[53] The question thus remains whether it is the commission-based operation or the partner activity that qualifies Zalando to be designated a VLOP by the EC. If it is the former, all e-commerce platforms that buys products in bulk, put a commission on them and resell the products to end users online could potentially qualify as online platforms. Meanwhile, if it is the latter criterion that makes the EC designate Zalando as an online platform, only e-commerce platforms with partner activity similar to that of Zalando should be identified as online platforms as per the DSA requirements. It would be natural to assume it is the latter activity that has led to the EC designation, since this partnering activity shows the strongest similarities to DSA category criteria pertaining to online platforms. Then, it would be necessary to understand the business models of candidate e-commerce platforms with activity in Norway, such as XXL and Apotek 1, to understand whether these e-commerce platforms function as intermediaries with partner activity or merely buy in bulk and hold total ownership of their product portfolio.

To reflect the ambiguity of e-commerce platforms and their business and partner models, the Grey Zone attribute has been marked either with an 'x' or with more elaborate wording to reflect the uncertainty.

Why Spotify is considered a VLOP candidate while Netflix is not

Another interesting case is Spotify. It is not on the EC's list of designated VLOPs. However, it is a VLOP *candidate*. Spotify claims to have fewer than 45 million monthly active users in the EU[54],

51 Spotify is not designated a VLOP (yet), but it is under EC scrutiny. Therefore, it can be reasonable to assume that Spotify has the qualifications for an online platform as it may perhaps be designated a VLOP.

52 Ref: https://productmint.com/zalando-business-model-how-does-zalando-make-money/

53 Ref: https://ocarrollj.medium.com/zalandos-business-model-explained-kind-of-c64828307d35

54 Ref: https://www.spotify.com/se/legal/digital-services-act/

which is why the music streaming service has not (yet, perhaps) received a VLOP designation. Spotify's usage data is currently under the scrutiny of the EC.

Irrespective of whether Spotify does receive the VLOP designation or not, the fact that it is under scrutiny indicates that Spotify may be considered an online platform pursuant to the DSA. This is interesting because no similar conversation is held for video streaming services such as Netflix. One explanation can be that Netflix does not have sufficient user numbers to justify a VLOP designation by the EC. If the population of Europe is assumed to be around 750 million[55] and the population in the EU to be around 450 million[56], then 60% of the European population lives in the EU. Moreover, if European Netflix subscribers are assumed to be distributed equally across all European countries, then the percentage of European Netflix subscribers in the EU can assumed to be 60% as well. With Netflix estimated to have 70 million subscribers in Europe in 2023[57], then around 42 million of Netflix's European subscribers can be assumed living in EU countries. Subscribers in the EU totalling 42 million is not far away from the 45-million threshold set for VLOPs and VLOSEs. Moreover, the 42 million number accounts for number of subscriptions, not users of the service, meaning 42 million may be well below the number of active monthly viewers of Netflix in the EU. As such, it can be logical to assume that it is not the number of subscribers that explains why Netflix is left out of EC's scrutiny, but rather how the Netflix business works, as compared to Spotify's.

A simple explanation as to why Spotify is a VLOP candidate and Netflix is not may be that it is possible for individual artists to publish their songs on Spotify without going through large music production companies.[58] Meanwhile, the video content on Netflix is either licensed from film studios or produced in-house as Netflix Originals.[59] Although Spotify also licenses content from large production studios,[60] it is nonetheless possible for smaller artists to circumvent the mainstream route and publish their songs directly on the Spotify platform. Therefore, it may be futile to compare Spotify to Netflix, when a more relevant comparison is likely to be Spotify and YouTube.

Comments sections and review sections

It is provided in Recital 13 of the DSA that comments sections in an online newspaper may not count towards an online platform designation because this commenting feature is likely deemed ancillary to the principal service, which is the publication of news. The activity of designating online platforms thus becomes somewhat more complicated because websites hosting publicly available content provided by a recipient of the service do not automatically qualify as online platforms. The question arises as to when a comment-like feature becomes non-ancillary to the principal service.

55 Ref: https://www.worldometers.info/world-population/europe-population/

56 Ref: https://european-union.europa.eu/principles-countries-history/key-facts-and-figures/life-eu_en

57 Ref: https://www.statista.com/statistics/713055/netflix-subscribers-in-europe/

58 Ref: https://www.vampr.me/blog/publishing-music-on-spotify-explained/

59 Ref: https://www.whats-on-netflix.com/news/50-of-netflixs-library-is-now-made-of-netflix-originals/

60 Ref: https://jolt.richmond.edu/2022/11/08/what-makes-spotify-tick-an-overview-of-how-spotify-licenses-music/

As a general rule, comments sections on online newspaper sites can be deemed ancillary, as provided in Recital 13. However, online newspapers should nonetheless be evaluated on a per-service basis, because certain online newspaper comments sections may pose critically large (i.e. popular) compared to the principal service. In such cases, the comments section may be deemed non-ancillary and as such regarded as an online platform as per the DSA. In the DSA Database, no online newspapers were identified to have critically large comments section that engendered an online platform designation.

Moreover, a number of identified online shops have reviews sections for their products. For example, XXL, Apotek 1 and Elkjøp, which are three leading online stores in Norway (see Figure 5.16) all have reviews sections of different popularities on their websites. The question then remains as to whether these reviews sections constitute a non-ancillary feature of the principal feature (which is selling products online) or whether it is indeed ancillary, and one can thus disregard such e-commerce platforms as online platforms (on the basis of their reviews section – the Zalando case would be a different discussion). Looking further into XXL, Apotek 1 and Elkjøp, one can quickly see that Elkjøp has more comprehensive reviews of its products than do XXL and Apotek 1. Many of Elkjøp's most popular products may have hundreds of written reviews below the product (excluding non-verbal star ratings).[61, 62] In a quick comparison, it seems that Apotek 1's products as well as XXL's products rarely receive more than ten written reviews per product. Can we then deem the reviews sections on Elkjøp's e-commerce platform to constitute a non-ancillary service, given the popularity of the reviews section? The DSA does not mention popularity as a dimension in evaluating whether such comments or reviews section should be classified as non-ancillary. The judgment presented in DSA is of a more qualitative nature, stating that it cannot be a "minor feature of the service provided."[63] In such cases, both for Elkjøp and other e-commerce platforms with less popular reviews sections, it can therefore be challenging to make a judgment as to whether they are online platforms or not. The Grey Zone attributed has been employed to reflect the ambiguity associated with platforms that have similar ancillary services such as the reviews sections on XXL, Apotek 1 and Elkjøp's webpages.

4.3 The data collected

The data was stored in the DSA Database. For each instance (service), a value was assigned for each service attribute as listed in Chapter 4.2.

Figure 4.1 shows the number of instances split between service class in database (rows) and DSA category (columns). As the table shows, there was greatest heterogeneity in service class (and as such sources used) for hosting services and online platforms. Service class is the class to which the

61 E.g. https://www.elkjop.no/product/tv-lyd-og-smarte-hjem/hoyttalere-og-hi-fi/hoyttalere/jbl-charge-5-tradlos-barbar-hoyttaler-sort/266550

62 E.g. https://www.elkjop.no/product/mobil-nettbrett-og-smartklokker/mobiltelefon/iphone-13-5g-smarttelefon-128gb-midnatt/361879

63 DSA Recital 13

instance belongs, at times, the source from which the instance is discovered (see Chapter 4.2 for a more in-depth explanation of the service class attribute).

Figure 4.1: Data points collected per service class in database and DSA category

Service class in database	Mere conduit	Caching	Hosting	Online platform	VLOP/ VLOSE	None
Certificate authorities	2					1
Content delivery networks		16	7			
Content management systems			14			7
Data centres	5		4			32
Domain name registrars	202		52			3
File transfer services			14			
Global social networks (2023)			1	7	7	
Internet browser games				3		
Internet exchange points	1					
Internet service providers	187					1
Leading Websites in Norway (2021)	1		1	2	5	11
Leading websites worldwide (2022)				14	5	1
Norwegian online media services				3		196
Online advertising				16	3	
Online forums			1	34		3
Online game stores						5
Online gaming platforms				11		
Online marketplaces				25		12
Online review platforms				5		
Online stores				2		12
Other web hosting services			10			
Popular .no domains (Cisco)	9	2	8	4	3	67
Popular .no domains (Tranco)	9		13	6	2	84
Schibsted Adevinta				30		1
Schibsted financial services						12

Schibsted marketplaces			1	12		6
Schibsted news media						19
Schibsted ventures			5	6		11
Streaming services						16
TLD registries	3					
Top apps per usage (phone and tablet)	4		37	61	15	87
Video sharing services				9	2	
VLOPs/VLOSEs					19	
Web hosting services			45			
Total	**423**	**18**	**213**	**250**	**61**	**587**

Of the data collected, a large portion (587 or 37.5% see Figure 4.2) was classified as 'None'. A smaller group did not receive a classification due to technical uncertainty regarding the service and are therefore marked with 'Blank' to reflect that the value for the DSA Category attribute is empty.

Of the services that were identified as relevant to the DSA, meaning services that did receive a DSA classification other than 'None', the 'Mere Conduit' category was largest, amounting to 44.1% in the final DSA Database. The 'Online Platform' category was the second largest group of services identified (25.8%). See Figure 4.2 below for the full overview of distribution.

Figure 4.2: Distribution of services along DSA category classifications (whole number and percentages)

	Mere conduit	Caching	Hosting	Online platform	VLOP/ VLOSE	None	Blank	**Total**
All	423	18	213	250	61	587	13	**1565**
All (%)	27.0%	1.2%	13.6%	16.0%	3.9%	37.5%	0.8%	**100%**
5 cat.	423	18	213	250	61	–	–	**965**
5 cat (%)	44.1%	1.9%	22.0%	25.8%	6.3%	–	–	**100%**

4.4 The data collection process

The rough approach to collecting the data was as follows:

1) Service Class and Service Name. The first step was to add a new set of services to the database. Here, each service class suggested a new service group to add. The names of the services were then added to the database as the instances' Service Names'. For each of the services, the accompanying service class and source was also added to the database.

2) Company Name. Next was the task of adding the Company Name for each service to the list. A range of different methods were used here:

1) *Already in the source*. For some of the sources (namely Norid and Data.ai) an accompanying company name was given for each instance.
2) *Manually*. In some parts of the collection process company names were added manually through Google Search results (for international companies) or via proff.no data.
3) *ChatGPT*. For certain service categories, ChatGPT was used to quickly find the companies behind the intermediary services. The list of company names was then manually checked to ensure correctness in ChatGPT's output.

3) Type of Service Provided. To provide each instance with a short description of the service, two methods were used.

1) *Manually*. For many services, the service description was added manually based on our own understanding of the service provided.
2) *ChatGPT*. ChatGPT offered a useful and efficient tool to assign a description to each instance.
3) *Proff.no*. In certain parts of the data collection, the 'Bransje' tag was collected from Proff.no and used for the Type of Service Provided attribute. For those instances, the Type of Service Provided attribute was given as written in Norwegian.

4) DSA Category. An assessment based on judgement is made for each instance in the DSA Database. For certain service classes, such as 'Internet Service Providers', the assessment was made collectively for all instances in the service class. For most service classes, however, this assessment was made on a per-instance basis. For instance, the service class 'Norwegian Online Media Services' was assigned a DSA Category on an instance-by-instance basis by looking up each instance on the internet and making a judgmental assessment of whether the service was a hosting service, an online platform or neither ('None').

5) Organisation Number. An organisation number was retrieved from Proff.no for each Norwegian undertaking in the Company Name category.

6) Country Code. The two-letter ISO country code for the Company Name's headquarters was acquired for each service using two different methods.

1) *Manually*. Manual search-and-find work was done to see where the head office was located.
2) *ChatGPT*. For some portions of the work, ChatGPT was used to translate a list of countries into corresponding ISO country codes.
3) *Data.ai*. The Data.ai source provided a country for each application, and these countries were used to fill in the ISO attribute for this service class.

7) Rank. The ranking number was provided for data that was retrieved from a ranked list (i.e. Data.ai, Cisco, Tranco, Statista). Moreover, for certain other service classes (e.g. Domain Registries) a ranking was assigned for the rank attribute based on those services that ranked the highest in

Google Search when doing keyword searches such as 'registrer domenenavn' or simply 'domene'. The Google ranking was used as a proxy for the actual ranking of the service.

8) Traffic/User Data. When available, this data was collected directly from the source (columns I–L in the database) assigned to the service instance.

9) Grey Zone. Any assignment to a DSA Category in this report necessarily implies some level of uncertainty, regarding use in a regulatory context. Furthermore, whenever it was particularly unclear whether a service was classified correctly on the DSA Category attribute, the Grey Zone attribute was assigned an 'x' or a comment to indicate this unclarity.

- For some services, the Grey Zone is marked with 'VLOP candidate' to indicate that the EC may designate the service as a VLOP in the future (e.g. Spotify is a VLOP-candidate).
- For a number of services, the attribute is assigned a 'Media' comment to indicate that the service provides some sort of media content that may or may not be affected by the DSA.

For a longer discussion on uncertainties pertaining to the assignment of DSA Categories, please refer to Chapter 4.2.2 The 'Grey Zone' attribute.

10) Source. The source was often the first attribute to join the list, as most instances come from some source. For a portion of the database, the source was assigned the value 'Google Search' to indicate that the source was simply a Google Search result. The Google Search method was used during the more pragmatic approach part of the study.

4.4.1 Collecting user and traffic data

A central aspect of the work was to find traffic and/or user data to allow for comparability of the impact of services (i.e. how many users in Norway and the world that use the service). However, to align and compare instances of services based on user data was not a trivial task. Within a single service class, comparability was easily achievable, especially for the ranked lists (e.g. Cisco, Tranco) and for lists where user or traffic data was included (e.g. Medietall.no, Data.ai, Statista). However, cross-service class analysis based on user data posed a far greater challenge, as no one holistic set of user numbers exists to easily rank services across the internet value chain.

4.4.2 Two approaches and duplication of the findings

During the data collection process, two central points of discussion emerged. First, the dual approach to the data collection and second, duplications in the data collected.

Two approaches

As mentioned in Chapter 4.2.1, two different approaches were taken to the data collection process. Initially, a top-down approach was used to investigate the most popular websites and applications. However, such an approach does not ensure that the data collected covers all business areas and

service sectors that may be subject to the DSA regulation. Therefore, the top-down approach was supplemented by a more pragmatic alternative whereby different categories of services were mapped out to fill in the database from the bottom up and in a more horizontal manner. With the bottom-up approach, we surveyed groups of Norwegian intermediary services category by category through use of specific data sources targeting one service class or through the use of expert interviews. Surveying the market based on the bottom-up category approach does not, however, ensure a collectively exhaustive list of services to be affected by the DSA. A larger exercise is required to ensure all relevant categories are surveyed and included in the database.

Duplication in the findings

Of the 1565 instances collected, there were 1435 unique Service Names. In other words, 130 Service Names were duplicates. What is more, of the same 1565 instances, there were 994 unique Company Names, meaning 571 Company names were not unique. The greater frequency of duplication among Company Names compared to Service Names makes sense, as certain companies offer multiple services under the same Company Name (e.g. Facebook and Facebook Messenger are both assigned 'Facebook Norway AS' as company name).

On the other hand, the duplication of Service Names is explained by the fact that a diverse set of different sources were used during the data collection activity. For instance, the service name 'Finn.no' was collected from multiple different sources. A decision was made during the data collection process to retain duplicate instances from different sources, as there may be an inherent value in knowing that a service has been discovered through more than one source.

The duplication in company names is also an interesting characteristic of the data collected, as it may be an indication of which companies have a larger presence in the Norwegian digital services market. For example, there are 34 different instances in the DSA Database with 'Google Norway AS' as company name. As is common knowledge to most people, Google has without a doubt an enormous impact on the Norwegian as well as the global internet market.

5 Findings from the study

We identified 1565 services in total. The breakdown of these services according to the applicable DSA Category, both for all instances and unique instances, is listed in whole numbers in Figure 5.1 and Figure 5.2 below. By unique instances, we mean instances in the database that are unique for Service Name and DSA Category.

Including all DSA Category classifications, 587 services (37.5%) were classified with a DSA Category listed as 'None' while 13 instances (0.8%) did not receive a classification and are marked as 'Blank' in the database. The 'Blank' instances are services for which we were not able to retrieve the appropriate DSA Category.

When only looking at unique instances, the total number of instances drops from 1565 to 1435. While the number of 'Caching' and 'Blank' instances remain the same, all other DSA categories see a drop in total number of instances when only counting one instance once. For example, the number of VLOPs/VLOSEs goes from 61 in the original DSA Database to 19 for unique instances only (which is the current total number of VLOPs/VLOSEs designated by the EC). See Figure 5.1.

Figure 5.1: Distribution of services along DSA Category classifications (whole numbers)

	Mere conduit	Caching	Hosting	Online platform	VLOP/ VLOSE	None	Blank	**Total**
All	423	18	213	250	61	587	13	**1565**
All (unique)	418	18	205	228	19	534	13	**1435**

Figure 5.2 shows the distribution of these categories as a proportion of the total both for all instances in the DSA Database and for unique instances. The first and second rows ('All' and 'All (unique)') show the percentage distribution including the categories 'None' and 'Blank' for all and unique instances. The third and fourth rows ('5 cat.' And '5 cat. (unique)') show distribution among the five categories relevant for the DSA (mere conduit, caching, hosting, online platform and VLOP/VLOSE) for all and unique instances.

Figure 5.2: Distribution of services along DSA Category classifications (percentage)

	Mere conduit	Caching	Hosting	Online platform	VLOP/ VLOSE	None	Blank	**Total (%)**
All	27.0%	1.2%	13.6%	16.0%	3.9%	37.5%	0.8%	**100%**

All (unique)	29.1%	1.3%	14.3%	15.9%	1.3%	37.2%	0.9%	100%
5 cat.	43.8%	1.9%	22.1%	25.9%	6.3%	–	–	100%
5 cat. (unique)	47.1%	2.0%	23.1%	25.7%	2.1%	–	–	100%

5.1 The leading service providers in each DSA category

The following sub-chapters provide a summary of the largest internet-based services in each relevant service class and for each of the five DSA categories.

All #User or #Site numbers are measured over a month while #Visitors numbers are a daily measure. 'Google rank' refers to ranking in Google Search, and 'own rank' is an internal judgment based on presence in the DSA Database and impressions through the survey work.

5.1.1 Top 'mere conduit' providers

From the 'mere conduit' DSA category, five groups of services have been chosen to be included due to the large number of service providers and/or due to a large number of users:

- ISPs
- top-level domain name registries
- domain name registrars
- colocation data centres
- certificate authorities.

ISPs

Figure 5.3 provides an overview of the largest ISPs in Norway.

Figure 5.3: Largest ISPs (Source: Nkom's ekomstatistikken)

	Service name	ISO	Type of service provided	#Users
1	Telenor Norge AS	NO	Electronic communications	728 000
2	Telia Norge AS	NO	Electronic communications	430 000
3	Viken Fiber	NO	Electronic communications	228 000
4	Lyse Fiber	NO	Electronic communications	94 000
5	Eidsiva Bredbånd	NO	Electronic communications	81 000

Top-level domain name registries

Figure 5.4 provides an overview of the largest registries with activity in Norway. The registries are obtained from iProspect's list of most popular websites in Norway[64] (including also non-.no sites).

Figure 5.4: Largest top-level domain name registries (Source: Norid, Google Search)

	Service name	ISO	Type of service provided	Google rank
1	Norid	NO	.no TLD registry	1
2	Verisign	US	.com TLD registry	2
3	Public Interest Registry	US	.org TLD registry (non-profit)	3

Domain name registrars

Figure 5.5 provides an overview of the largest registrars with activity in Norway.

Figure 5.5: Largest domain name registrars (Source: Norid, Google Search)

	Service name	ISO	Type of service provided	Google rank
1	One.com	DK	Web hosting	1
2	Domene AS	NO	Domain registration	2
3	Webhuset AS	NO	Web services	3
4	Domeneshop AS	NO	Domain registration	4
5	GoDaddy.com LLC	US	Web hosting and domain registration	5

A number of registrars (such as one.com) also offer web hosting services and are therefore not marked as 'mere conduits' in the DSA Database. They nonetheless also offer Domain Name Systems services, which falls under 'mere conduit' in the DSA. They are therefore included in Figure 5.5.

Colocation data centres

Colocation data centres have not received a 'mere conduit' DSA Category because they do not offer intermediary services, but rather physical space and cooling for other companies to place their server infrastructure. Therefore, no colocation data centres have been added to the 'mere conduit' list.

Certificate authorities

1. BankID (NO)
2. Buypass (SSL certificates) (NO)

64 Ref: https://www.iprospect.com/en/no/news-and-insights/news/liste/

Two relevant certificate authorities have been identified during the data collection process. On the one hand is BankID with around 2 million active monthly users.[65] On the other is Buypass, which is the only issuer of internationally approved SSL certificates in Norway. Buypass is found in both the Cisco and the Tranco list, while BankID is only in the Tranco list.

5.1.2 Top caching providers

Caching, commonly referred to as 'mellomlagring' in Norwegian, consists of temporary storage of information. Content delivery networks are the only group of services that fall into the 'caching' category.

Content delivery networks (CDNs)

Figure 5.6 gives an overview of the largest CDNs in Norway.

Figure 5.6: Largest CDNs (Source: BuiltWith, interviews with Norwegian ISPs)

	Service name	ISO	Type of service provided	#Websites (NO)
1	Akamai	US	Content delivery	~100 000
2	Google Cloud/Gstatic	US	Content/static content delivery	~100 000
3	jsDelivr	–	Content delivery (open source)	~40 000
4	Amazon CloudFront	US	Content delivery	~20 000
5	Cloudflare CDN	US	Content delivery	~20 000
6	Facebook CDN	US	Content delivery	~10 000
7	GoDaddy CDN	US	Content delivery	N.A.
8	Telenor CDN	NO	Content delivery	N.A.
9	GlobalConnect CDN	DK	Content delivery	N.A.
10	Netflix Open Connect	US	Content delivery	N.A.

The user data is retrieved from BuiltWith. Most Norwegian ISPs have Google, Facebook and Netflix CDNs on their infrastructure. Amazon and Akamai are two additional large CDNs in Norway.

5.1.3 Top hosting providers

We present the leading hosting providers in six key categories:

- mobile app hosting services (from Data.ai)
- web server hosting services
- e-commerce hosting services

65 Ref: Analysys Mason

- cloud computing services
- content management systems (CMS)
- data centres.

Popular mobile apps that are hosting services

Figure 5.7 provides an overview of the most popular mobile apps for hosting services in Norway.

Figure 5.7: Most popular mobile applications in Norway (hosting) (Source: Analysys Mason)

	Service name	ISO	Type of service provided	#Users (NO)
1	Vipps	NO	Payment service	Very high
2	Gmail	US	Email service	Very high
3	Microsoft Outlook	US	Email service	High
4	Google Photos	US	Photo gallery app	High
5	Google Drive	US	File management	High
6	Samsung Gallery	KR	Photo gallery app	High
7	Google Docs	US	Document creation and storage	Medium high
8	Samsung My Files	KR	File management	Medium high
9	Microsoft OneDrive	US	File management	Medium high
10	Google Sheets	US	Spreadsheet application	Medium high

Evidently, a few large firms hold a large portion of the market. Microsoft, Google and Samsung pose a large presence among the identified hosting services. Another large service provider that has not been included in the data is Apple and Apple iCloud services. Many of Apple's services are likely to be classified as 'hosting' services according to the DSA.

Web hosting services

Web hosting services rent out server space and provide the necessary technologies and infrastructure to store and display a customer's internet-based services. Web hosting services often support content management systems (CMS). Typically, a web hosting service rents space in a colocation data centre, sets up its own servers in the colocation data centre's rack system, and finally rents out server space in the form of web hotels, dedicated servers or other solutions to customers.

Figure 5.8 provides an overview of the largest web hosting services in Norway.

Figure 5.8: Largest web hosting services in Norway (Source: BuiltWith)

	Service name	ISO	Type of service provided	#Sites (NO)
1	Domeneshop	NO	Web hosting	180 000

2	One.com	DK	Web hosting	19 000
3	Cloudflare Hosting	US	Web hosting	17 500
4	GoDaddy Hosting	US	Web hosting	16 000
5	Squarespace Hosted	US	Web hosting	14 500
6	Hetzner	DE	Web hosting	8 900
7	Loopia	SE	Web hosting	7 700
8	OVH	FR	Web hosting	5 200
9	WordPress Hosting	US	Web hosting	3 900
10	WP Engine	US	Web hosting	3 800
11	Pro ISP	NO	Web hosting	N.A.
12	Syse	NO	Web hosting	N.A.
13	Webhuset	NO	Web hosting	N.A.
14	Misshosting.no	NO	Web hosting	N.A.
15	Domene.no	NO	Web hosting	N.A.

A number of web hosting providers found on the list are Norwegian or European services. There is little transparency when it comes to where these web hosting services' physical infrastructure is located.

E-commerce hosting services

Figure 5.9 provides an overview of the largest e-commerce hosting services in Norway.

Figure 5.9: Largest e-commerce hosting services in Norway (Source: BuiltWith)

	Service name	ISO	Type of service provided	#Users
1	Woo Commerce	US	E-commerce platform	8 900 000
2	Shopify	US	E-commerce platform	5 500 000
3	Magento	US	E-commerce platform	580 000
4	PrestaShop	US	E-commerce platform	450 000
5	BigCommerce	US	E-commerce platform	130 000
6	24 Nettbutikk	NO	E-commerce platform	N.A.

An e-commerce platform refers to a software or online service that enables businesses to sell products or services over the internet by providing tools and functionalities necessary for creating, managing and operating the online store. Many e-commerce platforms (including the ones in Figure 5.9) also offer web hosting services.

Cloud computing services

Web hosting services and cloud computing services are two similar but nonetheless distinct concepts. Cloud computing is based on virtualisation and distributed computing technologies, while web hosting services typically rely on dedicated or shared physical servers for the hosting activity. Furthermore, while web hosting services typically follow a fixed pricing model, cloud computing services offer a consumption-based ('pay-as-you-go') pricing model. In contrast, cloud computing services provide a broader range of computing resources beyond just hosting websites. Cloud computing encompasses storage, databases, software applications, development platforms, virtual machines and more. See Chapter 3.5 for a longer discussion on web hosting and cloud computing.

Figure 5.10 gives an overview of the largest cloud computing services in Norway.

Figure 5.10: Largest cloud computing services in Norway (Source: BuiltWith)

	Service name	ISO	Type of service provided	#Sites (NO)
1	Google Infrastructure	US	Cloud computing	80 000
2	Amazon AWS	US	Cloud computing	32 000
3	Google Cloud	US	Cloud computing	30 000
4	Digital Ocean	US	Cloud computing	11 000
5	Microsoft Azure	US	Cloud computing	8 000
6	AWS Global Accelerator	US	Cloud computing	6 800
7	Linode	US	Cloud computing	3 500
8	Vercel	US	Cloud computing	2 100
9	Oracle Cloud	US	Cloud computing	1 100
10	Cloudways	MT	Cloud computing	1 000

'Cloud hosting' is a related third category that combines elements from web hosting and cloud computing. Cloud hosting services leverage cloud infrastructure to host websites rather than using dedicated physical servers, as normal web hosting services use.

CMS

Figure 5.11: Large CMSs with Norwegian presence (Source: G2, Bonzer, Google Search)

	Service name	ISO	Type of service provided	Google rank
1	WordPress	US	Content management system	1
2	HubSpot	US	Marketing and CRM platform	2
3	WooCommerce	US	Content management system	3
4	Acquia Drupal Cloud	US	Cloud hosting for Drupal	4

5	GoDaddy	US	Domain registrar and web hosting	5
6	Joomla	US	Content management system	6

Content management systems (CMS) are software applications that allow users to create, manage and publish digital content on the internet. May CMSs offer hosting services as part of their offering, which is the case for the services listed above.

Data centres

Figure 5.12 provides an overview of some large data centres in Norway with their own hosting services. The majority (80-90%) of data centres located in Norway are what is called 'colocation data centres'. A colocation data centre rents out the physical space in racks for customers to place their own servers and rent out their own server space. However, some data centre providers in Norway also offer web hosting services directly to customers, including the data centres listed in the table below.

Figure 5.12: Largest hosting data centres in Norway (Source: Analysys Mason)

	Service name	ISO	Type of service provided
	Blix Solutions	NO	Colocation data centres, servers
	Microsoft Datacenter	US	Data centre and cloud hosting services
	Basefarm	FR	Colocation data centres, MSP
	Nordkappnett	NO	Virtual private servers, website hosting

5.1.4 Top online platforms

The leading online platforms are presented as five key categories:

- global social networks
- leading websites in the world
- leading Norwegian media websites
- leading Norwegian online stores
- other online platform categories.

Global social networks

Figure 5.13 gives an overview of the largest social networks in the world. The most popular networks in the world (Facebook, YouTube, WhatsApp, Instagram) are also some of the most popular networks in Norway. The Chinese social networks WeChat and Doyin have little or no presence in Norway. Moreover, Facebook Messenger has a relatively larger presence in Norway compared to globally.

Figure 5.13: Largest social networks in the world (Source: Statista, Analysys Mason)

	Service name	ISO	Type of service provided	#Users (World)	#Users (NO)
1	Facebook	US	Social media (VLOP)	2 958 000 000	Very high
2	YouTube	US	Video sharing platform (VLOP)	2 514 000 000	Very high
3	WhatsApp	US	Messaging	2 000 000 000	High
4	Instagram	US	Social media (VLOP)	2 000 000 000	Very high
5	WeChat	CN	Messaging and social media	1 309 000 000	Low
6	TikTok	CN	Short-form video (VLOP)	1 051 000 000	Medium high
7	FB Messenger*	US	Instant messaging	931 000 000	Very high
8	Douyin	CN	Chinese TikTok	715 000 000	None
9	Telegram	RU	Messaging (VLOP candidate)	700 000 000	Medium low
10	Snapchat	US	Multimedia messaging (VLOP)	635 000 000	High

* *Facebook Messenger*

Leading websites in the world

Data from Statista shows that Google.com and YouTube.com are the most popular websites in the world, by a landslide, with more than two billion visitors daily on each respective platform. Among the websites with 200 to 300 million daily visitors worldwide are Facebook.com and Twitter.com in addition to two adult content platforms.

Figure 5.14: Leading websites in the world by daily number of visitors (source: Statista)

	Service name	ISO	Type of service provided	#Visitors (World)
1	Google.com	US	Search engine	2 422 000 000
2	YouTube.com	US	Video sharing and streaming	2 049 000 000
3	Facebook.com	US	Social networking	293 000 000
4	Pornhub.com	US	Adult content platform	279 000 000
5	Xvideos.com	US	Adult content platform	238 000 000
6	Twitter.com	US	Social networking	224 000 000
7	Wikipedia.org	US	Online encyclopaedia	183 000 000
8	Reddit.com	US	Social news and discussion	132 000 000
9	Instagram.com	US	Social networking	122 000 000
10	Xnxx.com	US	Adult content platform	102 000 000

Leading Norwegian media websites

Figure 5.15 gives an overview of the most popular Norwegian media websites measured in daily traffic on as the total traffic on mobile, tablet and desktop. As highlighted DSA Recital 13 and discussed in Chapter 3.5.1, comments sections on news media websites are likely to not engender an online platform designation as per the DSA. Therefore, the media websites whose principal service is the publication of news are marked by a 'not online platform (OP)' in Figure 5.15.

Figure 5.15: Most popular Norwegian media websites (Source: Medietall.no)

	Service name	ISO	Type of service provided	#Visitors (World)
1	VG	NO	News (not OP)	1 947 000
2	NRK	NO	News (not OP)	1 529 000
3	Dagbladet	NO	News (not OP)	1 348 000
4	Yr	NO	Weather Forecast (not OP)	1 276 000
5	TV 2	NO	News (not OP)	1 103 000
6	Finn.no	NO	Online Marketplace and Classifieds	978 000
7	Nettavisen	NO	News (not OP)	562 000
8	E24	NO	Financial News Media (not OP)	528 000
9	Aftenposten	NO	News (not OP)	386 000
10	Se og Hør	NO	Tabloid (not OP)	318 000
11	ABC Nyheter	NO	News (not OP)	250 000
12	Startsiden	NO	News aggregation site (not OP)	209 000
13	Klikk	NO	Consumer Information (not OP)	206 000
14	SOL	NO	News aggregation site (not OP)	197 000
15	Bergens Tidende	NO	News (not OP)	185 000

Leading Norwegian online stores

Figure 5.16 provides an overview of the largest online stores in Norway. The data is collected from Bonzer and shows that Elkjøp is the largest online store in Norway.

Figure 5.16: Largest online stores in Norway (Source: Bonzer)

	Service name	ISO	Type of service provided	Traffic (monthly)
1	Elkjøp	NO	Consumer electronics retailer	2 100 000
2	Zalando	DE	Fashion retailer (VLOP)	1 900 000
3	Clas Ohlson	SE	Home and hardware retailer	1 200 000

4	Apotek 1	NO	Pharmacy and healthcare retailer	1 100 000
5	XXL	NO	Sports equipment retailer	1 000 000

Most online stores sell their own goods and do not function as an intermediary service between business and end-users. At the same time, certain online stores (including all those listed in Figure 5.16) have review functionalities on their web sites through which customers can post their own (user-generated) product reviews. If such reviews sections constitute a central feature of the online store service, then the service may have a non-ancillary feature that can engender an online platform designation. To assess whether a reviews section is non-ancillary, it can be reasonable to first assess the size and popularity of the reviews sections. Chapter 4.2.2 provides a discussion on the topic of popularity of reviews sections. Moreover, size of the business itself is relevant; DSA Article 19(1) provides that micro and small businesses (fewer than 50 full-time employees and turnover/balance sheet below EUR10 milllion)

It is important to note that online stores often use third-party review systems for the reviews on their platforms. From the list above, Elkjøp uses US-based company Bazaarvoice for their review system while Apotek 1 uses a system provided by RealReviews by Lipscore (Norwegian).

Other online platform categories

Figure 5.17 provides an overview of other categories of online platforms in addition to a selection of services for each category. The DSA Categories listed in Figure 5.17 will most likely be affected by the DSA as online platform services.

Figure 5.17: Other online platform categories

Online forums (Source: IT-Maniacs)	Online marketplaces (Source: G Search*)	Gaming platforms (Source: G Search*)	Video sharing websites (Source: G Search*)
Discord	Jollyroom	Fortnite	Twitch
Quora.com	Lekekassen	Minecraft	Dailymotion
Imgur	Blivakker.no	Xbox Live	Vimeo
Github	Miinto.no	League of Legends	IGTV by Instagram
IMDb	Tights.no	Ubisoft Connect	Streamable

** Google Search*

In addition to the categories listed in Figure 5.17, there are a number of other categories of services that may be affected by the DSA as online platforms. The following list is not exhaustive and is only suggestive of the type of services that the preceding overview does not cover.

- internet browser games
- online advertising services
- application stores

- online game stores
- email service providers
- file transfer services.

5.2 Norwegian news media sites

DSA Recital 13 provides that dissemination to the public of information provided by a recipient of the service and at the request of that recipient should not yield an 'online platform' designation when that dissemination activity is merely a minor or purely ancillary feature of the service. Moreover, DSA provides comments sections on newspaper sites as one example when such an instance can hold true. As such, the following overview of popular Norwegian media sites may fall outside the scope of the DSA. Nonetheless, news media sites are some of the most popular Norwegian websites in terms of user and traffic numbers (see Figure 5.15). As such, it can be relevant to have a proper understanding of who the large players in the news media market are, since uncertainties remain regarding the role of comments sections for a DSA designation.

5.2.1 Popular media sites in Norway

Medietall.no provides a list of popular online newspapers and media sites and their accompanying traffic. While many of the news and media platforms in Medietall's overview are independent undertakings, a number of services belong to or are partnered with larger Norwegian media conglomerates. To be more precise, Schibsted ASA, Aller Media AS, and Polaris Media ASA wield considerable influence in the data due to direct ownership or partner agreements.

Table 1 provides an overview of the services fully or partially owned by each of the three major media houses. It is important to note that the service list for Polaris Media is not exhaustive.

Table 1: Large news media firms in Norway

Schibsted ASA	Aller Media AS	Polaris Media ASA
VG	Dagbladet	Adresseavisen
Aftenposten	Se og Hør	Harstad Tidende
Bergens Tidende	SOL	iTromsø
Vestnytt	KK	Sunnmørsposten
Askøyværingen	Kvinneguiden	Romsdals Budstikke
Strilen	vi.no	Fædrelandsvennen
E24	Elbil24	MN24
Bygdanytt	Kvasir	Varden
Stavanger Aftenblad	Kode24	Bladet
(Podme)	Dinside	*And more*

5.2.2 Schibsted

Schibsted is a Norwegian media company with operations across the Nordics. Schibsted partially or wholly owns many Norwegian, Swedish, Danish and Finnish brands, all of which have presence online and may potentially be affected by DSA regulation. Moreover, Schibsted is the second-largest shareholder of Adevinta, with a 28-percent ownership stake. Adevinta is a European leader in online classifieds and has a large presence in continental Europe. eBay GmbH owns the largest stake of Adevinta of just under 33%.[66]

Schibsted's own brands

Schibsted divides its product portfolio into four product categories:

News Media (NO, SE)	Schibsted owns a range of different online media services. About half of the brands in this category are news media brands, including Aftenposten (NO) and Aftonbladet (SE) in addition to smaller local news media (e.g. Bygdanytt). The other half of the brands in this category concerns other media-based services, such as podcasting services, food/recipe platforms and weight loss platforms.
Ventures (NO, SE, FI)	Schibsted has venture activity across Norway, Sweden and Finland. Nearly all services relate to online (internet-based) services, such as online doctor and therapy consultation services, the price comparison platform Prisjakt, an app for mindfulness and meditation and a package return service for clothing brands.
Marketplaces (NO, SE, DK, FI)	Schibsted's Marketplaces brands offer online services related to sale and purchase of new and used products, delivery services, construction-related services and housing rental services. Finn.no (NO), Blocket (SE), Dba (DK) and Tori (FI) are some of the largest user-to-user marketplaces in their respective countries, and all are under the Schibsted umbrella.
Financial Services (NO, SE)	Schibsted has financial services brands in Norway and Sweden. Brands include a crypto exchange, multiple banking and insurance services, a 'crowdlending' marketplace for smaller businesses, and more. Schibsted's Financial Services brand offers services that likely do not qualify as intermediary services according to the DSA.

Adevinta brands

Adevinta has 31 brands that all are likely to qualify as online platforms according to the definitions laid out in the DSA. All of Adevinta's brands offer trade/user-to-user marketplace services, similar

66 Ref: https://www.proff.no/roller/adevinta-asa/oslo/it-drift-og-support/IF8TAIQ0ZDG/

to what Finn.no does in Norway. European market leaders like Leboncoin (FR), Marktplaats (NL), Subito (IT) and (eBay) Kleinanzeigen (DE) are part of Adevinta's product portfolio. The portfolio also holds more specialised brands, such as online marketplaces for cars/vehicles (FR, DE, HU, IT, ES), property listing platforms (ES, IE, FR), job listings (IT, ES) and agriculture and construction equipment listing platforms (FR).

Schibsted also holds the market leaders in Norway, Sweden, Denmark and Finland. Clearly, Schibsted and Adevinta have a large reach in the European intermediary services market.

Schibsted and Adevinta in the DSA Database

All Schibsted and Adevinta brands are marked in the DSA Database as the following service classes:

- Schibsted News Media
- Schibsted Ventures
- Schibsted Marketplaces
- Schibsted Financial Services
- Schibsted Adevinta.

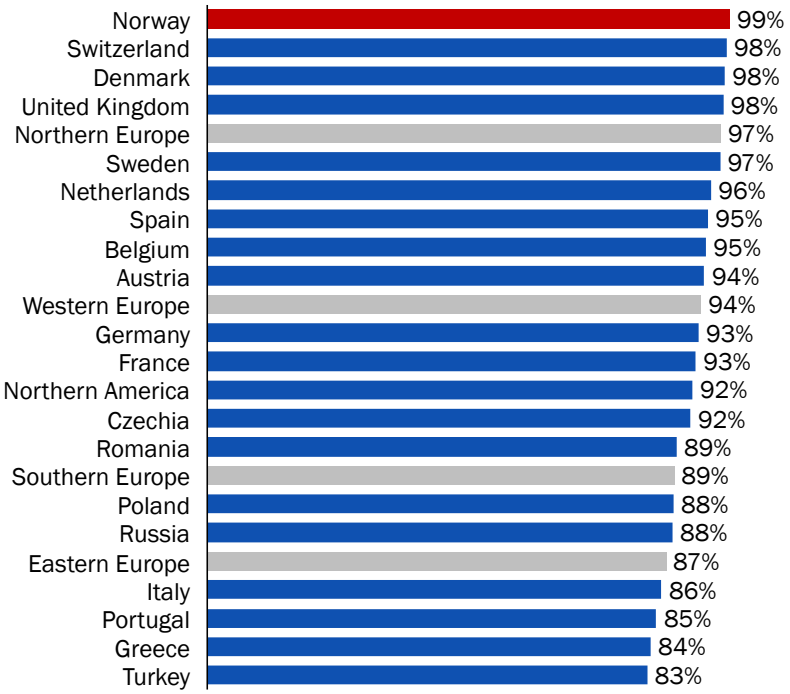
6 European benchmarks

To gain a better understanding of how Norway compares to the rest of Europe, it can be beneficial to do a benchmarking activity of intermediary services in Norway and Europe.

6.1 Internet usage and social media platforms

Norway is among the countries with the highest internet penetration in the world. As Figure 6.1 shows, Norway has the highest internet penetration in Europe (followed by Switzerland and Denmark), at 99%. Moreover, Norway also has the second highest penetration in the world, after Saudi Arabia, with the United Arab Emirates ranked third.[67]

Figure 6.1: Internet penetration in selected countries (January 2023) and European regions (April 2023) (Source: Statista)



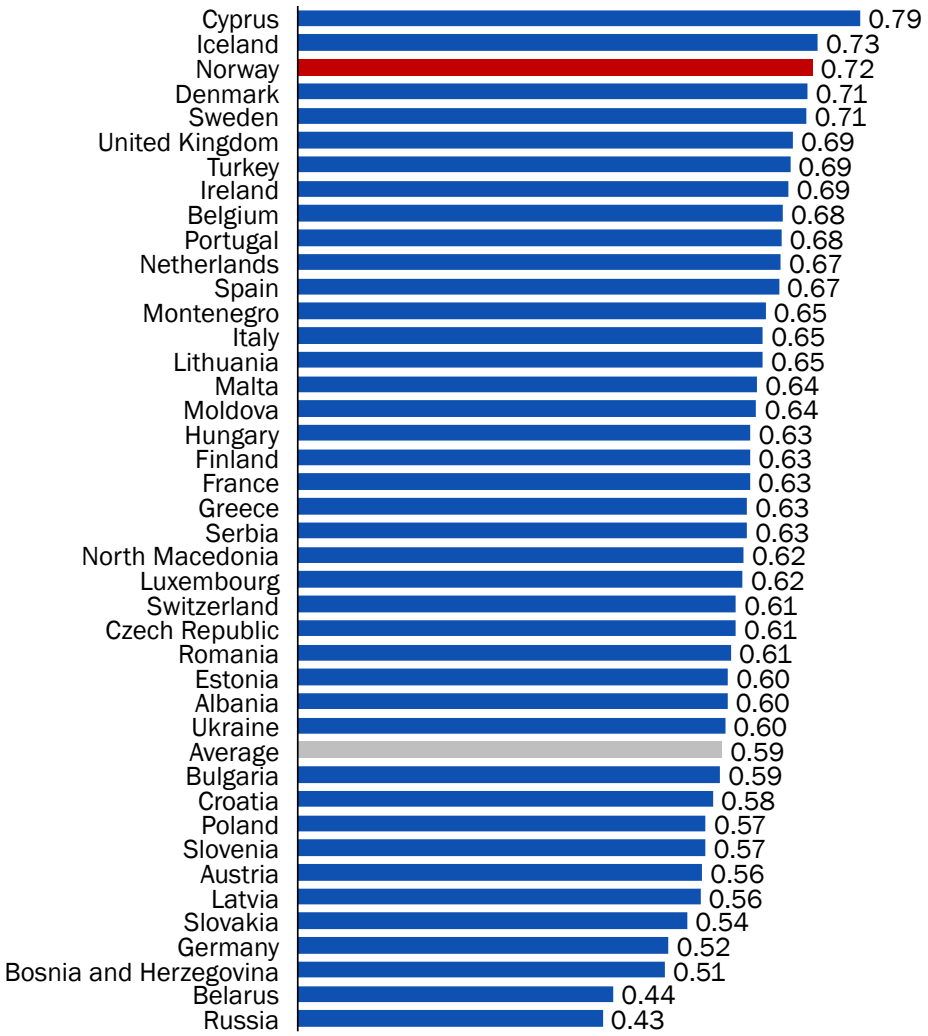
As the discussion below demonstrates, Norway also leads Europe in penetration of social media platforms. It is natural to expect a high correlation between penetration of internet and of the various social media platforms: without a high degree of internet coverage, it would be difficult for citizens be active on social media platforms. Norway is often far above the presented averages when it comes to penetration or usage across selected social media platforms.

67 Ref: https://www.statista.com/statistics/227082/countries-with-the-highest-internet-penetration-rate/

Facebook

Facebook is the largest social media app in Norway (see Figure 5.13) and the third largest website in the world (see Figure 5.14). Statista provides data on the average number of monthly users in Europe.[68] Using population data from Euromonitor, it is possible to calculate the number of users per capita. The number of users per capita is comparable to a penetration rate. However, it is not the same metric, because a penetration rate typically considers *all* users of a platform as a proportion of the overall population, rather than average monthly users. Moreover, the Statista data calculates Facebook user numbers based on unique persons, rather than number of accounts: a person with two Facebook accounts will only count once in the Statista data.

Figure 6.2: Facebook users per capita in European countries (Source: Statista, Euromonitor)



As Figure 6.2 demonstrates, Norway has one of the largest numbers of Facebook users per capita. About 72% of the Norwegian population has at least one Facebook account with which it they are active at least once per month. Only Iceland (73%) and Cyprus (79%) have a higher share.

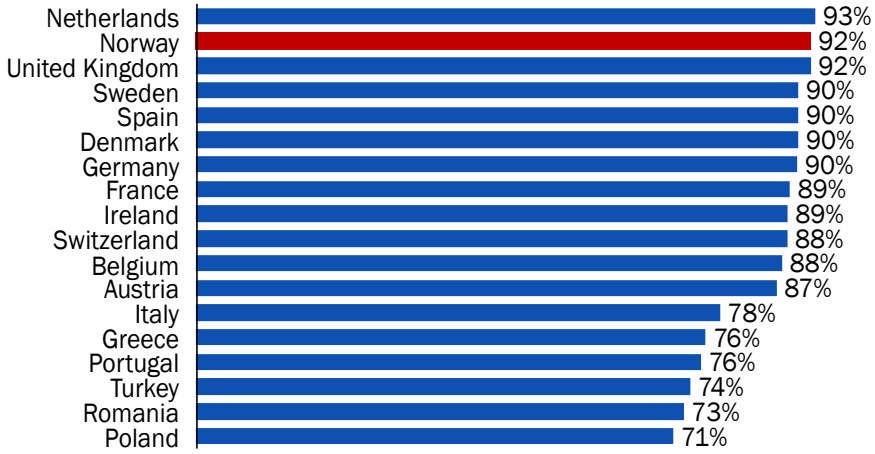
68 Ref: https://www.statista.com/forecasts/1169092/facebook-users-in-europe-by-country

Meanwhile, Denmark and Sweden are right behind Norway, with Facebook users per capita of 71% each.

6.1.2 YouTube

Statista provides data on YouTube penetration rates for adult subscribers (above 18 years of age) in selected countries as of April 2023.[69] Of the 49 selected countries, 18 were in EU-27. As Figure 6.3 exhibits, Norway has the second largest YouTube penetration rate among the selected countries, at 92%, only exceeded by the Netherlands at 93%.

Figure 6.3: YouTube penetration rates in selected European countries in April 2023 (source: Statista)

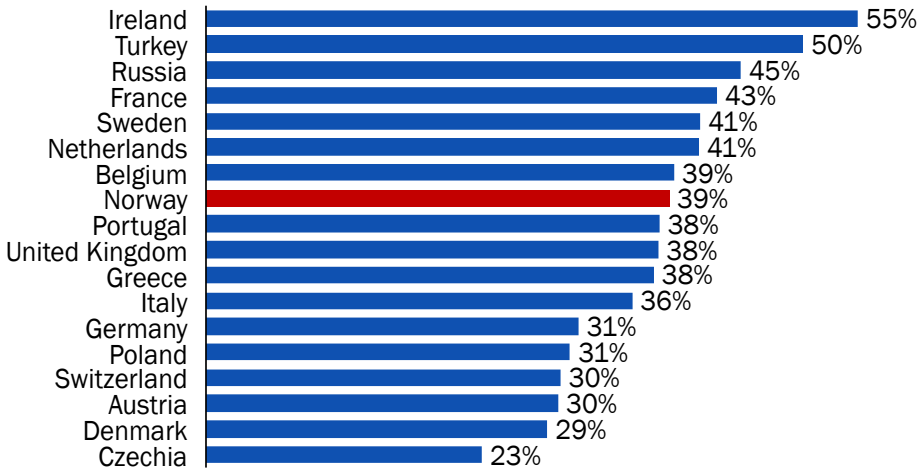


6.1.3 TikTok

Norway does not have a high penetration rate on the short-video social media platform TikTok. Statista provides data on TikTok penetration rates in selected countries among adult users (over 18). Of the European countries provided, Norway is only slightly over average at 39%. Ireland has the highest penetration rate of the selected EU countries, followed by France at 43% at Sweden at 41%. Denmark is significantly below Norway, at 29%.

69 Ref: https://www.statista.com/statistics/1219589/youtube-penetration-worldwide-by-country/

Figure 6.4: TikTok penetration rates in selected European countries in April 2023 (source: Statista)



Given that TikTok started to expand globally in 2016,[70] it is a significantly newer social media platform than Facebook (which was launched in 2004[71]) and YouTube (which was launched in 2005[72]). The ten-year age gap explains why the penetration rates on Facebook and YouTube are higher than those of TikTok.

6.1.4 Mobile messaging apps

Statista provides estimates for the usage of internet-based mobile messaging applications for the top 24 countries in the world.[73] 13 of the 24 countries on the list were in Europe. Internet-based (over-the-top) IM services do not include non-internet-based IM services, so SMS usage is not included in the estimations summarised in Figure 6.5. The usage is estimated based on mobile users of all ages that use IM services at least once per month via a mobile handset (in browser or app). Anonymous social sharing applications and social networking applications that offer private messaging capabilities as a secondary feature (e.g. Instagram and Twitter) are excluded. The estimates also exclude services that solely provide voice and/or video calling services.

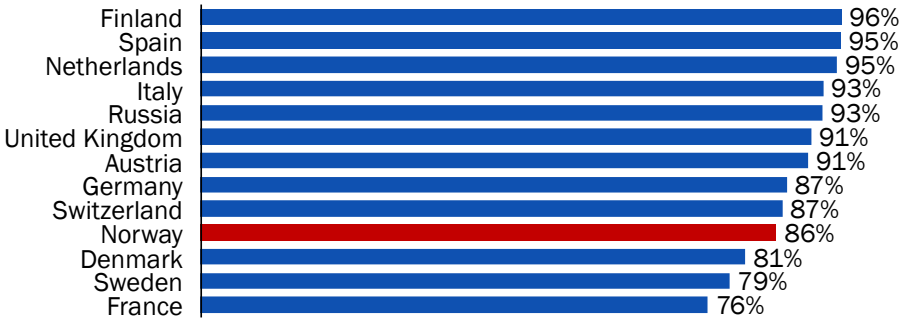
70 Ref: https://www.bbc.com/news/technology-53640724

71 Ref: https://www.history.com/this-day-in-history/facebook-launches-mark-zuckerberg

72 Ref: https://www.britannica.com/topic/YouTube

73 Ref: https://www.statista.com/statistics/1263720/mobile-messaging-apps-usage-by-country/

Figure 6.5: European countries with highest mobile messaging usage as of 2021 (source: Statista)



In 2021, Finland was estimated by Statista to be the European country with the highest share of mobile messaging app users (and the second highest usage reach in the world after Mexico). 95.5% of Finland's mobile internet users employed internet-based instant messaging services. Spain had the second highest reach in Europe of 95.4% of the population, closely followed by the Netherlands at 94.9%. In Norway, 85.8% of its mobile internet users use messaging apps, followed by Denmark and Sweden at 81.2% and 78.8%, respectively.

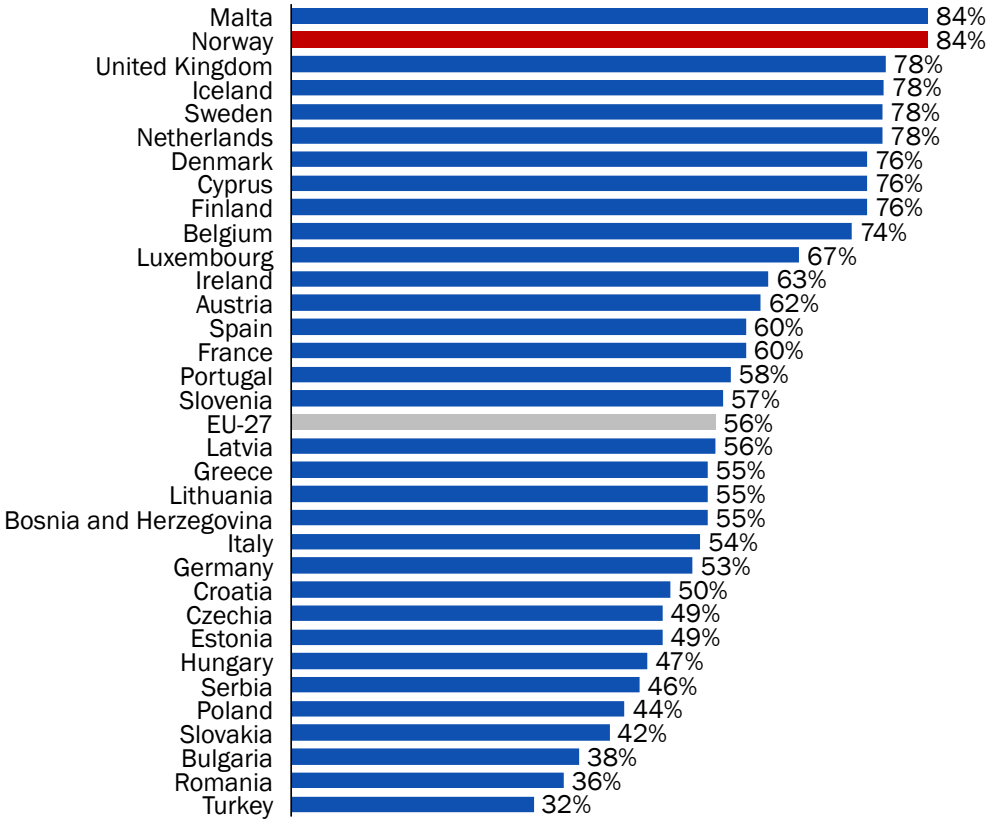
6.1.5 Share of enterprises using social media in European countries

Between 2014 and 2021, the share of enterprises across the EU making use of social networking apps and services increased from 31 to 56%.[74]

Among current EU countries, Malta, Norway and Iceland have the highest share of enterprises that make use of social networking, at 84%, 84% and 78%, respectively. Denmark and Sweden also have relatively high shares of enterprises employing social media, at 78% and 76%, respectively. Among Western European countries, Germany has the lowest share at 53%. The EU-27 average is 56%.

74 Ref: https://www.statista.com/statistics/1287421/social-network-usage-countries-inside-the-european-union-by-country/

Figure 6.6: Share of social network business usage in countries inside EU-27 as of end of 2021 (source: Statista)



6.1.6 Social media usage by frequency in selected EU/EEA countries

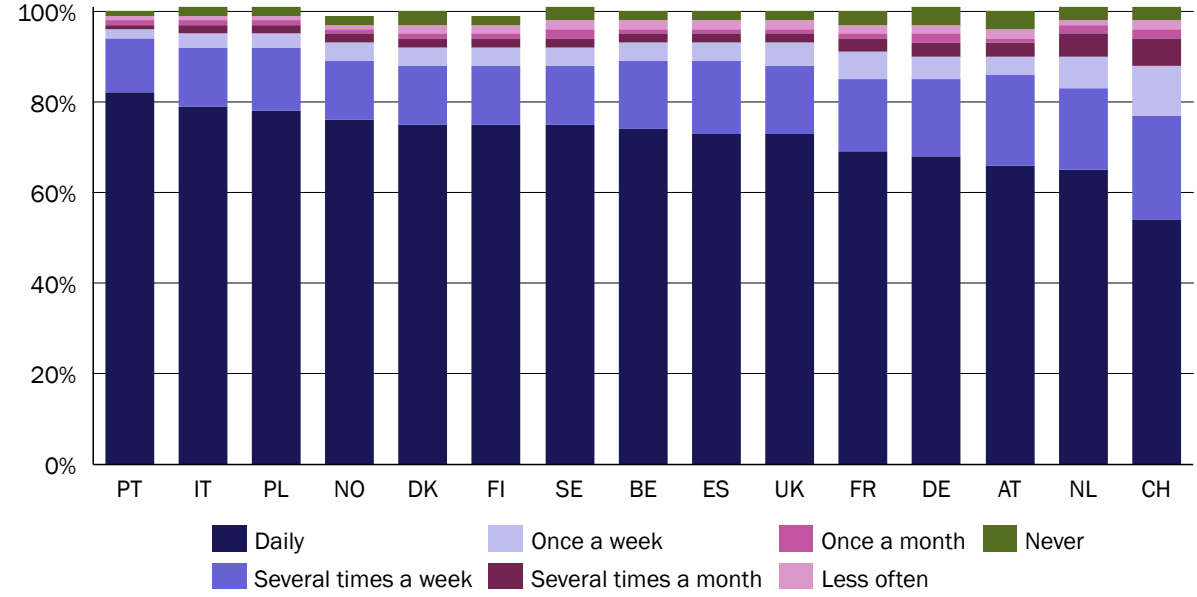
Next to understanding how many social media platforms are used by the population, is it also interesting to gauge the frequency of usage on social media platforms.

Statista's Consumer Insights survey in 2023 asked respondents the following question: "How often do you use social media like Facebook or Instagram? This does not include instant messengers such as WhatsApp." Respondents got seven answer alternatives ranging from 'daily' to 'never'. Among the surveyed countries (indicated by their two-letter ISO code[75]) Portugal had the highest number of respondents indicating daily use on social media platforms (82%). Portugal was followed by Italy at 79% and Poland at 78%. In Norway, 78% of respondents indicated daily social media use whereas 13% indicated using social media platforms several times a week. 75% of Denmark's surveyed population used social media daily whereas 75% of Sweden's surveyed population used social media platforms daily.

75 PT Portugal; IT Italy; PL Poland; NO Norway; DK Denmark; FI Finland; SE Sweden; BE Belgium; ES Spain; UK United Kingdom; FR France; DE Germany; AT Austria; NL Netherlands; CH Switzerland.

Figure 6.7 visualises the findings from the Statista Consumer Insights survey from 2023.

Figure 6.7: Social network usage by frequency in selected European countries in 2023 (source: Statista)*



** Switzerland and Portugal data was collected in 2022.*

Due to rounding, some of the surveyed countries (e.g. Italy, Poland and Norway) have percentages that add up to 99% or 101%.

6.2 Supply-side benchmarks

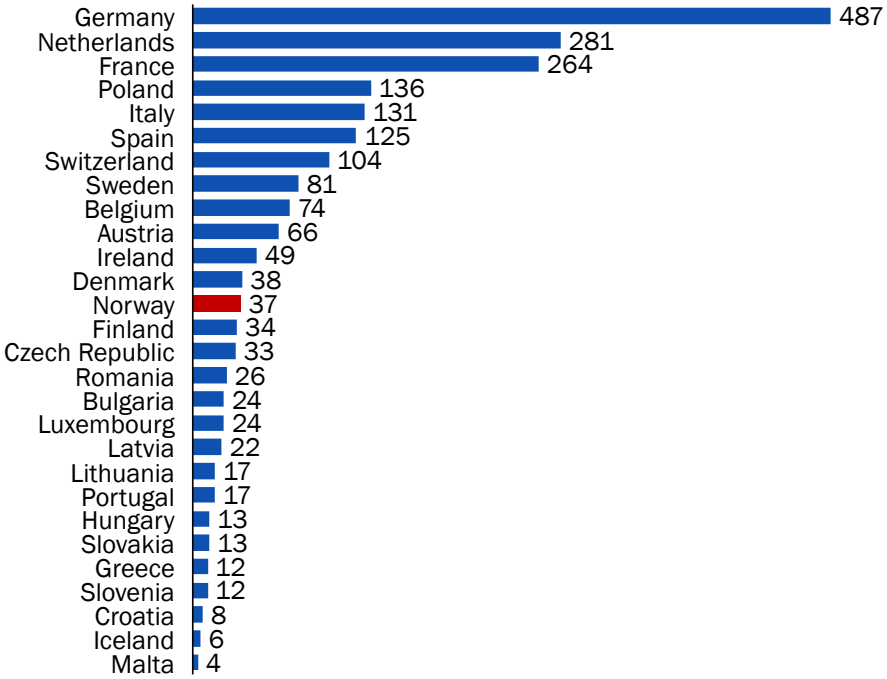
The previous discussion in this chapter has focused on end-user behaviour. However, it would be interesting to understand how the supply of internet-based services compares across the EEA and Scandinavia as well. By supply side, we mean internet-based services that supply business and end-users.

6.2.1 Data centres in EU

Statista provides statistics on the number of data centres in European countries as of October 2022, summarised in Figure 6.8.[76] Germany has 478 data centres, which is the largest number among the selected countries and in Europe at large. The Netherlands and France are second and third in line, with 281 and 264 data centres respectively. Norway's 37 data centres position it in the middle range of the chart. While Denmark only has one more data centre than Norway (38 versus Norway's 37), Sweden has 81 data centres.

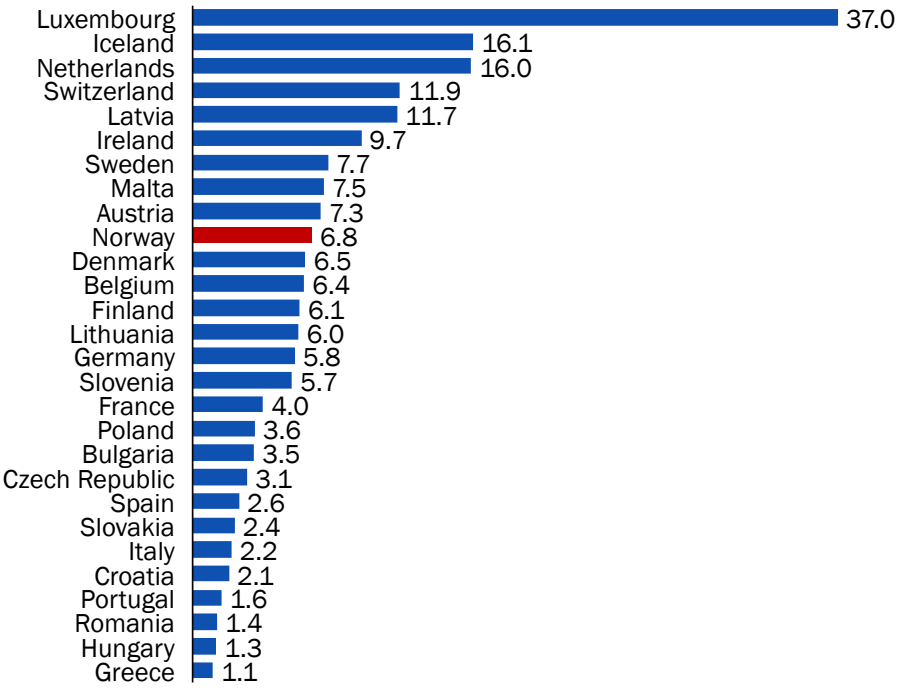
76 Ref: https://www.statista.com/statistics/878621/european-data-centers-by-country/

Figure 6.8: Number of data centres in EU/EEA countries as of October 2022 (source: Statista)



It would be interesting to get a comparable metric across the varying sizes of the EU/EEA countries. Therefore, we have also provided a graph exhibiting data centres per number of inhabitants, which is calculated as the number of data centres per 1 million inhabitants. Population numbers are retrieved from Euromonitor. See Figure 6.9 for the overview.

Figure 6.9: Data centres per 1 million people in EU/EEA countries as of October 2022



As Figure 6.9 shows, Norway has about 6.8 data centres per 1 million inhabitants, leading the country to be tenth highest on data centres per capita among the 28 EU/EEA member states. Luxembourg, with its 24 data centres and a population of about 650 000[77] ranks highest. Luxembourg is followed by Iceland and the Netherlands, with approximately 16 data centres per 1 million capita each. Sweden is seventh on the list and Denmark is in eleventh place, just after Norway.

It is important to note here that number of data centres is only an indicative measure. The data centre capacity in a given country should be the total sum product of number of data centres and capacity of each data centre. Capacity is normally measured in megawatt and represents the total server power contained within a data centre. As such, capacity needs also to be considered before an accurate comparison can be made of data centre activity across different countries.

6.2.2 Comparison of the top 30 Cisco list for Norwegian, Swedish and Danish TLDs

The Cisco list provides the one million most popular domain names worldwide, including APIs and other categories of domains[78], many of which are not included in the more pragmatic, end-user oriented Tranco list. (For a longer discussion on the difference between the Cisco and Tranco lists, please refer to Chapter 4.1.) From the Cisco list as of end of June 2023, the domains with country code top level domains (ccTLDs) being .no, .se and .dk were filtered out to get the most popular sites worldwide under a Norwegian, Swedish and Danish ccTLD, respectively.

When comparing the top domains from the Norwegian, Swedish and Danish ccTLDs, a pragmatic approach was taken and each domain was investigated individually. Figure 6.10 gives and overview of the highest ranked domains per ccTLD. For the top 3 domains, the Cisco ranking was also provided to indicate level of popularity across the Scandinavian ccTLDs. Each domain is identified either as an 'backend domain' or an 'end-user domain'.

- 'Backend domain', marked in *red italics* in Figure 6.10 below, refers to domains which are not end-user oriented. These are domains which serve no practical purpose for the internet end-user, i.e. have no practical use for a normal user when requested in an internet browser. For example, rixtelecom.se is not accessible to end-users when requested in a web browser. Moreover, other domains lead to a functioning website, but the purpose of that website is not for an end-user, in which case the domain is also marked as a backend domain. For example, suntcontent.se leads to a log-in portal which looks user friendly. However, when investigating suntcontent.se further, we found that Sunt AB is a Swedish marketing firm specialised in native and content display advertising. As such, the suntcontent.se domain was identified as a portal for business users to advertise online, meaning the domain was not end-user oriented and as such a backend domain.

- 'End-user domain', marked in blue below, refers to domains which are indeed end-user oriented, i.e. used to request websites by the normal internet user. For example, the high ranks of Google's

77 Source: Euromonitor

78 Source: https://s3-us-west-1.amazonaws.com/umbrella-static/index.html

Norwegian, Swedish and Danish ccTLD names are assumed to be explained by large volumes of end-user requests. Therefore, google.no, google.se and google.dk are marked as end-user domains. Moreover, domains that contain 'api' and are assumed API-links (such as api.met.no) are included as end-user links because these sites are employed by other internet-based services to feed an application or another website for end-use purposes.

Figure 6.10: Top 30 .no, .se and .dk backend and end-user domains in June 2023 (Source: Cisco)

.no	.se	.dk
met.no (19 940)	*suntcontent.se (9694)*	dba.dk (24 471)
api.met.no (20 440)	*dmp.suntcontent.se (9706)*	www.dba.dk (24 706)
finn.no (22 427)	*seenthis.se (14 707)*	google.dk (25 052)
google.no	*t.seenthis.se*	www.google.dk
www.google.no	*video.seenthis.se*	pricerunner.dk
assets.finn.no	*rixtelecom.se*	www.bilbasen.dk
images.finncdn.no	google.se	www.sikkerhedsbranchen.dk
log.medietall.no	www.google.se	footlocker.dk
medietall.no	ezyflight.se	www.footlocker.dk
maptiles.finncdn.no	*api-production-lynxair-booksecure.ezyflight.se*	kelkoo.dk
ota.neat.no	*ntp.se*	adidas.dk
proff.no	*retargeting.bksn.se*	tv2.dk
vgc.no	hitta.se	*api.ooono.dk*
posten.no	zalando.se	*himsa.dk*
my.postnord.no	www.zalando.se	loebeshop.dk
sporing.posten.no	www.hitta.se	www.loebeshop.dk
futurehome.no	*tracker.pomf.se*	proshop.dk
app.futurehome.no	aftonbladet.se	europcar.dk
data.nrk.no	expressen.se	www.europcar.dk
dagbladet.no	ops.dice.se	ghostship.dk
www.ellos.no	www.expressen.se	www.bt.dk
vgtv.no	footlocker.se	ekstrabladet.dk
imbo.vgtv.no	avis.se	*apiv3.ooono.dk*
session-service.payment.schibsted.no	www.avis.se	www.elgiganten.dk
svp.vg.no	www.allabolag.se	drg.ghostship.dk
access.vg.no	www.fruugo.se	services.ghostship.dk
maritim.no	www.familjeliv.se	guloggratis.dk
www.maritim.no	foodora.se	www.guloggratis.dk
cdon.no	hemkop.se	www.dr.dk
elkjop.no	*appdoor2cache.appland.se*	*registration.himsa.dk*

The blue end-user domains dominate the list for all three ccTLDs. Investigating these end-user domains further, we can sort them into three different categories of domains, marked by three different colours:

- *green italics* means online marketplaces, e-commerce websites and other related activity
- orange means news and media sites
- purple means other types of websites

Figure 6.11 shows the top 20 end-user domains under the three Scandinavian ccTLDs, categorised by colour. For the .no and .se domains in Figure 6.10 above, there were exactly 20 end-user domains per ccTLD, and all these are included in the table below. Meanwhile, the .dk column in Figure 6.10 contains 28 end-user domains. Only the first 20 of the Cisco domains under the Danish ccTLD were therefore included in Figure 6.11.

Figure 6.11: Top 20 .no, .se and .dk end-user domains (source: Cisco)

.no	.se	.dk
met.no	google.se	*dba.dk*
api.met.no	www.google.se	*www.dba.dk*
finn.no	ezyflight.se	google.dk
google.no	api-production-lynxair-booksecure.ezyflight.se	www.google.dk
www.google.no	*hitta.se*	*pricerunner.dk*
medietall.no	*zalando.se*	*www.bilbasen.dk*
ota.neat.no	*www.zalando.se*	www.sikkerhedsbranchen.dk
proff.no	*www.hitta.se*	*footlocker.dk*
posten.no	aftonbladet.se	*www.footlocker.dk*
my.postnord.no	expressen.se	*kelkoo.dk*
sporing.posten.no	ops.dice.se	*adidas.dk*
futurehome.no	www.expressen.se	tv2.dk
app.futurehome.no	*footlocker.se*	api.ooono.dk
dagbladet.no	avis.se	*loebeshop.dk*
www.ellos.no	www.avis.se	*www.loebeshop.dk*
vgtv.no	www.allabolag.se	*proshop.dk*
maritim.no	*www.fruugo.se*	europcar.dk
www.maritim.no	www.familjeliv.se	www.europcar.dk
cdon.no	foodora.se	ghostship.dk
elkjop.no	hemkop.se	www.bt.dk

The top 30 .no backend and end-user domains

Of the ten backend .no domains in Figure 6.10 (marked in red italics), all ten represent some backend site that belongs to an end-user domain. The second-level domain, which is the string of text immediately preceding the ccTLD (i.e. .no), relate in most cases to internet-based services with which we are already familiar, such as Finn.no, VG and NRK (an online marketplace and two newspapers, respectively). The domain vgc.no is also a VG domain. The subdomain, on the other hand, is a prefix added to the second-level domain, such as 'assets' in assets.finn.no. Subdomains are typically used to manage content more extensively. For instance, the asset subdomain refers to the location of static assets (e.g. images) on a website (e.g. finn.no). As such, all ten .no backend domains are linked to a corresponding Norwegian end-user domain.

Marked in green italics in Figure 6.11, almost half (i.e. 9) of the top 20 end-user .no domains relate to e-commerce or online marketplace activity, including shipment of packages (i.e. Posten and PostNord). Interestingly, compared to the largest Norwegian online stores shown in Figure 5.16, only Elkjøp (the largest Norwegian online store as per that table) finds itself in both lists. One explanation may be that while Figure 5.16 is based on annual data, the Cisco list provides a snapshot, meaning there may be large variations in the list from one day to the next. Nonetheless, as Figure 6.11 illustrates, Norwegians like to shop online.

Moreover, only two online news sites can be found in Figure 6.11. This is a surprisingly low number when compared to the results from the Tranco list shown in Figure 6.12 where Norwegian news sites dominate.

The top 30 .se backend and end-user domains

Among the top 30 .se domains shown in Figure 6.10, a handful of backend services can be found. Firstly, the top five domains in the list refer to two large online advertisement/marketing technology agencies, namely Sunt AB and SeenThis AB. Sunt and SeenThis create online advertisement content for other (potentially internet-based) services. Therefore, these online marketing agencies are not end-user services, but backend services in the internet economy. Furthermore, Sunt and SeenThis's domains have a high rank in the full Cisco list, ranked starting at 9694 (out of one million domains in total). In comparison, the highest-ranked .no and .dk domains start at 19 940 and 24 471, respectively.

Another identified backend domain is ntp.se, which is in eleventh place in the .se column in Figure 6.10. The domain ntp.se is the access URL to Netnod's (the Swedish IXP's) network time protocol (NTP) service, which is used to synchronise computer clocks. Although Netnod's NTP service is a backend service, a preliminary understanding of the service suggests that there is no intermediary function and as such this service is likely not to be impacted by the DSA.

A third interesting finding is the domain appdoor2cache.appland.se. Appland is a Swedish company whose business model involves hosting and distributing mobile applications to customers worldwide

for a monthly fee. By distributing mobile applications and creating app stores online, Appland may potentially be an online platform as per the DSA.

With highly popular online advertising agencies and an app distribution business, the .se domains in Figure 6.10 suggest that Sweden has a much larger international audience than does Norway, whose most popular domains all refer (directly or indirectly) to end-user-oriented domains. Although the higher ranks of the Swedish sites likely are a result of Sweden's relatively large population, the high ranking and nature of the .se domains may also suggest that Swedish domains have a larger international audience. This could be a logical assumption, given that three unique backend services were identified in the .se list.

In addition to backend links, we also have Swedish frond-end links. The second column in Figure 6.11 provides the top 20 Swedish end-user domains. Like Norwegians, it also seems that the Swedes like to shop online. Seven of the 20 instances relate to some online shopping activity. Moreover, similarly to the .no column, the .se column contains a number of online news sites.

The top 30 .dk backend and end-user domains

Last is the Danish ccTLD. The top 30 list for .dk domains has significantly fewer backend domains than .no and .se, namely two. The first and highest ranked Danish (.dk) backend domain is himsa.dk and the second is registration.himsa.dk. Although himsa.dk cannot be reached in a web browser, registration.himsa.dk refers the user to a license registration page for Noah, which is a software system from HIMSA (the Hearing Instrument Manufacturers' Software Association).[79] HIMSA is a Danish firm specialised in software development for the hearing aid industry. A preliminary evaluation of the service suggests that himsa.dk would not be impacted by the DSA.

The top 20 end-user domains under the Danish ccTLD can be found in the third column of Figure 6.11. More than half (i.e. 11) of the 20 domains relate to online shopping. Moreover, two domains are news sites and the remainder belong to the 'other' category.

Overall findings

The previous discussion around the Cisco list domains presented in Figure 6.10 suggests that few backend domains exist among the highest ranked domains with a Scandinavian ccTLD. Sweden does indeed have two large online advertising agencies that may be impacted by the DSA as online platforms, depending on the underlying technology and business model of the services. Moreover, both Sweden and Denmark have two game production studios present in their respective top 30 .se and .dk lists, namely Dice and Ghost Ship. However, unless further investigation suggests that these game production companies also facilitate online gaming services, the production of games does not suggest an online platform designation. That said, further investigation of the remaining domains

79 Ref: https://www.himsa.com/about-himsa/

with a Norwegian, Swedish or Danish ccTLD in the Cisco list could potentially lead to interesting findings in the form of identifying potential other Scandinavian backend services.

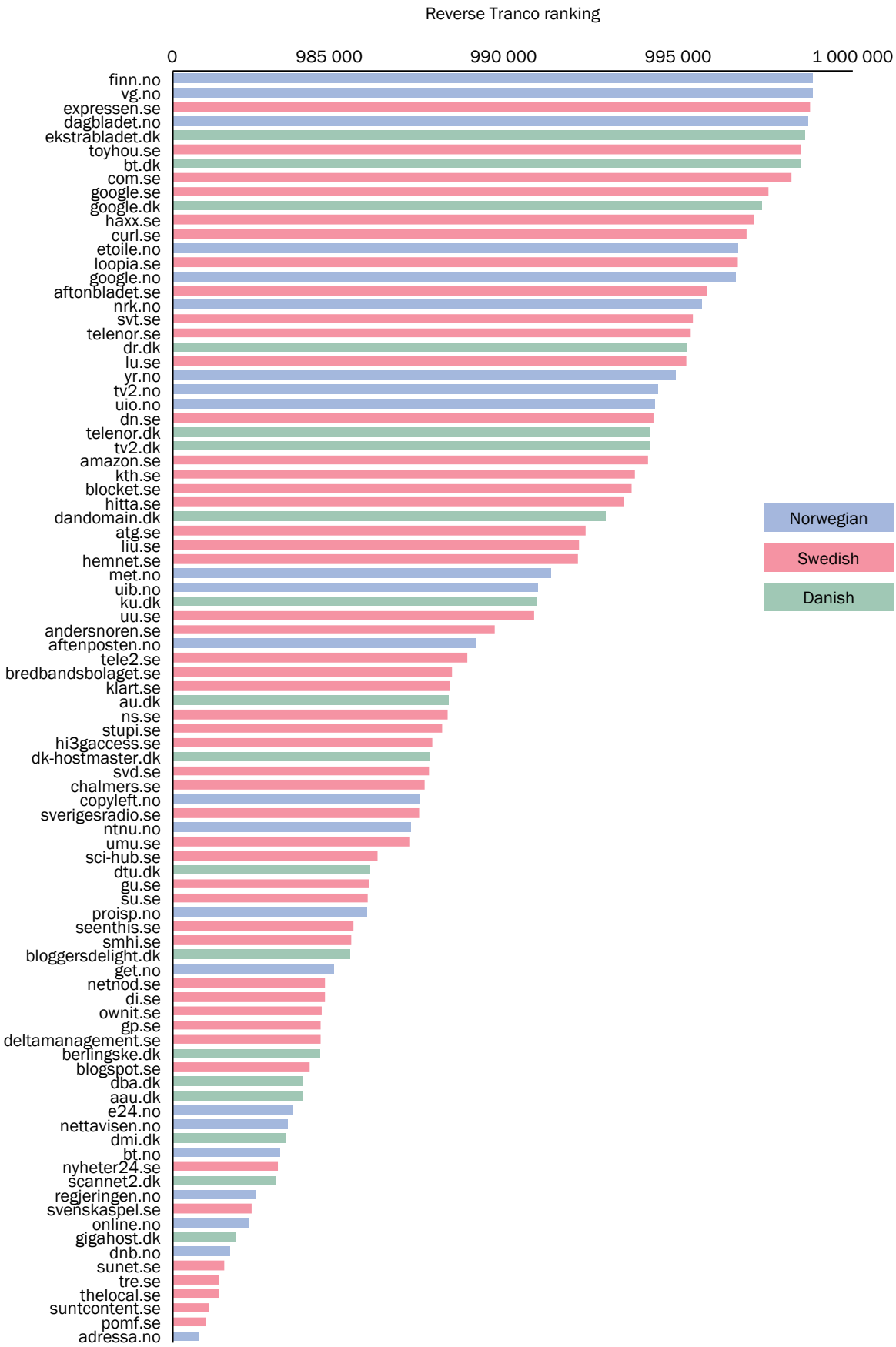
When it comes to the end-user domains, the Cisco list as shown in Figure 6.11 suggests that there are large similarities in internet activity and usage across the Scandinavian bloc. Websites that relate to online shopping dominate for all three ccTLDs. Moreover, online news sites are present to varying degrees under the Norwegian, Swedish as well as Danish ccTLD. Overall, it seems that Norwegians, Swedes and Danes share similarities also in their online behaviours. In the following chapter, we will look more closely at the end-users domains under Scandinavian ccTLDs using the Tranco list.

6.2.3 Comparison of the top 90 Tranco list for Scandinavian ccTLDs

To better understand how Norwegian, Swedish and Danish end-user domains vary in popularity we can use the Tranco list to benchmark Norway against its Scandinavian peers. While the Cisco list contains both end-user and backend domains, the Tranco list contains *only* these end-user domains. The Tranco list is a sort of internet average when it comes to domain rankings, as explained in Chapter 4.1, and therefore it does not contain the same 'backend domains' as found in the Cisco list. Therefore we use the Tranco list is used to benchmark the popularity of the top 90 end-user domains whose ccTLD is either .no, .se or .dk. See Figure 6.12 below for an overview.

Figure 6.12 shows the 90 most popular domains in the Tranco list by order of reverse ranking in the Tranco list. In the original Tranco list, the most popular domain (which, for those curious, is google.com) has the ranking number 1, and the ranking continues down to 1 million. To create a more sensible visualisation of the data, we reversed the ranking, meaning google.com's ranking went from 1 to 1 million and vice versa for the least popular domain. The resulting ranking of the 90 most popular Scandinavian domains is shown in Figure 6.12, where finn.no is shown to be the most popular Scandinavian domain in the Tranco list (per August 2023).

Figure 6.12: Top 90 Scandinavian domains in August 2023 (Source: Tranco)



General observations

Among the top 90 Scandinavian domains in the Tranco list the majority is Swedish and Denmark has the fewest. 49, or 54% of the domains in Figure 6.12 are under the Swedish ccTLD (in red colour). Meanwhile, 23 domains (26%) are blue and Norwegian and 18 (20%) are under the Danish ccTLD (in green). It is not surprising that Sweden dominates the list, considering the country has a population about twice the size of those of the other Scandinavian countries. By the end of 2022, Sweden had a population of about 10.4 million. Meanwhile, Norway and Denmark's populations were 5.4 million and 5.9 million, respectively.[80] Assuming similar internet behaviours across the bloc, it would then make sense that about half of the Scandinavian domains end with .se.

As the colours in Figure 6.12 illustrate, there is a relatively large spread and no one country dominates the list. About half of the instances are under the Swedish ccTLD, which makes sense considering Swedes make up approximately half the Scandinavian population. Moreover, the colours are distributed quite evenly across the top 90 list.

One thing that is intriguing is Norway's surprisingly strong presence in the top 90 list. Norway has more domains in the top 90 list than Denmark while there exists about 450 000 more Danes than Norwegians in this world. Also, among the top four Scandinavian domains, three are Norwegian, including the most and second most popular domains in the list. Norway's relatively strong performance in the ranking compared to Denmark especially could suggest that Norwegians browse the (Norwegian) internet more frequently. As we have seen before, Norway does have the highest internet penetration in Europe, but at the same time, Sweden and Denmark are not far behind. Norway's strong presence in the data could also suggest that Norwegians are more concentrated around fewer websites. Finn.no clearly exemplifies such concentration, which, next to being a marketplace, also is a preferred site for Norwegians to list their homes for sale and browse new jobs. A third explanation could be that non-Norwegians visit Norwegian domains relatively often. Yr.no, for instance, is one of the largest weather forecast services in the world. Many different trends may help explain Norway's surprisingly strong presence in the top 90 list.

Share of .no, .se and .dk instances in the rankings

Figure 6.13 provides a comparison of frequencies and shares of the .no, .se and .dk domains among the top 90 Scandinavian domains and among all the Scandinavian domains in the Tranco list. As the numbers show, the shares of the .no, .se and .dk domains change when all 6913 domains are included. In the top 90, Swedish domains represent 54% of the instances, while in among all the Scandinavian domains, 45% end with .se. This is equivalent to a fall of -17.8%. In comparison, Norway's share, which also falls when looking at all Scandinavian domains, falls by -5.2%, to 24%. Consequently, the .dk share increases when looking at the full list of Scandinavian domains, by 55%.

[80] Ref: Euromonitor

Figure 6.13: Shares of domains in the Scandinavian

	In the top 90			In the full list (N = 6913)		
	Count	Share (%)	Per 1M capita[81]	Count	Share (%)	Per 1M capita[81]
.no	23	25.56%	4.22	1 675	24.23%	307
.se	49	54.44%	4.67	3 094	44.75%	295
.dk	18	20.00%	3.05	2 144	31.01%	363

The share changes may suggest that there are, relatively speaking, more .no and .se domains higher up in the rank compared to .dk, and that there are more .dk domains toward the bottom of the Tranco list. However, further statistical analysis and more data would probably be needed to properly investigate whether such reasoning may be true. Moreover, our investigation looks at the frequencies and popularities of the .no, .se and .dk domains without accounting for the fact that foreign domains, such as .com and .org, may be of different popularity across the bloc. Such trends would make the data biased. The benchmarking exercise we have done here should therefore be merely indicative.

[81] Population numbers estimated as the average of 2022 actuals and 2023 forecasts from Euromonitor.

7 Implications for Nkom

The market for online services is large and complex. Players range from online microbusinesses that sell one or a few products to end-users, to global conglomerates with a broad service portfolio and important scale economies. A few companies, like Microsoft and Google, are vertically integrated in many areas and hold a presence within most DSA Categories in the DSA Database. Moreover, national borders do not pose a large barrier to entry for many online services, particularly online platforms. The office can be located virtually anywhere with a decent internet connectivity as long as the service is cached locally in areas with high traffic. In addition, cloud computing services enable fast scalability as and when demand increases.

Based on these observations, we believe there are at least three issues that will be important to Nkom in relation to its work on the DSA regulation:

- identifying and classifying regulatory subjects
- calibration of the regulatory burden and regulatory regime
- cooperation with EU authorities and other regulatory bodies.

In this chapter, we will briefly discuss these issues.

7.1 Identifying and classifying regulatory subjects

The Digital Services Act package has a wide scope that many companies will be subject to. These companies are quite different in terms of service offering, location, size and degree of vertical integration. We have not found one single data source that can identify these companies, and we do not believe that such a source exists. All Norwegian companies must be registered in 'Foretaksregisteret', but its industry classification is not detailed enough for DSA regulatory purposes.

This makes it challenging to map intermediary services in general and online platforms in particular. The current DSA Database is not exhaustive, and there are many online services that have yet to be identified and added to the database. This is particularly true for non-Norwegian websites and services, which can have a few or many Norwegian users but leave few or no traces in the Norwegian market. If the website does not have a .no domain, no company registration in Norway is needed. In addition, the digital services market is dynamic where applications and services can quickly become very popular. Large scalability enables quick growth, with little or no physical restrictions on growth rates. This makes the task of surveying the market more challenging.

As documented in Chapter 4.1, we have used several data sources to populate the DSA database. We have looked at many other potential data sources as well, but we haven often found it difficult to assess the data quality and data collection methods. Also, measuring internet usage is inherently challenging since there are so many potential variables to look at. As an example, both the Tranco list and the Cisco list aim to include the world's top 1 million queried domain names. When looking

at the .no domains in those lists, however, we find important differences between the lists. This does not mean than one List is correct and the other list is wrong. Instead, it shows that small differences in methodology can mean large differences in data outcome.

Also, some datasets have high quality but an access or re-publishing policy that makes it difficult to include data in a publicly available database. This is especially true for information regarding the number of active users of digital services.

7.2 Regulatory burden and regulatory regime

It is likely that quite different companies and services will be subject to the same type of DSA regulation. Among online platforms, some have a few thousand active users while others (such as Finn.no) have several million. If the DSA compliance cost for a hosting service is NOK50 000 per annum, the cost will be NOK25 per user for a platform with 2000 active users and NOK0.02 for a platform with 2.5 million users. The DSA has certain exclusions for smaller companies, and Nkom may want to consider a lightweight and user-friendly regime to ensure a regulatory playing field that is as level as possible.

An important part of the regulatory work is likely to be a system for registration, reporting and certification of regulatory subjects. We believe that a well-functioning system should be possible to put in place, but also note that there is likely to be challenges associated with non-Norwegian businesses for identification purposes. And while the system is not likely to contain much personal data, some data (such as crime data) may be sensitive and should be safe-guarded in the system.

Structured communication between platforms and users or content providers (such as newspapers and magazines) may become an important issue. Media companies we have interviewed have concerns regarding online platforms' quality and promptness of responses when content is removed. The regulator can play an important role in ensuring that such events are handled in a thoughtful and timely manner.

7.3 Cooperation with EU authorities and other regulatory bodies

Nkom's regulation of DSA subjects will happen in parallel with other national regulation and regulation on a European level. In terms of DSA classification, there is some degree of judgement involved as well as uncertainty regarding the interpretation of DSA definitions. It will be beneficial to work toward a consistent regulatory DSA interpretation across the EEA area. Also, other national regulators such as Medietilsynet have activities towards some DSA-relevant industries. Close co-operation on a European and national level will likely reduce the regulatory burden and increase the likelihood of high internet transparency and well protected end users.

8 Annex 1: The Digital Markets Act

8.1.1 The purpose of the DMA

Online platforms play an increasingly important role in the economy by enabling increased levels of interaction between users and businesses. At the same time, a handful of undertakings offering core platform services have grown substantially over the last decade to now possess considerable market power in the digital economy.

These core platform services feature characteristics that can be exploited by the undertakings providing them. Among the competitive advantages for the largest players in the market are: extreme economies of scale, very strong network effects, lock-in effects, strong vertical integration and data-driven advantages.

Some of the large online platforms in the EU market exercise control over whole platform ecosystems in the digital economy. It is structurally extremely difficult for existing or new market operators to challenge or contest this control, irrespective of how innovative and efficient those market operators may be.[82] As such, a small number of large undertakings have emerged with considerable economic power, which then makes the undertaking subject to the regulations now enshrined in the DMA.

The purpose of the DMA is to ensure contestable and fair markets in the digital sector by regulating the very largest digital services in the EU. The DMA applies only to 'gatekeepers', which are undertakings with significant impact in the EU that provide one or more 'core platform services'. The regulation lays down a set of clear rules for big platforms which aim to stop these gatekeepers from imposing unfair conditions on businesses and consumers. The overarching purpose of the DMA is to boost innovation, growth and competitiveness and to help smaller companies and start-ups to compete with very large players in the market.[83]

The DMA further stipulates that EU member states "shall not impose further obligations on gatekeepers by way of laws, regulations or administrative measures for the purpose of ensuring contestable and fair markets on matters within the scope of the DMA."[84] Any additional regulation imposed by individual members states must be compatible with the DMA.

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82 DMA (1-3)

83 Ref: https://www.europarl.europa.eu/news/en/headlines/society/20211209ST019124/eu-digital-markets-act-and-digital-services-act-explained

84 DMA Article 1(5)

8.1.2 Gatekeepers and core platform services

Designation of gatekeepers

The DMA regulation "shall apply to core platform services provided or offered by gatekeepers to business users established in the [EU] or end users established or located in the [EU]."[85] Moreover, the DMA stipulates that the regulation applies to all gatekeepers with activity in the EU, irrespective of the place of establishment of the gatekeeper.

An undertaking is designated as a gatekeeper if the company has a size that impacts the internal EU market, is in control of an important gateway for business users toward final consumers and has an entrenched and durable position. More specifically, the following conditions must apply:

(a) The undertaking has significant impact on the internal market (i.e. annual turnover in the EU of EUR 7.5 billion or higher in each of the last three financial years or a market capitalisation of at least EUR 75 billion in the last financial year)
(b) The undertaking provides a 'core platform service' which is an important gateway for business users to reach end users (i.e. provides a core platform service that in the last financial year has at least 45 million active monthly end users in the EU and at least 10 000 yearly active business users established in the EU); and
(c) The undertaking enjoys an entrenched and durable position, in its operations, or it is foreseeable that it will enjoy such a position in the near future (i.e. conditions in point (b) were met in each of the last three financial years).[86]

A gatekeeper must comply with all obligations set out in the DMA with respect to each of its core platform services.

Core platform services

Point (b) above stipulates that a gatekeeper is an undertaking which provides at least one 'core platform service'. The DMA provides a list of services which are deemed core platform services, namely, online intermediation services, online search engines, online social networking services, video-sharing platform services, number-independent interpersonal communications services, operating systems, web browsers, virtual assistants, cloud computing services and online advertising services. Figure 8.1 provides a definition and examples for each of the ten core platform services as listed in the DMA. Please be aware that the provided examples solely pertain to core platform services and should not be construed as an indication of a gatekeeper.

85 DMA Article 1(2)

86 DMA Article 3(1-2)

Figure 8.1: Core platform services, definitions and examples (source: European Commission[87])

Core platform service	Definition (adapted by Analysys Mason)	Examples
Online intermediation services	An 'information society service'[88] which allows business users to offer goods or services to consumers with a view of facilitating the initiating of direct transaction between business user and consumer and which provides a contractual relationship between business user and the service.	Amazon, Zalando, Uber Eats, Just Eat, Airbnb, Booking.com
Online search engines	A digital service that allows users to input queries in order to perform searches of, in principle, all websites, or all websites in a particular language, on the basis of a keyword, voice input, phrase or other type of query.	Google Search, Bing, Yahoo Search, Ecosia, Qwant, Duck Duck Go
Online social networking services	A platform that enables end users to connect and communicate with each other, share content and discover other users and content across multiple devices and, in particular, via chats, posts, videos and recommendations.	Facebook, Twitter, Instagram, LinkedIn
Video-sharing platform services	A service whose principal purpose is devoted to providing programmes, user-generated videos, or both, to the general public, for which the provider does not have editorial responsibility, in order to inform, entertain or educate.[89]	YouTube, Vimeo, Twitch, Dailymotion,
Number-independent interpersonal communications services	An 'interpersonal communications service'[90] which does not connect with publicly assigned numbering resources (namely, national or international numbering plans), or which does not enable communication with a number or numbers in national or international number plans.	WhatsApp, Skype, Messenger (Facebook), Signal, Viber, Telegram
Operating systems	A system software that controls the basic functions of the hardware or software and enables software applications to run on it.	Windows (Microsoft), Android (Google) macOS, iOS (Apple)
Web browsers	A software application that enables end users to access and interact with web content hosted on servers that are connected to networks such as the internet, including standalone web browsers	Google Chrome, Mozilla Firefox, Safari (Apple), Microsoft Edge, Opera

87 DMA Article 2

88 Directive (EU) 2015/1525 Article 1(1)(b)

89 Directive (EU) 2018/1808 Article 1(1)(b)

90 A service normally provided for remuneration that enables direct interpersonal and interactive exchange of information via electronic communications networks between a finite number of persons and whereby users determine recipient(s). Moreover, the communications service is the principal feature of the service (Directive (EU) 2018/1972 Article 2(5))

	as well as web browsers integrated or embedded in software or similar.	
Virtual assistants	A software that can process demands, tasks or questions and, based on those demands, tasks or questions, providers access to other services or control connected physical devices.	Google Assistant, Apple Siri, Amazon Alexa
Cloud computing services	A digital service that enables access to a scalable and elastic pool of shareable computing resources.	AWS, Microsoft Azure, Google Cloud Platform
Online advertising services	Includes advertising networks, advertising exchanges and any other advertising intermediation services, provided by an undertaking that providers any of the core platform services above.	Google Ads, Facebook Ads, Amazon Advertising, Microsoft Advertising