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Communications, media and Internet concentration in Denmark, 2018-2022

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Media and Internet Concentration in Denmark, 2018– 2022



Global Media & Internet
Concentration Project

www.gmicp.org

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Questions and Corrections: If you have questions or believe that any of the data that we report is mistaken, please let us know.

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Contents

| | |
|--|----|
| Executive summary | 3 |
| Foreword..... | 6 |
| Introduction..... | 7 |
| Media concentration: What to study, why, and how..... | 8 |
| Data, analysis & discussion..... | 11 |
| Telecoms and Internet Access Services..... | 11 |
| Online Media and Traditional Media Services (content media) | 3 |
| Core Internet Applications | 12 |
| Development and concentration trends across the communications, Internet and media | 19 |
| Conclusion | 27 |
| References | 30 |

Figures and Tables

| | |
|--|----|
| Figure 1: Revenue for the Telecom and Internet Access Services 2018-2022 (current DKK, millions) | 12 |
| Figure 2: CR4 Scores for the Telecoms and Internet Access Sectors, 2018-2022 | 14 |
| Figure 3: HHI Scores for the Telecoms and Internet Access Sectors, 2018-2022 | 14 |
| Figure 4: Revenues for Traditional and Online Media (current DKK, millions) .. | 4 |
| Figure 5: CR4 Scores for Traditional and Online Media, 2018-2022 | 9 |
| Figure 6: HHI Scores for Traditional and Online Media, 2018-2022 | 9 |
| Figure 7: Revenues for Core Internet Services (current DKK, millions) | 13 |
| Figure 8: CR4 Scores for Core Internet Sectors | 15 |
| Figure 9: HHI Scores for Core Internet Sectors | 16 |
| Figure 10: Development of Media Industries, 2018-2022 (current DKK, millions) | 20 |
| Figure 11: CR4 Scores (pooled average) for the Network Media Economy, 2018-2022 | 20 |
| Figure 12: HHI Scores (pooled average) for the Network Media Economy, 2018-2022 | 21 |
| Figure 13: Leading Communications-Internet and Media Companies in Denmark, 2022 | 24 |
| Figure 14: International comparison of CR and HHI figures | 25 |

Analyzing the Communications, Internet, and Media Industries

Insights from the Global Media & Internet Concentration Project— Denmark

Executive summary

The report is a presentation of preliminary findings regarding Denmark of the Global Media and Internet Concentration Project (GMICP). GMICP is a project, funded by the Canadian Social Sciences and Humanities Research Council, doing research on media and internet market trends including concentration developments in a wide range of countries internationally¹. The report includes data from 2018 to 2022.

The scope of the report is on networking as well as media content and all the newer communications and media areas related to the internet. The scope is thus broader than traditional media studies or studies of communications infrastructures. It includes a variety of communications and media areas that during the past decades have been subject to ongoing convergences and new divergence tendencies among IT, telecommunications and media. The focus is on market developments in the different service segments of communications and the media and the concentration trends that can be observed. Not all service and market segments that are included in the GMIC Project as such are represented in the report. A selection of segments has been made and are included in all national reports from the GMIC Project for the purpose of comparison between countries. The aim has been to emphasize segments that illustrate general development trends.

The communications and media industry is not among the biggest economic sectors in society, neither globally nor in Denmark. It is, however, a very crucial area, as it constitutes the communications infrastructure of society. This applies to interpersonal communications as well as public communications and information provision and debate. This is the reason why it is important to gain better knowledge on the structures of the industry and its levels of concentration and internationalization and ownership.

¹ Global Media and Internet Concentration Project: <https://gmicp.org/>

In 2022, the overall size in terms of revenues of the whole network media economy in Denmark (with the sectors included in this report) was approximately 94 billion DKK, up from approximately 77 billion DKK in 2018 (current prices). The major growth areas are related to internet, while traditional communications services like wireline telephony and terrestrial television have declined steeply. This is not surprising, but is not either just an issue of new communications and media channels. It also reflects new power structures in the area where the almost total dominance of US-based Big Tech companies in crucial internet areas constitutes an important issue for the development of the network media economy in Europe, including Denmark, and for policy and regulation in the field.

The focus of the report is on two major types of findings: Those related to market and concentration developments and those regarding the empirical basis on which the report is based. With respect to market and concentration developments, the core conclusions that can be drawn from the data and analysis provided in this report are the following:

- The traditional communications and broadcast companies are generally still among the biggest companies in the communications and media area. These companies are, however, either stagnating or decreasing in market revenues.
- The growth – and in some cases – strong growth is seen in areas related to the internet. This applies to Internet services and applications and to content delivered via Internet. It also applies to networking, e.g. Internet Service Provision (ISP).
- The individual sub-sectors of the communications and media industry are generally rather concentrated – with only a few large dominant companies. The individual sub-sectors would mostly be considered as either oligopolistic, duopolistic, quasi-monopolistic or monopolistic.
- The network media economy in total is not significantly concentrated as it comprises many different communications and media areas. However, both traditional networking services and new internet-based services are either rather or very concentrated, respectively, while traditional media are not generally concentrated.
- Within the internet applications area, the search engine, operating systems and browser markets are very concentrated. The internet applications area is totally dominated by US-based Big Tech companies.
- For the traditional media within publishing and broadcasting, the dominance of US-based Big Tech companies constitutes a major problem. Advertising, which is an important source of revenue in these areas, has to a large extent been taken over by Big Tech companies such as Google and Facebook.

- Technological convergence and regulatory liberalization has paved the way for cross-media companies. However, in Denmark, it is only few companies that are active in many of the sub-sectors discussed in this report.
- The big telecoms companies obviously have activities within mobile and wireline communications and in Internet Service Provision. The TDC Group as the largest operator also has activities in TV distribution, but they have basically stayed within the networking areas. They have not significantly crossed the borderline into the media area nor the internet applications area. The same applies for the upcoming company within communications in Denmark.
- The communications and media companies in Denmark, to a large extent, tend to stay within their 'turf'. The degree of cross media ownership is small comparing with a number of other countries.

The other major area of findings of this report is that the statistical basis for assessing market and concentration developments is generally poor. The best official statistics are found in the networking area, while content markets and new internet services are not well covered. This constitutes a major problem not only for research but also for policy and regulation, as the empirical basis for decision making is weak.

The report is based on publicly available and mostly free statistics. Where possible, official statistical sources and annual reports from companies have been used, but in many cases, the report has had to rely on a diverse range of different kinds of sources, going from ministerial reports, industry association reports, consultancy reports, and other unofficial sources. This reflects an unsatisfactory state of available statistics in this field. One can often find official statistics on numbers of users in different internet and media areas, but economic figures including revenues and market shares are mostly not available. A strong recommendation would be that such official statistics be developed, which could also become necessary with the implementation of the new European Media Freedom Act.

Foreword

The revenue and market share numbers presented in the report are based on publicly and mostly freely available data. Publicly available official statistics in Denmark on media revenues and market shares within different media areas are generally poor – with the infrastructure areas being better than the content areas. Many revenue and market share numbers in this report are, therefore, estimations, based on data assimilations from different kinds of sources. We, consequently, welcome any comments, additions, corrections, and other input from industry stakeholders and other industry experts so that the data included in this report can be improved. It would also be welcome to have national statistics upgraded to better report on the economic developments of the media. With the new European Media Freedom Act, this may well become necessary.

It should be noted that very good reports on media developments are published by the Danish Ministry of Culture with the general overall title: ‘Mediernes udvikling i Danmark’ – ‘Development of the media in Denmark’². These reports, however, cover specifically selected areas and only some of them are published on a continual basis, facilitating analyses of time series and development trends.

On a more practical note, the numbers provided in the report regarding revenue sizes and concentration levels are, as mentioned, in several instances estimations and approximations. We have, therefore, not presented the numbers with figures after commas, except for the numbers regarding the levels of concentration on the basis of the 4 largest companies within each sector and sub-sector. We have chosen not to round off the numbers further.

The revenue numbers are in Danish crowns, DKK. The Danish currency is tied within a fluctuation band to the European Euro, so that 1 Euro approximately corresponds to 7.5 DKK. In comparison to the US Dollar, the value of DKK is generally at the level of 1 USD equaling 6-7 DKK.

² Kulturministeriets medie- og techanalyser, <https://kum.dk/kulturomraader/medier/mediernes-udvikling>

Introduction

Denmark is a country with a little less than 6 million inhabitants. The GDP per capita was 67,790 USD in 2022, which places Denmark among the wealthiest countries in Europe. Denmark is one of the most digitalized countries in the world, often ranking among the top 3 countries in international comparisons of digitalization. Denmark is a member of the European Union (EU) and follows EU legislation relating, for instance, to telecommunications, the media, the new platform economy regulation such as the Digital Markets Act, and the European Media Freedom Act.

As with other countries, the liberalizations and privatizations of communications that started in the 1980s and continued forcefully in the 1990s and the developments of digital technologies including the internet have deeply affected communications and the media. Among the most salient developments are the ongoing convergences of IT, telecommunications and the media, technologically, economically and politically, and the new forms of internationalization of communications that the internet has implied. The implications of the internationalization of communications are strongly felt within all areas of communications and the media but especially in the dominance of the US-based Big Tech companies relating to search engines, operating systems, browsers and in social media.

Cross media activities have been facilitated by the developments and convergences of IT, telecommunications and the media. However, the companies in the communications and media area in Denmark seem to 'stay within their own turf' to a considerable degree with networking companies staying within different networking activities, media content companies staying within content provision, and with special internet services catered to by the US-based Big Tech companies. However, within each of the sectors, there is cross service provision and high concentration rates. This applies especially to the networking area and the special internet services area.

Media concentration: What to study, why, and how

Media concentration has been an important research topic for a number of years, but not only does the GMICP update knowledge on the latest trends in market developments and media concentration. The project also broadens the scope by expanding beyond traditional media areas as indicated by the word 'Internet' in the title of the project. The project covers communications and information services in general including, for instance, telecommunications services.

The processes of liberalizing national broadcasting in Denmark started in 1986 with the establishment of a second national TV broadcaster, TV2. TV2 remains state-owned despite consecutive attempts by different right-wing governments to privatize the station. The incumbent radio and TV broadcaster, DR, is also state-owned, however, while DR is entirely tax-funded (previously license fee-funded), the national TV2 channels are funded by subscription fees and advertisements and the local TV2 stations are funded by tax money and advertisement. Both broadcasters (DR and TV2) are considered public service broadcasters. Furthermore, a variety of private broadcasters are also offering their services in Denmark via cable, satellite and OTT. However, access to terrestrial frequencies is limited and provides the national public service broadcasters with a privileged position, even though the importance of access to terrestrial frequencies is quickly eroding.

During major parts of the 20th century, telecommunications in Denmark was provided by partly state-owned regional monopolies. However, in 1990, a political decision was taken to merge the regional monopolies into one national telecommunications monopoly, Tele Danmark. Subsequently, this operator was gradually privatized, ending with a total privatization in 1997/98, following the liberalization of the Danish telecommunications market in 1996. The market areas where alternative operators most quickly gained market shares were in mobile, ISP and broadband via fiber. As in other countries, the liberalization of telecommunications paved the way for the growth of the internet and the many applications and services offered via Internet.

The project focuses on trends in communications and media market developments and on concentration developments in communications and information services provision and demand in terms of revenues and numbers of subscribers/users of the different companies operating in the various communications services market areas. The project thus has a dual focus on the

trends in market sizes as well as concentration levels in the different sectors. Concerning market sizes, some service areas have been shrinking, for instance fixed/wireline telephony, while other areas have stagnated, e.g. traditional television, or grown considerably, e.g. internet-related service areas. With respect to concentration, the primary focus is not on ownership but on the market shares of different ownership groups and their affiliated operating divisions, brands and titles. There is clearly a close relationship between ownership concentration and market share concentration, but it is not a 1:1 relationship. The ownership distribution of companies may, for instance, increase, while at the same time market concentration increases.

The interest in concentrations in communications and information services is not only due to general concerns about competition in markets. Communications and information services are means of expression of opinions and of communicating information and knowledge and are important for the freedom of expression and information and for pluralism in the media. In many countries, there is specific legislation and specific public regulatory agencies to oversee and intervene in media markets with respect to concentration issues (Blach-Ørsten et al., 2021). In Denmark, this is not the case. Competition in media markets in Denmark is regulated by general competition law and has not been subject to any special regulatory attention. Since liberalization, however, telecommunications have been subject to sector specific regulation regarding interconnection, universal service and rights of way, which have significant implications for market developments, competition and concentration.

An implication of no specific media concentration legislation is that there has not generally been much attention to media concentration issues in Danish policy debates. And, at the European level, Denmark has been hesitant with respect to legislation regarding media concentration. The reason put forward has been a concern that the strong position of the two national public service broadcasters could risk being weakened. At the EU level, work has been ongoing regarding a European Media Freedom Act. The European Media Freedom Act, which was enacted in March 2024 and will enter into force in 2025 *inter alia* includes provisions on editorial freedom, transparency of ownership, funding of public service media, and the implications of media market mergers on media pluralism. Based on an agreement that the organization, regulation and funding of public service media will remain a national issue, Denmark supports the new Act, which is likely to lead to more attention to media concentration also in Denmark. The present report on media concentration, therefore, comes at a good time.

Previous contributions relating to media concentration research from authors of this report have primarily been in the field of telecommunications and lately relating to business models and strategies of Big Tech corporations. Contributions have mainly concentrated on competition issues and convergence of IT, telecoms and media, e.g. Henten and Schneider (2003), Henten and Tadayoni (2015), and Henten and Windekilde (2022).

The Global Media and Internet Concentration Project (GMICP) includes a broader set of sectors than the traditional definition of ‘the media’ in its research scope. The project has a multisectoral

approach covering telecoms, audiovisual and publishing media, and core internet sectors³. The reason is to draw as comprehensive a picture as possible of the media and communications industries and thus to avoid any one-sidedness in focusing on just one sector. An additional reason is that these sectors have been converging technologically and industrially for many years, and that individual companies cross previous sector borders and offer services in different market areas.

Data for the report are assembled sector-by-sector, based on revenue data where available and other market data, for instance, the number of subscriptions or users. The individual sectors are, thereafter, grouped into mid-range groupings – telecoms and Internet infrastructure, digital and traditional audiovisual and publishing sectors, and core internet applications. Lastly, a unified birds-eye view is established for the media landscape as a whole.

The sources for the data are highly varied. This is unfortunate as the basis and quality of the data, therefore, varies. Denmark is a country where statistical data generally is of high quality. However, these statistics do not report on company data and market shares. The telecom sector has traditionally been relatively well covered by official data⁴, also comprising some level of company data. For other sectors, one mostly has to rely on data provided by industry associations, for instance annual reports, on company reports, on ministerial reports, and on reports issued by international observatories and other commercial sources. A source with a great deal of data on many sectors and services within communications is Statista⁵. Statista is not always a reliable source, and when Statista data are used in this report, they are cross-checked with data from other sources. This kind of data assimilation implies that some of the data included in the report are based on estimations, and that input to the project from industry stakeholders to further increase the quality of the data is welcome.

In order to assess the level of concentration in the sectors included in this report, calculations are based on the Herfindahl-Hirschman Index (HHI) and the CR4 index. The calculations indicate the level of concentration but are obviously contingent on the quality of the 'raw' industry data available. Hopefully, an increased attention to media industries and media concentration issues following the implementation of a European Media Freedom Act will help in improving the statistical data foundation for the media and communications sectors.

³ Global Media & Internet Concentration Project, www.gmicp.org

⁴ Klimadatastyrelsen: Tal på teleområdet, <https://www.klimadatastyrelsen.dk/digital-infrastruktur/tal-paa-teleomraadet>

⁵ <https://www.statista.com/>

Data, analysis & discussion

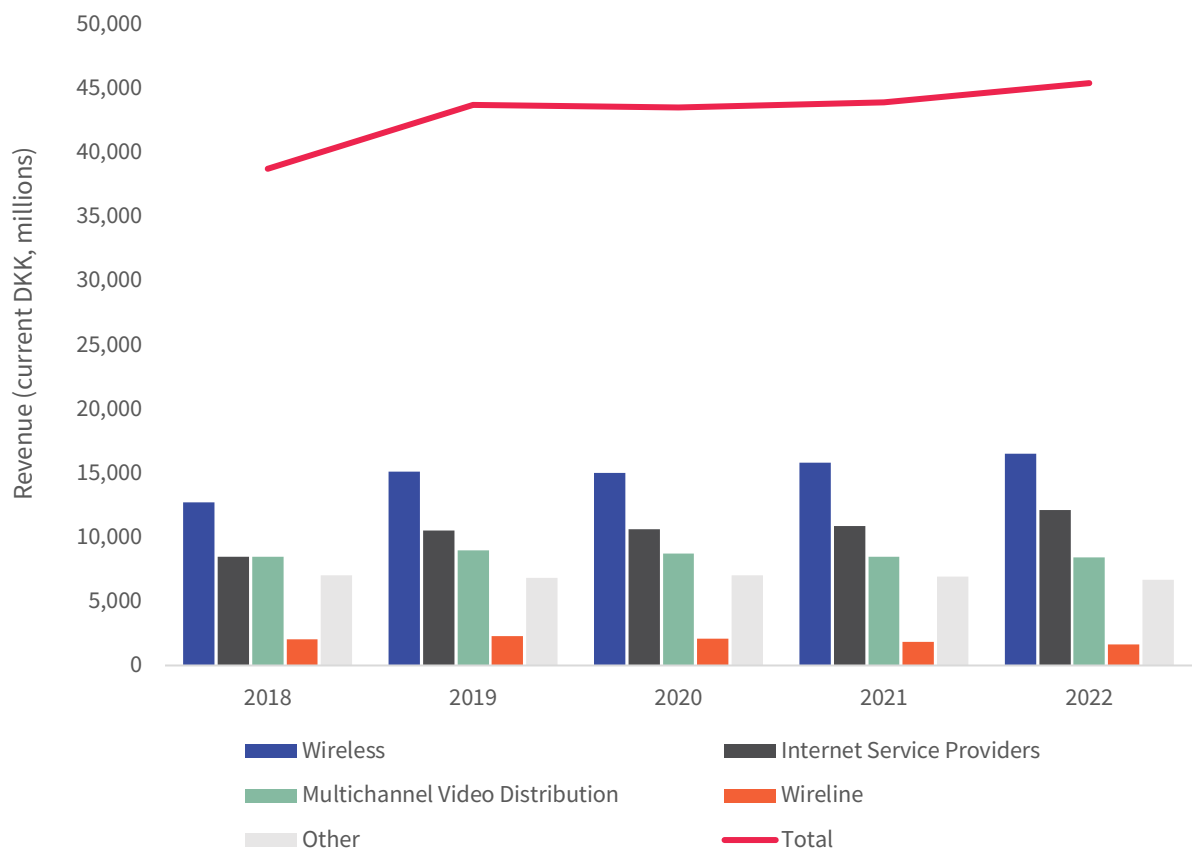
Telecoms and Internet Access Services

This first part is concerned with network provision – either traditional telecommunications as in Wireline or Wireless communications, Internet Service Provision, or Multichannel Video Distribution providing users with packages of TV programming. Because of convergence developments technologically and industrially, it can be difficult, in some instances, to make clear differentiations between sub-sectors. Wireless, for example, includes both traditional circuit-switched voice communications as well as packet-based internet communications. When subscribing to a mobile operator, one will mostly buy a service package comprising of minutes for telephony (maybe unlimited) and an amount of GB (Gigabytes) for internet communications.

Figure 1 reports on the revenue sizes in the different sub-sectors and the overall sector. Figure 2 shows the calculated CR4 figures for the sub-sectors and the overall sector. CR4 is a 4-firm concentration ratio referring to the assembled market share of the four largest firms in the sector. The CR4 figures for the overall sector show the CR4 figures for the four largest firms in the overall sector as such. The higher the CR4 figure, the higher the concentration of the sector, and a CR4 figure above 50% is generally considered as a sign of a concentrated market.

Figure 3 represents the HHI figures for the sub-sectors and the overall sector. HHI stands for the Herfindahl-Hirschman Index and is another way of illustrating the concentration level in a sector. In an HHI, the market shares of each company in the area are squared and the squared numbers are added. Markets with an HHI figure below 1500 are normally considered as reasonably competitive; figures between 1500 and 2500 are considered as challenging with respect to competition; figures beyond 2500 are considered as concentrated. The reason that it is a good idea to include CR4 as well as HHI is that a CR4 of say 60% may cover different market situations. It may indicate that 4 companies have each 15% of the market; it may also mean, for instance, that one company has 50% and the three other largest companies only have 10% together. CR4 figures represent an immediately understandable indication of market concentration, while HHI is a more elaborate expression of the concentration level.

Figure 1: Revenue for the Telecom and Internet Access Services 2018-2022 (current DKK, millions)



Source: Danish Agency for Data Supply and Infrastructure (since August 2024 entitled Climate Data Agency)

Figure 1 shows that the biggest sector is wireless (mobile), followed by internet service provision and then multichannel video distribution. Wireline telephony, which used to be the biggest service area within telecommunications, has shrunk to a very small size. This is an indication of the vast changes that have taken place in telecommunications during the past 25-30 years. Mobile has entirely overtaken voice communications, and internet access (ISP) has become an important service area. Multichannel video distribution has stayed at the same level of revenue during the observed period of time.

The category 'Other' includes the retail and wholesale items, which are not included in the other categories. This includes, e.g., terminal equipment for instance mobile phones, alphanumeric information services, and leased lines. As information on the distribution on market shares of the different operators regarding the 'other' category is not available, CR4 and HHI figures for this

category are not calculated but are part of the overall 'Telecoms & Internet Access' CR4 and HHI figures and the total communications and media industry at the end of the report.

Despite the fundamental changes that have been seen in the telecommunications and internet access areas, it is, to some extent, the same companies that have prevailed. The incumbent telecommunications operator, TDC, has totally dominated wireline telephony, except for some entry of virtual operators, as the incumbent operator owns the major parts of the traditional fixed telephony infrastructure. When mobile was opened to competition, which happened in connection with the deployment of the first European digital mobile system (GSM) in Denmark in 1992, the incumbent operator acquired one of the frequency licenses. In some countries, the incumbent operator was not, at least at first, given a mobile license in order to strengthen competition in the telecoms area as a whole. But not so in Denmark; the incumbent operator got one of the licenses. However, with the purpose of establishing infrastructure competition and not only service competition it was not allowed for the mobile network operators (MNOs) to roam on each others' networks. This was only allowed for MVNOs – Mobile Virtual Network Operators and foreign operators. The fact that national MNO roaming was not allowed facilitated the creation of a mobile market with network competition and MNOs of a somewhat comparable size.

In the first half of the 1990s, the internet was not really considered as an important business area by the telecommunications operators in Europe including Denmark. Videotex was still a priority, and this 'opened the door' for new ISP companies to enter the market for Internet access provision. This also happened in Denmark, however, TDC and other telecommunications operators soon found out that the internet was increasingly important, and internet access provision is today one of the crucial business areas for telecommunications operators.

Another important feature of the Danish communications network market is that the incumbent telecommunications operator has all the while been allowed to offer cable TV as well as traditional telecommunications. This was generally not allowed in European markets. In 1985, a so-called hybrid cable TV network was established by the regional telephone companies in Denmark in order to distribute television programming, and when the regional companies were merged into a national telecommunications operator, Tele Danmark, a joint national cable TV company, Tele Danmark Kabel TV, was established in 1995. The implication is that the incumbent has business activities in all network markets in Denmark including being able to offer Triple and Quadruple Play. Today, with the ever-increasing importance of OTT (Over-The-Top), the centrality of controlling network facilities has, however, decreased, which is leading to fundamental changes in the communications and information markets. Video is increasingly streamed, and voice communications can be provided as an OTT service.

The telecommunications incumbent in Denmark, TDC, has been relatively slow at taking up broadband fiber. A primary reason has been that DSL (Digital Subscriber Line) has worked well, and with TDC owning almost entirely the traditional fixed telephone network, TDC stayed as long as possible with DSL solutions. Fiber has been pushed primarily by the electricity co-ops in Jutland and specialized fiber companies in other parts of Denmark. The reason that electricity co-ops started providing fiber access in the beginning of the 2000s was that there was an open

opportunity with the lack of initiative of the incumbent telecommunications operator and that the electricity companies were given permission by the public authorities to use their surplus from electricity provision on fiber deployment. One of the results of this situation has been the ongoing development of a new cross network provision company in Denmark, Norlys. The co-ops behind Norlys started out as small local electricity providers that joined together and as a side-business started deploying fiber in Jutland. At a point in time, the company acquired a cable TV and Internet access company, Stofa, and now offers ISP services and multichannel video distribution in the whole country. In 2024, Norlys was given regulatory permission to buy Telia Denmark and is now a full cross network provision company.

Figure 2 reports on the CR4 figures for the four network sub-sectors and the overall sector. In general, the numbers indicate that all four sub-sectors are either significantly concentrated or very concentrated – with the 4 largest companies in each category being well beyond 50%. Moreover, the overall sector is also well above 50%.

Figure 2: CR4 Scores for the Telecoms and Internet Access Sectors, 2018-2022



Sources: Danish Agency for Data Supply and Infrastructure (since August 2024 entitled Climate Data Agency), annual reports of operators and Statista

Wireline and internet service provision are the least concentrated of the four sub-sectors. The reason that wireline is relatively less concentrated is that, in spite of the dominance of the incumbent operator, TDC, in this category, there are many other operators in the area and most of them are relatively small virtual operators. With respect to ISPs, the explanation is that internet access provision is an area, where the barriers to entry are relatively low due to a combination of technology factors (relatively uncomplicated technology challenges), regulations allowing for separation of the physical and the virtual networks, and a market where there has been a tradition for some competition partly because of the slow start of the telecommunications incumbent in this area.

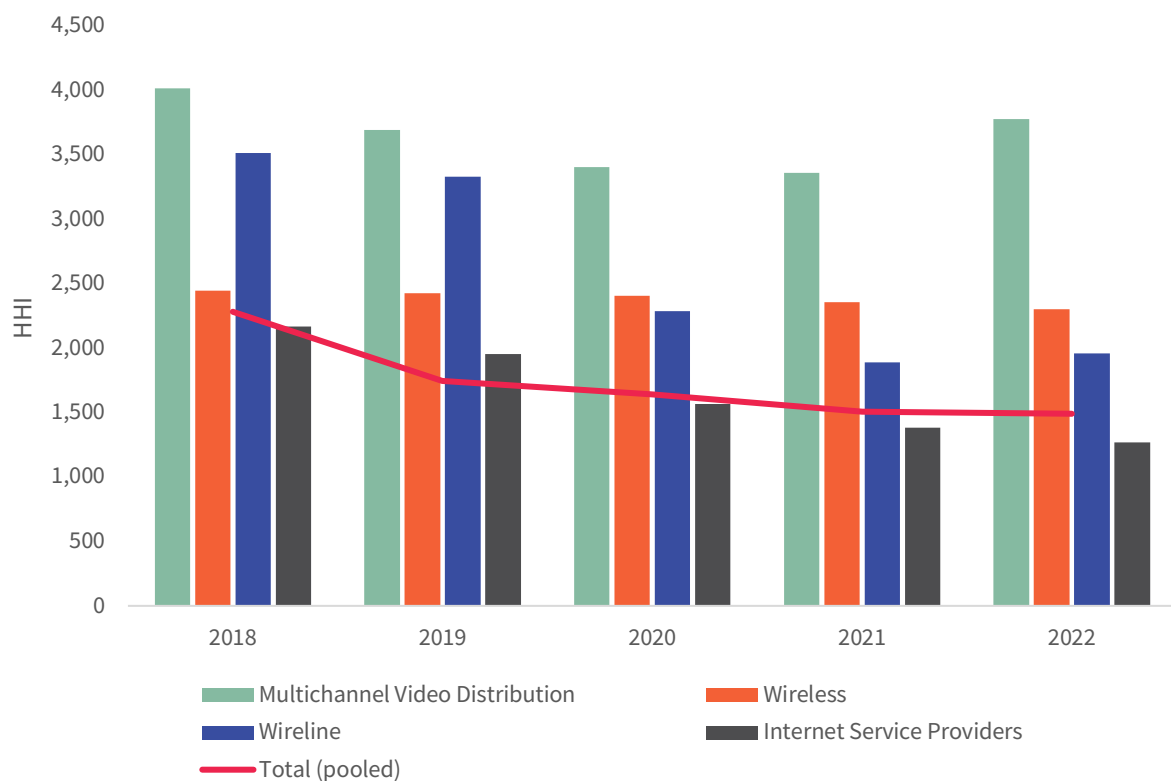
Wireless and multichannel video distribution, on the other hand, are very concentrated, with figures around 90%. In wireless, the reason is that the number of frequency licenses is limited and that each time a virtual operator (an MVNO) acquires a larger number of subscribers, they are bought up by the MNOs. This has been a business model for MVNOs and means that the MNOs operate different mobile brands. Regarding multichannel video distribution, this is an area with rather high barriers to entry, partly because the incumbent telecommunications operator was allowed to offer this service and because of arrangements between cable TV operators and large antenna unions in apartment complexes. But it is also a complicated market with complex negotiations between the Multichannel Video Distribution companies and broadcasters.

From a competition point of view, the most concerning fact is maybe that the overall sector is also rather concentrated with figures fluctuating around 60%. The CR4 drop from 2018 to the following years is due to a relatively low general revenue that year and a high revenue for the TDC Group. One could imagine that the sub-sectors would be concentrated but that the large companies in each category would not weigh as much in the overall CR4 figure. This is not the case and points at a high degree of cross network media ownership in Denmark.

Figure 3 then presents the HHI figures for the sub-sectors and overall sector. The HHI figures further reinforce the impression that network markets are quite highly concentrated with figures in the range between 1500 and 3000 and above 3000 in multichannel video distribution. Multichannel video distribution is the most concentrated area and indicates that this category is dominated by 2-3 large operators, namely YouSee (TDC Group), Norlys and Allente (which was formed in 2020 as a merger of Canal Digital and Viasat). Wireline is also very concentrated in the first three years in figure 3 (2018-2020) because of the traditional dominance of the incumbent telecommunications operator in this field. However, this dominance has clearly decreased in the last few years simply because TDC has lost a large number of subscribers that have stopped using fixed telephony and now rely entirely on mobile. This can be seen in the two last years of Figure 3, the reason being that the number of TDC subscribers have gone steeply down, while the smaller alternative operators, to a large extent, have kept their subscribers.

Wireless and internet service provision are less concentrated with rather stable figures for wireless because of the four MNOs in the area of comparable size, namely: TDC, Telia, Telenor and 3 (H3G). With respect to ISPs, this is an increasingly competitive market because of the low barriers to entry in this market segment, which is partly supported by the increasing amounts of fiber customers, where a large number of ISPs operate.

Figure 3: HHI Scores for the Telecoms and Internet Access Sectors, 2018-2022



Sources: Danish Agency for Data Supply and Infrastructure (since August 2024 entitled Data Climate Agency), annual report of operators and Statista

The HHI figures for the overall sector are in the range of 1500-2000, which indicates that competition is challenged, but the figures also show a decrease from 2281 to 1490 from 2018 to 2022, documenting increasing competition. The 2018 figure is at a higher level than the other figures, just as the CR4 number, because the revenue of the TDC Group in 2018 was higher than in the following years and the total area revenue was lower than in the following years. When compared with the CR4 numbers, the HHI numbers show that, though limited, the number of the largest cross network provision companies point at an oligopolistic situation more than a quasi-monopolistic situation.

Competition in the network markets is thus challenged in Denmark. However, whether this will lead to policy intervention is questionable. In Europe, the policy discussions in

the last few years around mobile communications, for example, have not been to increase competition but to lower competition. Telecommunications network operators in Europe are generally less profitable than in the US, for instance. The reason most often put forward is that the European market consists of a large number of small and mid-sized national markets and that the original regulatory provisions required 3-4 MNOs, which according to some observers (e.g. Copenhagen Economics, 2024) should preferably be 2-3. Also, while the whole trend of liberalizing telecommunications in the late 1990s and start 2000s was strong, policy discussions at the EU level and also in Denmark are much more concerned with strengthening European and local national interest and with limiting the power of the US-based Big Tech corporations.

Online Media and Traditional Media Services (content media)

While data on telecoms and internet access revenues can be found in official national statistics, this does generally not apply to the categories of online media and traditional media included in this report. For some of the categories, one has to find data, for instance, in industry association reports or reports by consultants having made overviews of sector performance. Other data can, for example, be found in reports by the Ministry of Culture, but the problem in this case is that such reports are published inconsistently and change their focus based on the perceived key issues of the day. An implication of this reality for this report is that some of the time series for revenue figures have been calculated based on the best possible estimations.

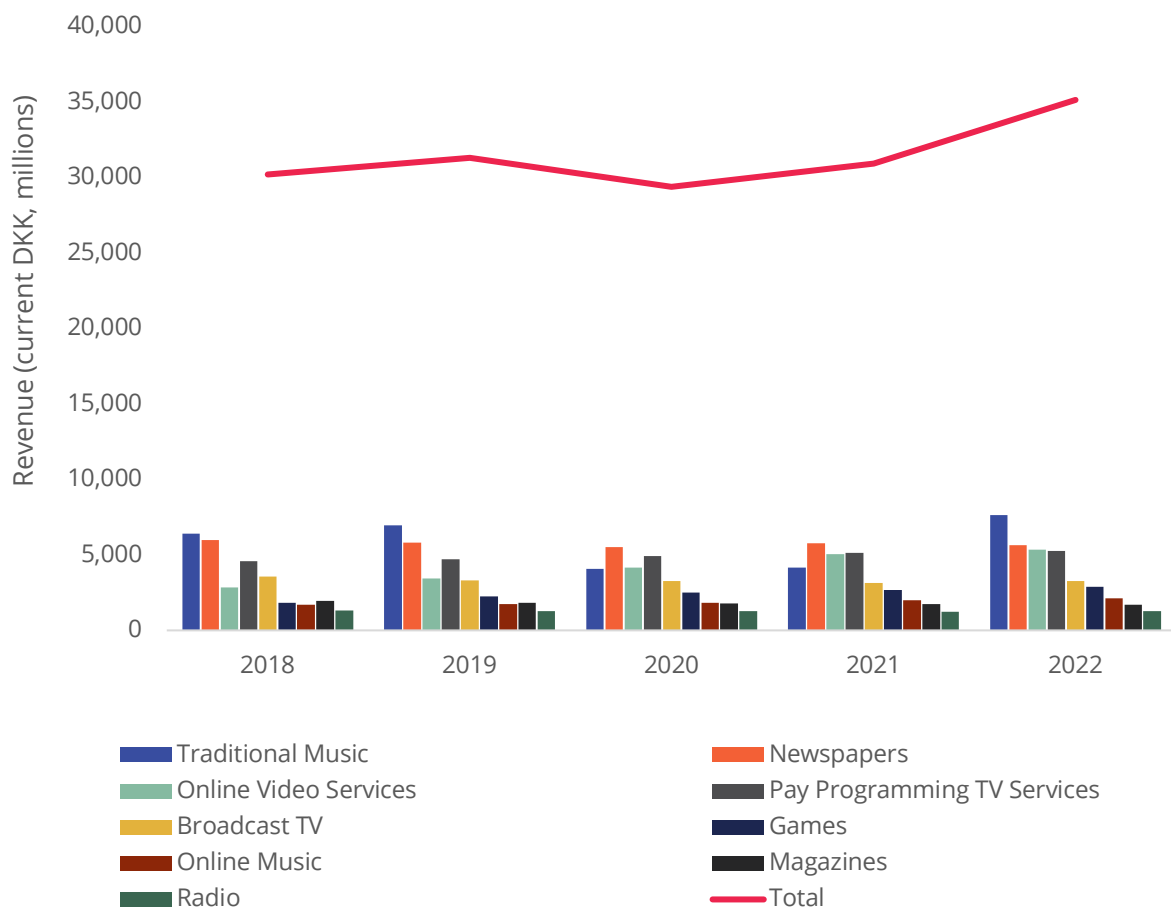
Moreover, the TV markets are not organized in the same ways in all countries, which means that the two TV categories presented in this report for the purpose of comparison with other countries participating in the Global Media and Internet Concentration Project do not necessarily mean the same thing in all countries. Broadcast TV in North America means free-to-air television funded by advertising. In Denmark, this does not exist. In Denmark, there is a public service broadcast station, DR, which is state-owned and funded by tax money (until 2022, funded by license fees) without any advertising. There is also a competing state-owned national broadcast station, TV2, which is funded by subscription fees and advertisement with a little more than 50% from subscriptions and a little less than 50% from advertisement. The main channel of TV2 is a public service channel with a public service contract, while the other national channels of TV2 are operating entirely on a commercial basis with no public service requirements. Formerly, one could receive the main channel of TV2 as national free-to-air television, but in 2012, a subscription fee was introduced. In addition to the two main TV stations (DR and TV2), there are a number of privately owned commercial channels.

In this report on Denmark, therefore, DR is the only major station in the broadcast TV sector category. Added to the DR revenue figures are revenue figures for the regional TV2 stations, as they are also funded by public service money and are available without any subscription. In the pay TV category, one finds the figures for the national TV2 channels plus privately owned commercial channels. In a sense, a more accurate picture of the competitive situation in the Danish broadcast TV market would be provided by adding the two TV sector categories, but this might also give a biased picture, as it would lump together and compare very different kinds of actors in the TV market. However, for purposes of comparison, DR each year publishes a report on the media developments

in Denmark (DR, published annually⁶), which includes an overview of the viewer shares of what they call 'channel families'. From 2019 till 2023, the viewer share of DR has gone from 36% to 29%; TV2 has developed from 40% to 52%; the rest is distributed between the Viaplay group, the Warner Discovery group, and a few other minor entities. These figures provide some insight into the competition between different TV formats and channels.

It is, however, not only between the sector categories that there can be difficulties in adding the numbers. The pay TV category, for instance, includes the national TV2 channels as well as the privately owned commercial channels. But these sub-categories are not added in any statistical accounts. The figures in the tables have had to be estimated, adding numbers from different kinds of sector overviews.

Figure 4: Revenues for Traditional and Online Media (current DKK, millions)



Sources: Annual company reports, Danish Ministry of Culture, Rambøll, PwC, Statista, MediaWatch, press reporting

⁶ <https://www.dr.dk/om-dr/fakta-om-dr/medieforskning/medieudviklingen>

The broadcast TV market figures include the share of the revenue of the incumbent broadcaster, DR, that is allocated for television – which is approximately 80% of the total turnover of DR – plus the revenue of the regional TV2 stations – which is approximately 500 million DKK per year in total. In addition, there is a small public service support allocation, estimated to be around 25 million DKK per year. In all cases, the revenue comes from public service payments from the state.

Pay programming TV services include the revenue of national broadcasting of TV2 and the revenue of the commercial channels. As can be seen from the numbers in Figure 4, the broadcast TV category is dwindling in size, while pay programming TV services are slowly increasing. Put together, these two traditional television service categories are stagnating, which reflects the growth of pay TV services and the slowly decreasing public service funding for DR. The revenue of the commercial channels is estimated on the basis of data on the revenue of the Viaplay group in Denmark for year 2020-2022 plus media reporting on the revenue of Warner Discovery. Viaplay and Warner Discovery are the two major private commercial broadcasters.

The Online Video Services category is similarly very complex to work with. This category includes Subscription Video on Demand (SVoD), Transactional Video on Demand (TVOD) and Advertising-based Video on Demand (AVoD). In Denmark, it is the SVoD sub-category, which is important in economic terms. The other two sub-categories are insignificant though YouTube could be considered as including AVoD. Most often, the SVoD sub-category is seen as primarily including the international streaming online video service such as Netflix, Max (HBO Max) and Amazon Prime Video. However, the sub-category can also be seen as including not only international streaming services but also the streaming services of broadcasters and of distributors.

If one looks at the video streaming services with the largest audiences in Denmark, one will find DRTV (DR's streaming service) and TV2 Play (TV2's streaming platform) at the top together with Netflix and also the streaming platforms of the distributors Viaplay and Discovery. DR, nowadays, considers streaming as its primary platform and traditional broadcast as secondary. However, the streaming platform of DR is free of charge and is not included in the online video services category but is pooled with broadcast TV, as the annual accounts of DR do not make a distinction between different modes of transmission. TV2 Play, on the other hand, is often included in overviews of online video services. However, the annual accounts of TV2 do not either make this distinction. Such developments are expressions of the ongoing convergence in the ICT area and often make statistical accounts difficult to assess and compare. One could view broadcast TV, pay programming TV services, and online video services as one category; viewers certainly do so. We have for this report decided to trust Statista for the online video services category. One should, however, be aware that there can be double counting errors.

The radio market in Denmark is dominated by the incumbent broadcaster, DR. The Danish radio market includes DR, other publicly supported radio stations including local radio stations, and commercial radio stations. The majority of commercial channels are

owned by the German based Bauer Media Group. This group does not publish information on the revenue in Denmark, but it publishes figures for gross profit for the Danish market. From 2018 to 2022, the gross profit of Bauer Media Group in Denmark has been around 100 million DKK. Assuming a gross profit margin of 30%, the revenue of the Bauer Media Group in Denmark is estimated to be app. 330 million DKK per year. For DR, the revenue allocated for radio is app. 20% of the total revenue of DR. Other publicly supported national radio stations receive app. 100 million DKK per year, and local radio and TV stations receive app. 50 million per year. Assuming that half of this public funding to local stations goes to radio, it will be 25 million DKK per year. For a period of time, there was also special public support for a DAB (Digital Audio Broadcast) radio station. In the case of the radio market, the revenues for DR, other publicly supported radio stations and commercial channels are added – as opposed to the TV area. This seems to be justified, as public service radio as well as commercial radio are free-to-air broadcasting – to the extent that tax paid broadcasting is considered as free.

The category of traditional music includes live music and recorded music (but not online). Live music has traditionally been larger in terms of revenue than recorded music, however, this changed for a couple of years during the peaks of the Covid pandemic. For a number of years, the consultancy company Rambøll elaborated an annual report on the Danish music market, and this report included music streaming and downloading – where downloading plays an insignificant role (Rambøll, 2021). Streaming and downloading has been excluded from the traditional music category and is included in the 'Online Music' category. Also, exports have been excluded, as the topic for this report is the Danish market. The latest version of Rambøll's report includes 2021 figures, and the 2022 figures are based on an estimation. The consultancy company PwC, who makes overviews of the development of the Danish music market, has estimated that the live music market increased 120% from 2021 to 2022, i.e. after the peaks of the Covid pandemic. Recorded music is estimated to have grown 7% from 2021 to 2022. Online music is similarly estimated to have grown 7%. Online music is in Denmark dominated by YouTube, followed by Spotify, Facebook and YouSee Music, in terms of users. In terms of revenue, Spotify is the biggest. With respect to live music, it should, furthermore, be mentioned that live music concerts in many cases are supported economically by central or regional state funds. This public support is not included in the number in Figure 5.

Regarding Newspapers, the Danish Ministry of Culture has published a study on the economics of Danish newspapers including revenue figures (Kulturministeriet, 2024). This study includes the revenues for the newspaper publishing houses in Denmark for the years 2018 to 2022 and provides exact figures on revenues, facilitating market share calculations. The newspaper market in Denmark is dominated by two national newspaper groups and two regional newspaper groups. JP/Politiken and Berlingske Media are the two large national newspaper groups, where JP/Politiken is owned by a Danish foundation and Berlingske is owned by the Belgian De Persgroep. The two regional newspaper groups are nationally owned.

The magazines category includes a wide variety of publications. However, the two main sub-categories are, on the one hand, magazines and weeklies which users either

subscribe to or buy in shops and, on the other hand, publications that users receive as part of memberships of different organizations – those could be trade unions or an association of motor vehicle drivers. For the latter sub-category, readers do not pay a separate fee; it is part of the organization membership. For the purpose of estimations of the market size, it will be the magazines and weeklies that users pay specifically for that are relevant. As for newspapers and other kinds of two-sided media platform markets, there are two forms of revenue for such platforms: from those who pay for the magazines and weeklies and from those who advertise. Both kinds of revenues are important for commercial magazines and weeklies. As with newspapers, magazines and weeklies are increasingly published online complementing or even substituting for the print version. However, that does not, in itself, constitute a problem for assessing the market size. Statista publishes revenue numbers for magazines in Denmark. However, these figures are somewhat higher than the figures published by the Danish Ministry of Culture in a report from 2021 with 2018 and 2019 figures (Kulturministeriet, 2021). The Statista figures are approximately 40% higher than the figures from the Ministry of Culture. In this report, we have chosen to go with the figures from the ministry and to estimate the figures for 2020-2022 on the basis of knowledge of the decreasing number of readers in that period (MediaWatch, 2023).

The games category includes all kinds of video games whether played on consoles, PCs or mobile. Estimating the games market is complex, as the revenues of games companies comprise revenues for the games themselves as well as advertisements and in-games items in some cases. Also, the games industry is highly international. According to the Danish Ministry of Culture, the sales by Danish games companies was 2.52 billion DKK in 2021 including exports of 2.17 billion DKK, i.e. exports constituted app. 85% of total sales (Kulturministeriet, 2023). However, imports are even bigger. No publicly available official statistics exist on the size of the gaming market in Denmark, but according to Statista, the Danish video games market has increased from app. 1.8 billion DKK in 2018 to 2.8 billion DKK in 2022.

Summarizing the findings regarding sector revenues, we can state the following: Broadcast TV has decreased a little because of lowering allocations of public service payments to DR. The pay programming TV services have increased, basically because of the increasing revenues of TV2. Online video services' revenue has doubled as the use of streaming video has become much more widespread. Radio has stayed much at the same level and is totally dominated by public service broadcasting by DR with slightly decreasing public service allocations. Traditional music consists of two sub-categories, live and recorded music, where live music is the biggest area and has fluctuated considerably because of the Covid pandemic. Online music has grown but is a smaller sector, dominated by a few major players, including YouTube and Spotify. Newspapers have stayed at the same level, which could be seen to be surprising when considering the steep decreases in reading of print newspapers. However, newspapers have managed to develop their business models with emphasis on online news. Magazines have experienced a decline, but not either as much as might have been expected – readership has generally been slowly eroding. Finally, revenue for games has been significantly increasing.

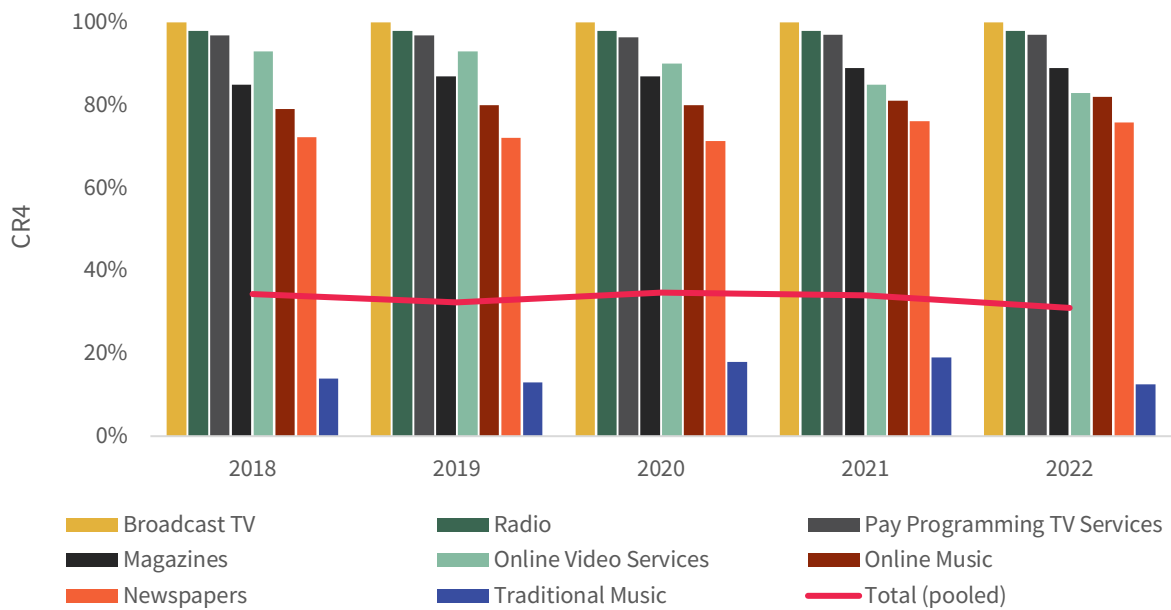
The overall sector revenue is very constant during the years 2018-2021, and then there is an increase of app. 4 billion DKK in 2022, which primarily is due to the 'return' of live music concerts after the peaks of the Covid pandemic. The overall revenue for the content area is approximately at 70% of the revenue for the infrastructure/transmission area. At a point in time, it was often discussed whether 'content is king' and transmission less important. This discussion can obviously not be settled on the basis of quantitative figures alone. Nevertheless, the figures show that transmission is, at least, as important economically as content.

The figures also indicate that for the three big areas - video, audio and text - the video area is the largest with app. 14 billion DKK in revenues in 2022; audio is second with app. 11 billion DKK (and the upcoming podcast area is not included in this report), while text is third with app. 7.5 billion DKK. Lastly, the games industry in Denmark is not nearly as big as it is in, for instance, Sweden and Finland. While the video games market in Denmark and Sweden are at the same level per capita, the output of the Swedish games industry (including exports) is approximately 10 times bigger than the Danish games industry.

In the following, there is an overview and analysis of the CR4 and HHI numbers for the individual sector categories and the overall sector. For broadcast TV, the two big providers are included, DR and the regional stations of TV2, plus the small allocations for local TV stations. The CR4 will thus be 100. The HHI figures are also very high, but not 10,000. The figures are around 7,500. For Pay Programming TV Services, there are the national channels of TV2 and the privately owned commercial channels. The commercial TV channels are almost entirely owned by Viaplay and Warner Discovery. The CR4 figures are, therefore, close to 100, and the HHI figures have increased from app. 3850 in 2018 to app. 5900 in 2022. This increase in HHI is due to the growing revenue of TV2, which grew from 2866 million DKK in 2018 to 3854 million DKK in 2022. Conversely, Warner Discovery has faced serious problems in the Danish market since the Discovery channels in 2020 were excluded from the basic TV package offered by one of the big TV distributors YouSee (part of the TDC Group).

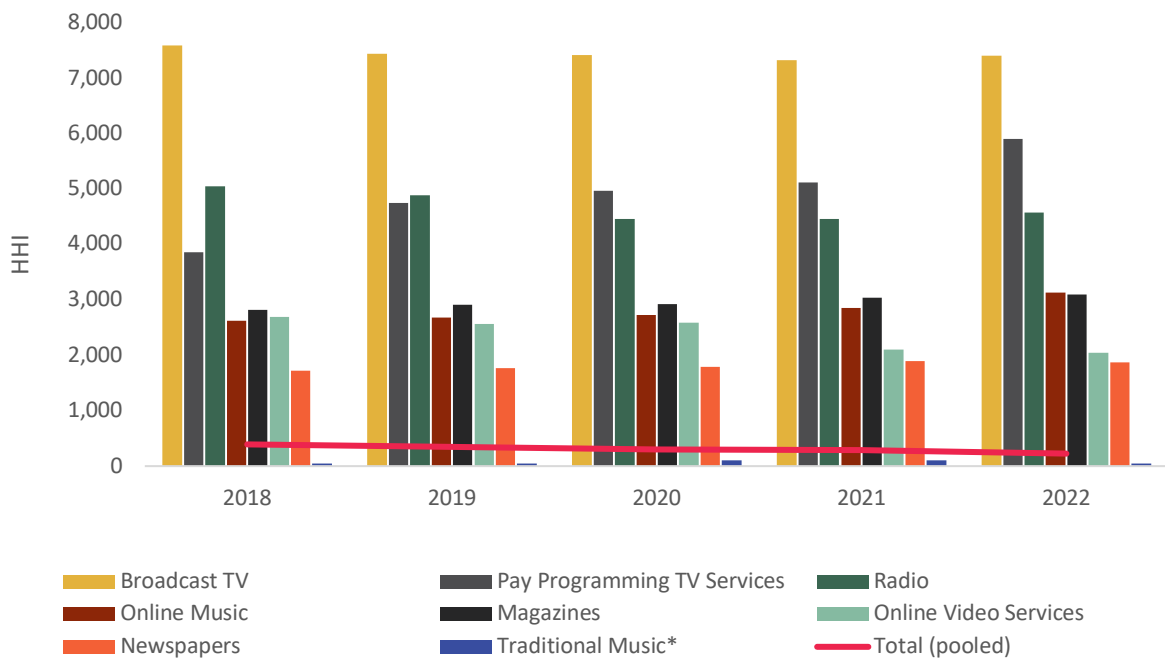
The online video services market is an oligopolistic market in Denmark as in most other countries. In the estimations of CR4 and HHI figures, DRTV is excluded even though it has become the largest online video streaming service in terms of viewers in Denmark. DRTV is not a commercial product, and users do not subscribe to the service. However, from mid-2024, users will have had to register, as DR wishes to personalize DRTV by means of recommendations as commercial streaming services do. The streaming services of distributors, except for Viaplay, have also been excluded while TV2 Play is included. Among the commercial video streaming services, Netflix is still the largest. However, market shares fluctuate in different market share assessments. According to a survey reported on by the Danish Producers' Association in 2023 (Producentforeningen, 2023), 51% of the respondents subscribed to Netflix, 41% to TV2 Play, followed by Viaplay (33%), Max (33%) and Disney+ (31%). Disney+ started in Denmark in late 2020 and has been increasing its market share since then, which is reflected in the decreasing HHI figures. The online video services market in Denmark is a relatively concentrated market, but not critically. The HHI figure is currently around 2000.

Figure 5: CR4 Scores for Traditional and Online Media, 2018-2022



Sources: Annual company reports, Danish Ministry of Culture, Rambøll, PwC, Statista, MediaWatch, Producentforeningen, Music App Report, press reporting.

Figure 6: HHI Scores for Traditional and Online Media, 2018-2022



Sources: Annual company reports, Danish Ministry of Culture, Rambøll, PwC, Statista, MediaWatch, Producentforeningen, Music App Report, press reporting. *Approximate.

Radio is a very concentrated market in Denmark with very high CR4 and HHI figures. As mentioned, radio is, to a large extent, dominated by DR channels. In addition, there are other tax-supported radio stations and there are commercial channels and, furthermore, local channels, which can be tax-supported and, at the same time, supported by volunteers. The national commercial channels are generally owned by the Bauer Media Group, and with only two major channel entities (DR and Bauer), both the CR4 figures and the HHI figures are very high.

The traditional music category includes live as well as recorded music, where live music traditionally has represented 2/3 and recorded music 1/3 of revenues. This distribution, however, changed during the peaks of the Covid pandemic in 2020 and 2021, but has afterwards returned to normal. Traditional music is a widespread and hybrid category, where the CR4 and HHI figures are small. For recorded music, the biggest labels operating in Denmark are Universal, Sony and Warner, and then there is a large number of smaller international and national labels. Live music includes all kinds of live music performances, where festivals are the biggest single events but, in reality, only contribute with minor shares of the total live music revenue. The Covid pandemic is reflected in the slightly increasing HHI figures for 2020 and 2021, as many concerts and festivals were put on hold in this period. Putting the two sub-categories together, the CR4 and HHI figures are insignificant. However, specific market segments can be very concentrated. This applies, for instance, to ticket offices, where Ticketmaster, which is part of Live Nation, dominates the Danish market.

The revenue for online music in Denmark was around 2 billion DKK in 2021. This figure is taken from a report mentioned above from the consultancy company Rambøll (2022), and the figure corresponds well with other assessments of the Danish music streaming market. With respect to the market share distribution, it is more difficult to assess. According to Statista (2024), the share of users of streaming music in Denmark in 2022 was as follows: YouTube: 60%; Spotify: 42%; Facebook: 22%; YouSee Music: 15%; Instagram: 14%. In addition, there are many other streaming music providers, e.g. Apple Music, Deezer, etc. Such user shares are difficult to translate into revenue figures as they represent many very different business models and revenue sources, comprising subscription, advertisement, part of the overall service, parts of mobile subscription, etc. On a global scale, YouTube has 4-5 times as many users as Spotify, however, revenues for Spotify were still in 2022 larger than the revenues for YouTube Music, according to Music App Report (2024). Spotify's global annual revenue in 2022 was 12.76 billion USD, while YouTube music had a revenue of 11.66 billion USD (Music App Report, 2024). The revenue of Spotify has increased gradually during the past years, while the revenue of YouTube, based on calculated ad revenues from music streamers, has increased more exponentially. The market share numbers in Figures 5 and 6 are based on such assessments. In terms of concentration, the CR4 figures are estimated to be around 80%, and the HHI figures are approximately 3000.

The market for Newspapers in Denmark can be separated in two categories, national and regional. Within the category of national newspaper houses, there are two major corporations, JP/Politiken and Berlingske Media, with some of the big newspapers in Denmark. The regional publishing houses have a larger number of regional and local

newspapers but are ownership-wise rather concentrated. The revenue figures in the newspaper area includes print as well as online. The newspaper market is fairly concentrated with the 4 largest publishing houses (CR4) having 70-75% of the total market. In terms of HHI, the figures show that the largest publishing houses are of comparable sizes without one totally dominating the market. The HHI figures are in the range of 1700-1800.

The magazines area is, as described above, a heterogeneous field with commercial magazines and weeklies and with magazines published by various organizations as part of their overall activities. The figures regarding CR4 and HHI are based on the commercial weeklies and magazines and within this sub-category, there are three dominating media houses, Aller, Egmont and Bonnier. Aller is a Danish company and is the largest in the Danish market in the area of weeklies and magazines. Egmont is also a Danish-based company but is much more internationalized with a wide variety of media services in different countries. Bonnier is a Swedish-based company, where the Danish subsidiary is prominent in the area of commercial magazines. The almost total dominance of the three large media houses is reflected in CR4 figures above 85%. The HHI figures are around 3000 indicating an oligopolistic market structure.

Market shares in Denmark within the games category cannot in any meaningful manner be estimated on the basis of publicly available information. Not only are there different sub-categories of gaming platforms - mobile, consoles, and PCs – but the sources of revenue are also varied – subscription, advertisement, and in game sales. Furthermore, the gaming market is very internationalized with many different game producers and platforms from which games can be streamed and downloaded. There are no publicly available numbers on market shares for video games in Denmark. However, Statista has published information on the largest video game companies based in Denmark. One company totally dominates among Danish producers, Tactile Games. However, on the user/demand side, the picture is entirely fragmented. An estimation would be that the games market is not concentrated and is very competitive.

For the overall sector, the CR4 as well as the HHI figures are low indicating a low level of concentration for the area as such. The figures are very different from the telecoms and internet access sector, where the overall CR4 figures are around 75-80% and the HHI figures are around 2000. For the traditional and online media area, the comparable CR4 figures are around 30%, and the HHI figures are around 200-400. The reason is that the content area is much more heterogeneous and that only very few companies cut across different content sectors. The only larger exceptions are DR (video and radio) and TV2 (different video platforms). However, the four companies contributing to the CR4 ratio also show that it is the traditional content media organizations that are still the largest. The four largest companies are the two TV broadcasters, DR and TV2, and two newspaper houses, Politiken/JP and Berlingske.

Most of the individual sectors are characterized by oligopolistic competition with 3-5 large companies dominating the individual sectors. This applies to online video services, online music, newspapers and magazines. The sectors where concentration figures are really high are in broadcast TV, pay programming video services and radio. These are

the traditional electronic media areas, where the incumbents dominate. Whether this should be considered as a problem depends on the view that one takes. From the new digital media, the main issues raised have been concerned with the traditional broadcast companies entering online fields – streaming and websites. From the dominating views on the political scene, the general opinion expressed is that it is desirable that public service broadcast and other public media have a strong position in Denmark.

Core Internet Applications

This section is concerned with ‘Core Internet Applications’. Revenue figures are provided for app distribution and for internet advertising. CR4 and HHI scores are provided for app distribution and internet advertising and eight other core internet applications.

There are no publicly available statistics on the size of the app distribution market in Denmark. Statista, however, publishes statistics on the app market as such including the revenues for all the different business areas using apps as channels, i.e. games, entertainment, utilities, etc. Knowing that the app distribution market in Denmark, as in most other countries, is close to entirely taken by Apple’s App Store and Alphabet’s Google Play Store and knowing the commission percentages required by these two stores, the size of the app distribution market can be estimated.

The App Store as well as the Google Play Store until the end of 2020 and the beginning of 2021, respectively, took a commission of 30% of the revenues of app owners. App Store, by the end of 2020, decided to lower the commission to 15% for app owners earning less than 1 million USD per year, and Google Play Store followed suit in the beginning of 2021. The average revenue percentage for both app distributors will, therefore, from start 2021 be set at 25%, estimating that the large apps, though fewer in numbers, will contribute relatively more than the smaller apps. Up until end 2020, the commission percentage used for the estimation will be 30%.

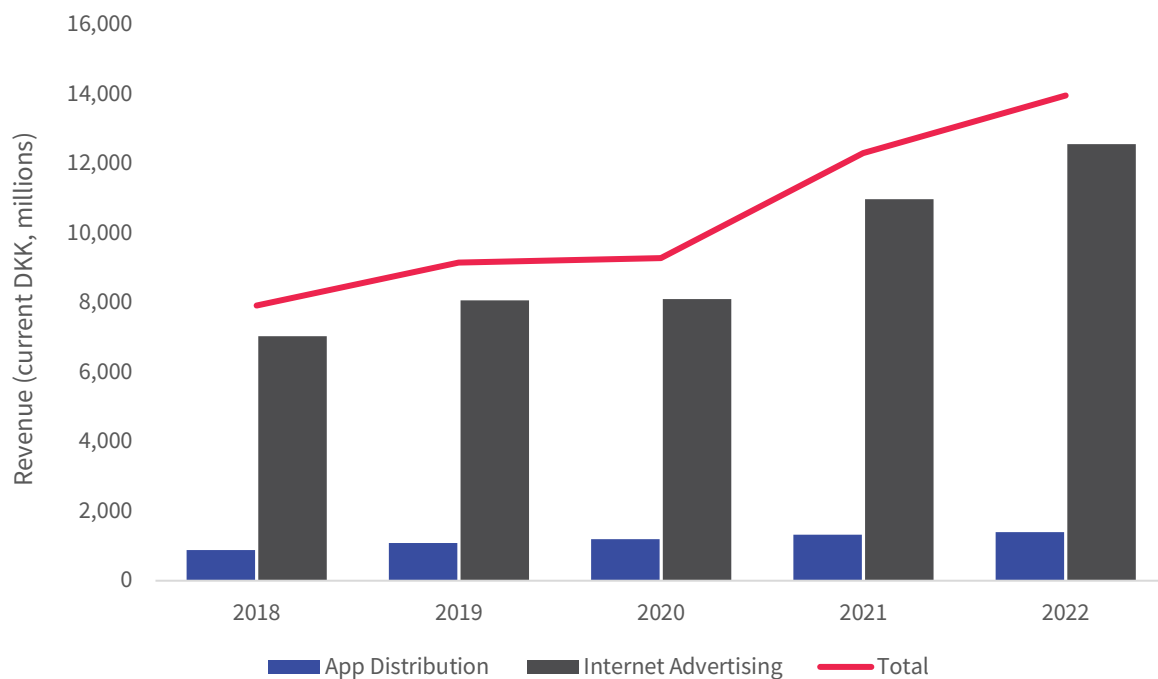
The figures for internet advertising here are the figures from Statista for digital advertising. Sometimes the concept of online advertising is also used as a synonym. In 2020, the Danish Competition and Consumer Authority published a report on online advertising, written by KPMG (Konkurrence- og Forbrugerstyrelsen, 2020). This report includes figures up to 2018 and 2019, and the total online advertising figure for 2018 was 8.2 billion DKK. Since then, no other report has been issued by the Danish Competition and Consumer Authority on this subject.

On a regular basis, the Swedish Institut för Reklam och Mediestatistik (IRM, Institute for Advertising and Media Statistics) assesses market developments regarding advertising in Denmark. These statistics must be considered as highly trustworthy. However, they are ‘hidden’ behind a relatively high paywall and are only, now and then, available, solely with a few gross figures, to the broader public in press reports and similar reporting. For 2022, the overall figure for advertising including online and offline in Denmark was 16.6 billion DKK, according to IRM. The online share was 69%, equalling 11.4 billion DKK. As can be seen from table 7, the Statista figures are slightly lower than the KPMG-figure for 2018 and slightly higher than the IRM-figure for 2022. However, we have chosen to stay with the Statista figures, as they are not far from the other figures and as they include a time span. Also, the Statista figures correspond well with the figures provided by the annual reports by

the Interactive Advertising Bureau (IAB)⁷. It can be added that a little more than half of the digital advertising figures are from search advertising, already here indicating that Google is acquiring a large share of advertising revenues in Denmark.

Furthermore, it needs mentioning that the total numbers in Table 7 may include some double counting, as the app distribution figures include advertising revenue as well as in-app purchases. The advertising share constitutes approximately 3/5 of the app distribution figures, but as we do not know whether these advertising figures are also included in the digital advertising figures, we have chosen to keep the figures as reported.

Figure 7: Revenues for Core Internet Services (current DKK, millions)



Source: Based on Statista

As is shown in Table 7, the app distribution market has increased 58% from 2018 to 2022 and the internet advertising market has increased 59%. When compared to the telecom and internet access market, which increased 17% in the same period, and the traditional and online media market, which increased 16%, it is clear that the high growth markets are in the internet area – also illustrated by the 48% growth of the ISP market from 2018 to 2022.

When turning to market shares, the CR4 and HHI figures illustrate that the core internet applications markets are generally either monopolistic, duopolistic or oligopolistic – except for online news media. The app distribution market is almost entirely dominated by Apple's App Store and Google Play Store. On the world market, there are, indeed,

⁷ Interactive Advertising Bureau, <https://www.iab.com/>

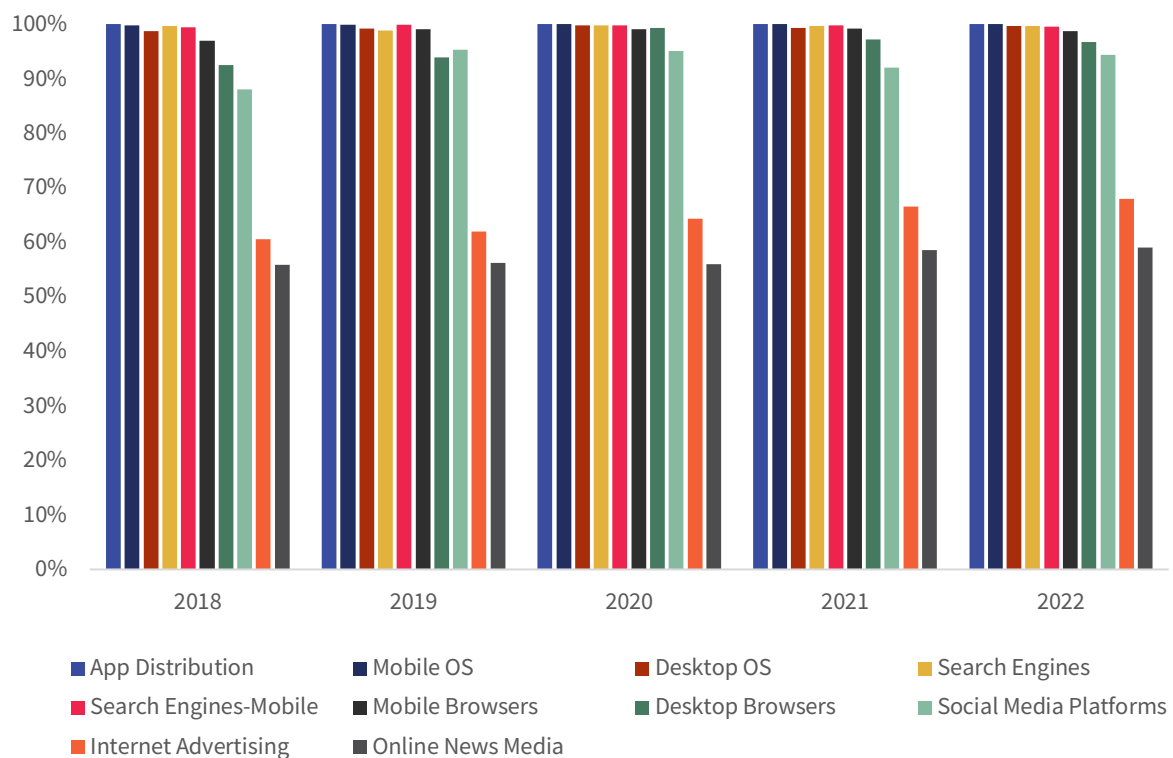
other app distributors, but in Denmark, the two large US-based app distributors have practically 100% of the market. Apple's App Store is by far the largest in terms of market revenue share in Denmark. The App Store has approximately 75% of the Danish market, while the global market share is close to 60%. Also, the market shares of the two app distributors are very constant, which is reflected in the almost entirely constant HHI figures for the area.

The internet advertising market is dominated by Google Ads (Alphabet), based on their search engine, and the big US-based social media – first and foremost Meta, with Facebook, Instagram and WhatsApp, and LinkedIn and X. According to a news article in Berlingske Media from 2024, based on the 2023 figures from IRM (Berlingske Media, 2024), Google had an advertising revenue of 5.6 billion DKK, and Facebook, LinkedIn and X together had an advertising revenue of 2,5 billion DKK, followed by YouTube and TikTok. Based on IRM figures, the CR4 figure for 2023 will thus be 71%. The large shares of the US-based Big Tech companies in the advertising market are a cause of considerable concern among Danish media. While media advertising would previously go to traditional media in Denmark like broadcasting, newspapers and magazines and weeklies, the major part now goes to US-based Big Tech companies, undermining the economy of the traditional media. Google Ads alone has 1/3 of the total Danish online plus offline advertising market in 2023.

“Google Ads alone has 1/3 of the total Danish online plus offline advertising market in 2023.”

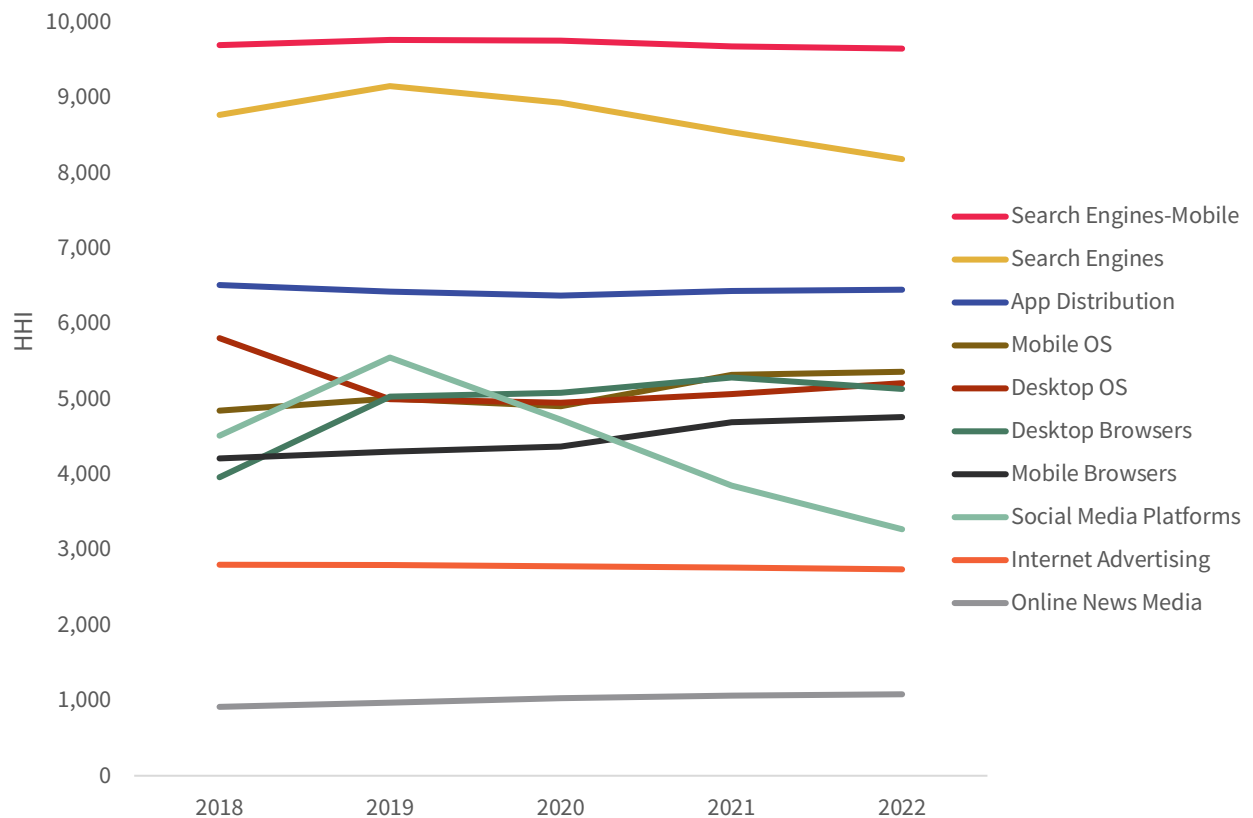
When calculating the CR4 scores in Table 8 for internet advertising, the figures for 2018 to 2020 are taken from a Nordicom report (2023), based on IRM figures. 2021 and 2022 are extrapolated going up to 71% in 2023. The HHI scores are also estimated by way of extrapolation, based on input from IRM for 2023 and the 2020 report by the Danish Competition and Consumer Authority (2020). In the Competition and Consumer Authority report, it is stated that Google (incl. YouTube) had approximately 50% of the online advertising market in Denmark in 2019. This corresponds well to the percentage that Google had in 2023, according to IRM. The market share of Google can thus be considered as relatively constant. The second major player is Meta with Facebook, Instagram and WhatsApp, and then comes LinkedIn and X plus Bilbasen and DBA (online marketplaces) and traditional media.

Figure 8: CR4 Scores for Core Internet Sectors



Sources: Based on Statista, Statcounter, Reuters Institute, Nordicom and IRM

Figure 9: HHI Scores for Core Internet Sectors



Sources: Based on Statista, Statcounter, Reuters Institute, Nordicom and IRM

Market shares of the Online News Media market are difficult to estimate. For 2023, Statista has published numbers, indicating that 50% of the Danish population read news online through online newspapers or apps and 37% read news online on social media. Readers thus read news directly from news media as well as on social media. In the estimation in this report, the basis for market share calculations are solely news media. This market is rather competitive. The largest providers are the public service broadcasters, DR and TV2, and then comes two tabloid newspapers that have lost hugely on the paper-based newspaper market but have managed to become large online news sites. One of them, BT, has become an entirely online-based news site; the other one, Ekstra Bladet, still has a paper version. In addition to these two news sites, all newspapers have online versions.

In order to calculate market shares in the online news media market, the numbers in this report are based on information from an annual report by Reuters Institute on

news media in Denmark (annual reports⁸). On the basis of the numbers from these annual reports, CR4 and HHI scores are calculated. The numbers in the reports from Reuters Institute are viewers and not revenues. Market shares are, therefore, estimated on the basis of viewer shares.

The CR4 and HHI scores for the remaining seven categories (from 'Social Media Platforms' to 'Desktop Browsers') are based on figures provided by Statcounter. For the social media platforms (desktop, mobile and laptop), Facebook (Meta) is the dominant player. The Danish market in 2018 can be characterized as quasi-monopolistic, while in 2022, the market to an increasing degree resembles an oligopoly. The market share of Facebook decreased from approximately 65% in 2018 to 45% in 2022, while Twitter (now X) in the same period increased from 10% to 33%.

With respect to search engines, Google totally dominates this area. Statcounter publishes statistics on market shares for search engines for desktops as well as mobiles and laptops. The dominance of Google is almost complete on mobile (and laptops), while the dominance is slightly smaller for desktops. Bing is slowly acquiring a modestly increasing market share for desktops – going from 3% in 2018 to 7% in 2022. This small change is reflected in the slightly decreasing HHI scores for desktop search engines. Still, the search engine market can be considered as a Google monopoly.

The Mobile OS market is duopolistic. There are basically two systems dominating this area, iOS (Apple) and Android (Alphabet). The statistics show that iOS is the largest player, while Android is smaller. The iOS share has been growing from approximately 51% in 2018 to about 65% in 2022, which is reflected in the growing HHI figures. The strong position of iOS reflects the fact that Denmark is a wealthy market where Apple products thrive relative to Android products that tend to be more popular in less affluent countries.

The desktop OS market is also duopolistic. The data shows that the two all-dominating systems are Windows (Microsoft) and OS X (formerly called Mac OS X) from Apple. Windows is the most used system with a market share of approximately 2/3, while OS X has about the last third.

The mobile browser market is likewise basically duopolistic – with Samsung Internet coming third with approximately 5%. Safari (Apple) is the most used browser, growing from about 50% in 2018 to 60% in 2022, reflecting the dominance of Apple in the mobile market. Chrome (Alphabet) is second, going from approximately 40% in 2018 to 30% in 2022. The growing share of Safari is reflected in the increasing HHI score.

The desktop browser market is somewhat more distributed, however, resembling a quasi-monopoly with one dominating browser, Chrome (Alphabet), with about 70% of

⁸ Schrøder, K.C. (annual reports) Denmark, <https://reutersinstitute.politics.ox.ac.uk/digital-news-report/2024/denmark>

the market, followed by Safari (Apple) with approximately 15% and two to three other browsers: Firefox, Edge and Opera.

In summary, it can be seen that the core internet applications markets are either monopolistic, quasi-monopolistic or oligopolistic with the exception of online news media, where traditional Danish-based media are the principal providers. However, it should be added that online news is increasingly consumed via social media platforms. Among Danish media providers, there has for many years been concern regarding the strong position of the incumbent public service broadcaster DR in online media. The claim has been that this is unfair competition, as DR is state owned and is funded by public service broadcasting funds. This concern has, however, dwindled during the past few years, as the dominance of the US-based Big Tech corporations has come higher on the public agenda.

The information in this section on core internet applications adds support to such concerns, given that all sub-categories except for online news media are entirely dominated by US-based Big Tech companies. In addition to the concern that almost all of these markets are highly concentrated, there is, therefore, also a concern that all the dominating companies are US-based in the service markets constituting the digital infrastructures in society. In European countries, this is a general concern. It is acknowledged that the internet is a global network and that the US-based companies have a dominating position – partly because of the US origin of the network. Nevertheless, the dominance and often occurring abuse of market power is a basis of great political unease among European policy makers.

Development and concentration trends across the communications, Internet and media

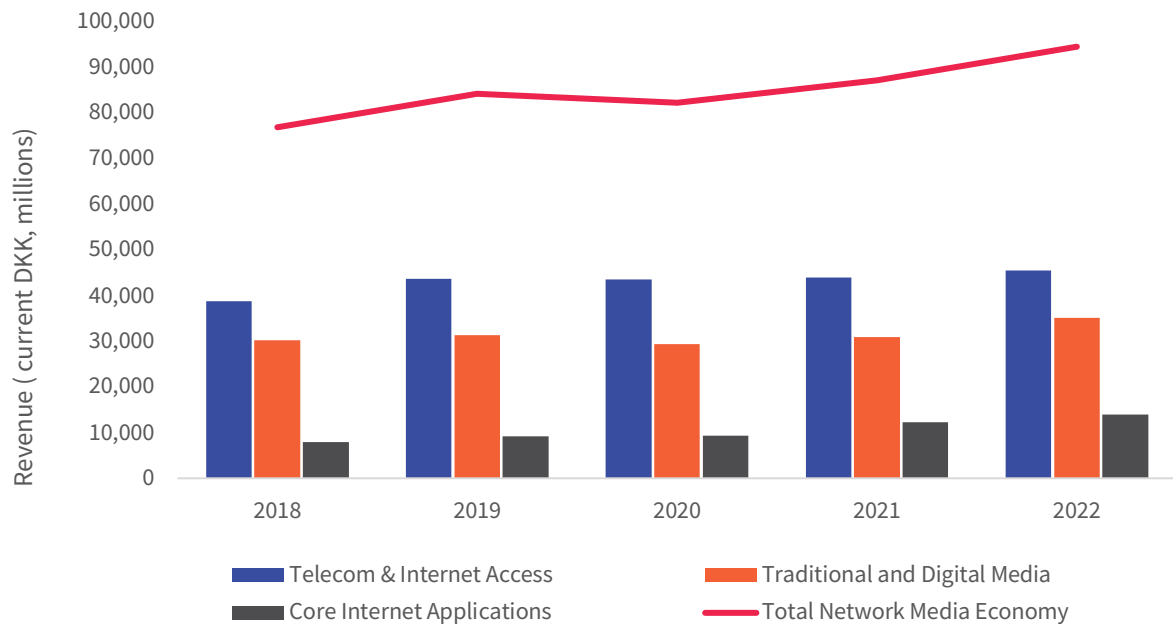
This section moves to a birds-eye view of trends, recent developments, and key findings for the media landscape as a whole (called the “network media economy” in Figures 11 and 12). Figure 10 presents the overall revenue figures for the three areas of the network media economy: Telecoms & internet access sectors, traditional and digital media, and core internet applications.

Figure 10 shows that the two largest areas are still ‘Telecom & Internet Access’ and ‘Traditional and Digital Media’. ‘Core Internet Applications’ are approximately one third of each of these areas. However, ‘Core Internet Applications’ is the fastest growing area. Furthermore, it needs to be taken into consideration that the ‘Core Internet Applications’ area includes many sub-areas, where the size of the revenues is not indicated in this report – the reason being that search engines, OS’ and browsers, in most cases, do not provide revenue by themselves. They are part of the overall package of services delivered. For the two categories, ‘Online News Media’ and ‘Social Media Platforms’, the subscription fees are only a small segment of the revenues, while advertising provides the main revenue source.

In 2022, the aggregate revenue of the network media economy in Denmark was around 94 billion DKK – corresponding to 12.5 billion USD. Compared with many other sectors in society, this is not one of the larger sectors. However, the importance of this sector, and especially the trends in concentration and ownership, is that it provides the communications infrastructures for society.

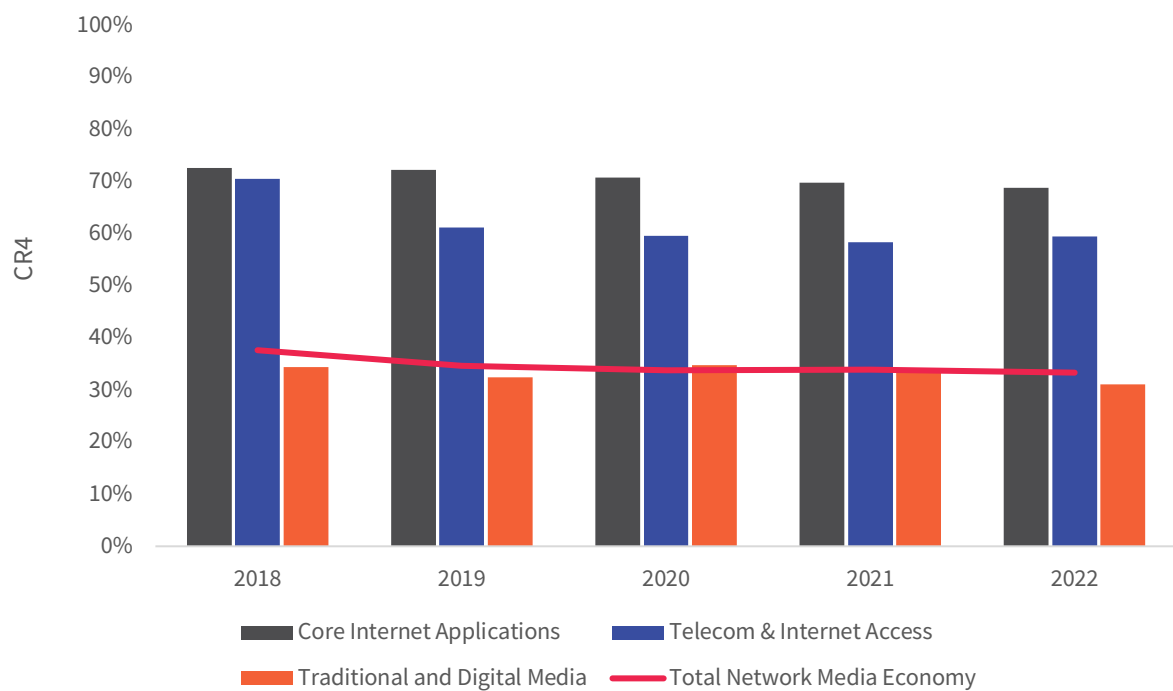
“In 2022, the aggregate revenue of the network media economy in Denmark was around 94 billion DKK”

Figure 10: Development of Media Industries, 2018-2022 (current DKK, millions)



In terms of concentration, first the CR4 scores for the three areas and the Total Network Media Economy are given and then the scores for HHI are presented.

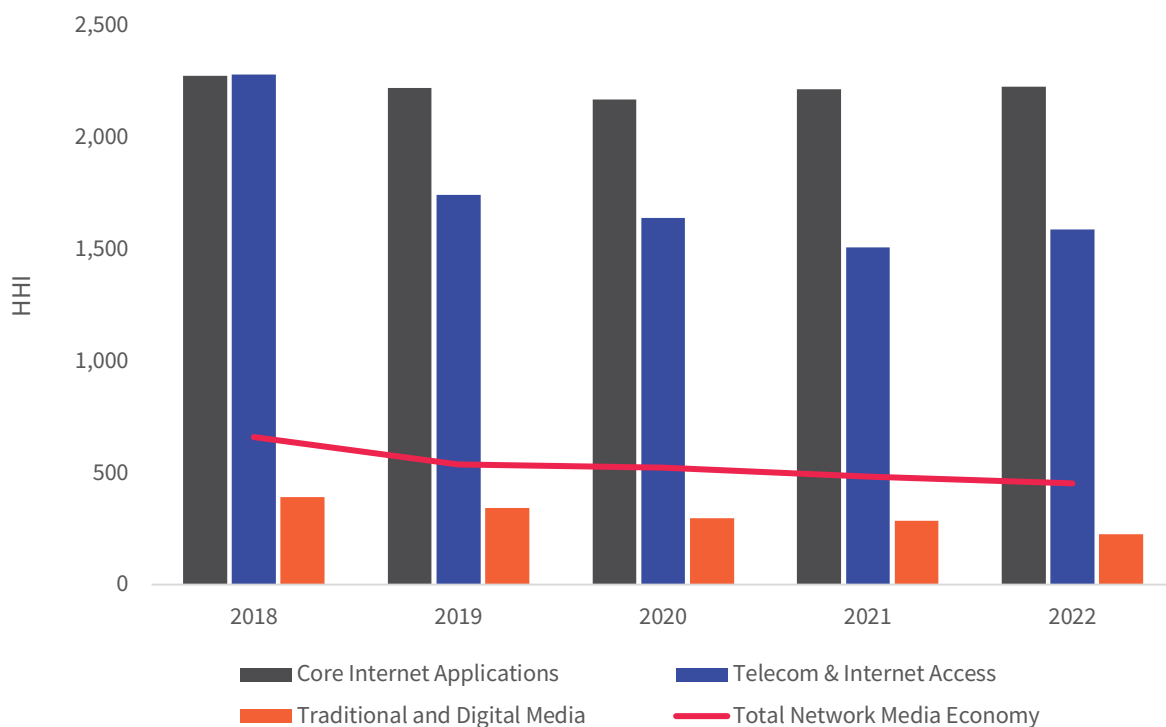
Figure 11: CR4 Scores (pooled average) for the Network Media Economy, 2018-2022



The two CR4 score-series that have not yet been commented on are 'Core Internet Applications' and 'Total Network Media Economy'. The 'Core Internet Applications' only include revenue figures for 'App Distribution' and 'Internet Advertising'. The CR4 figures for 'Core Internet Applications' are high and stable, though slightly decreasing, mainly because of the high constant market share of Apple's App Store in the 'App Distribution' market and the high constant market share of Google Ads in the 'Internet Advertising' market. The CR4 figures for the 'Total Network Media Economy' are around 35% and slightly falling.

The TDC Group based on the incumbent Danish telecoms operator has constantly been the biggest company with a revenue at approximately 17 billion DKK in 2018 and 16 billion DKK in 2022. The second largest is Google (Alphabet), which in this calculation comprises Google Ads and Google Play Store, reaching a revenue of 7.3 billion DKK in 2022. Google has other activities in Denmark, for instance Google Chromebook for schools in the combined hardware/software market, but these activities are not included here in this overview of the service markets. The third and fourth largest companies in 2022 were Telenor and Norlys with revenues of approximately 4 billion DKK. The primary reason for the decreasing CR4 figures is that the revenue figures for TDC are decreasing in absolute terms and, therefore, becomes a decreasing share even more so of an overall growing market. Furthermore, the incumbent broadcaster is stagnating, and so is Telenor, while Google and Norlys, on the other hand, are growing. This growth, however, cannot in terms of CR4 figures offset the decreasing or stagnating revenues of the more traditional players in the network media economy.

Figure 12: HHI Scores (pooled average) for the Network Media Economy, 2018-2022



The HHI scores for 'Core Internet Applications' are rather high – around 2200. This signals as do the CR4 scores that Core Internet Applications is a challenged area with respect to competition. It is an area with duopolistic and oligopolistic competition. The 'Core Internet Applications' area is the area among the three analysed areas with the highest HHI scores followed by 'Telecom & Internet Access'.

The HHI scores for the 'Total Network Media Economy' are based on the 20 companies that were the largest in 2022. Adding more companies to the calculations would not cause any observable change to the HHI scores. One could maybe question the relevance of calculating the HHI scores for the 'Total Network Media Economy', as this comprises many different media areas, and as the numbers, therefore, will be relatively small. However, there are countries, where there are a few very big cross media companies, which will result in relatively high HHI scores. Such companies are not prominent in Denmark though the TDC Group is by far the largest company in the 'Total Network Media Economy' with approximately 23 % of the total revenue in 2018 and 17% in 2022. This is a large share, but the TDC Group is limited to the 'Telecoms & Internet Access' area and does not flow much into the 'Traditional' and 'Digital Media' and the 'Core Internet Applications' areas, except for the activities of YouSee in the music streaming market.

Apart from Alphabet with Google Ads and Norlys, it is, to a large extent, the traditional telecoms companies and broadcasters that contribute to the HHI scores. Norlys is a company that has been growing in size mainly because of mergers and acquisitions. The predecessors of Norlys started out as local co-ops distributing electricity. At a point in time, they added fiber provision to their product portfolio, and then came TV distribution and internet service provision. Lately in 2024, Telia Denmark has been taken over, so that Norlys is active in fiber as well as TV distribution, ISP and mobile. Another upcoming company is Global Connect with its primary activities within fiber networking.

The reason that the HHI scores for the total network media economy are falling is that the revenues of the traditional telecoms and broadcasting providers are stagnating or decreasing. When the larger company shares of the markets are falling, this is reflected in relatively fast decreasing HHI scores.

In Figure 13, one finds an overview of the 20 largest communications, internet and media companies/brands in Denmark for 2022. The largest one, by far, is the TDC Group. Since the beginning of 2022, the TDC Group consists of two legally separate companies, TDC Net and Nuuday, where Nuuday includes different service areas within, for instance, mobile, TV distribution and ISP services, and where TDC Net takes care of the networking activities of the TDC Group. In order to find the total revenue of the TDC Group, one cannot just add the revenues of these two subsidiaries, as part of the revenue of TDC Net will come from sales to Nuuday. However, annual report figures also exist for the TDC Group including the consolidated revenue of the group with a split of revenue figures on the following categories: Wireline telephony, mobile, internet and networking, TV distribution, and others.

As can be seen from the list, the third or fourth largest company, is Norlys. The revenue included here comes from the added revenues of Norlys Digital (comprising TV distribution and ISP services) and Norlys Fibernet. Norlys Fibernet is also likely to sell network services to Norlys Digital like TDC Net to Nuuday. However, consolidated figures are not publicly available, and we have chosen to add the revenues of the two subsidiaries in spite of the likelihood of double counting.

Among the list of companies/brands, one finds the four companies offering mobile network services: TDC, Telenor, 3 and Telia Denmark (now owned by Norlys). One also finds the two public service broadcasters (DR and TV2). Moreover, there are three of the US-based Big Tech companies (Google, Meta and Apple), and Microsoft could as well be among them – see below. Finally, one finds four newspaper groups, two TV distributors (Viaplay and Allente, competing with the brands included in TDC and Norlys), Spotify (online music), Netflix (video streaming) and one fiber provider (Global Connect, competing with brands included in TDC and Norlys).

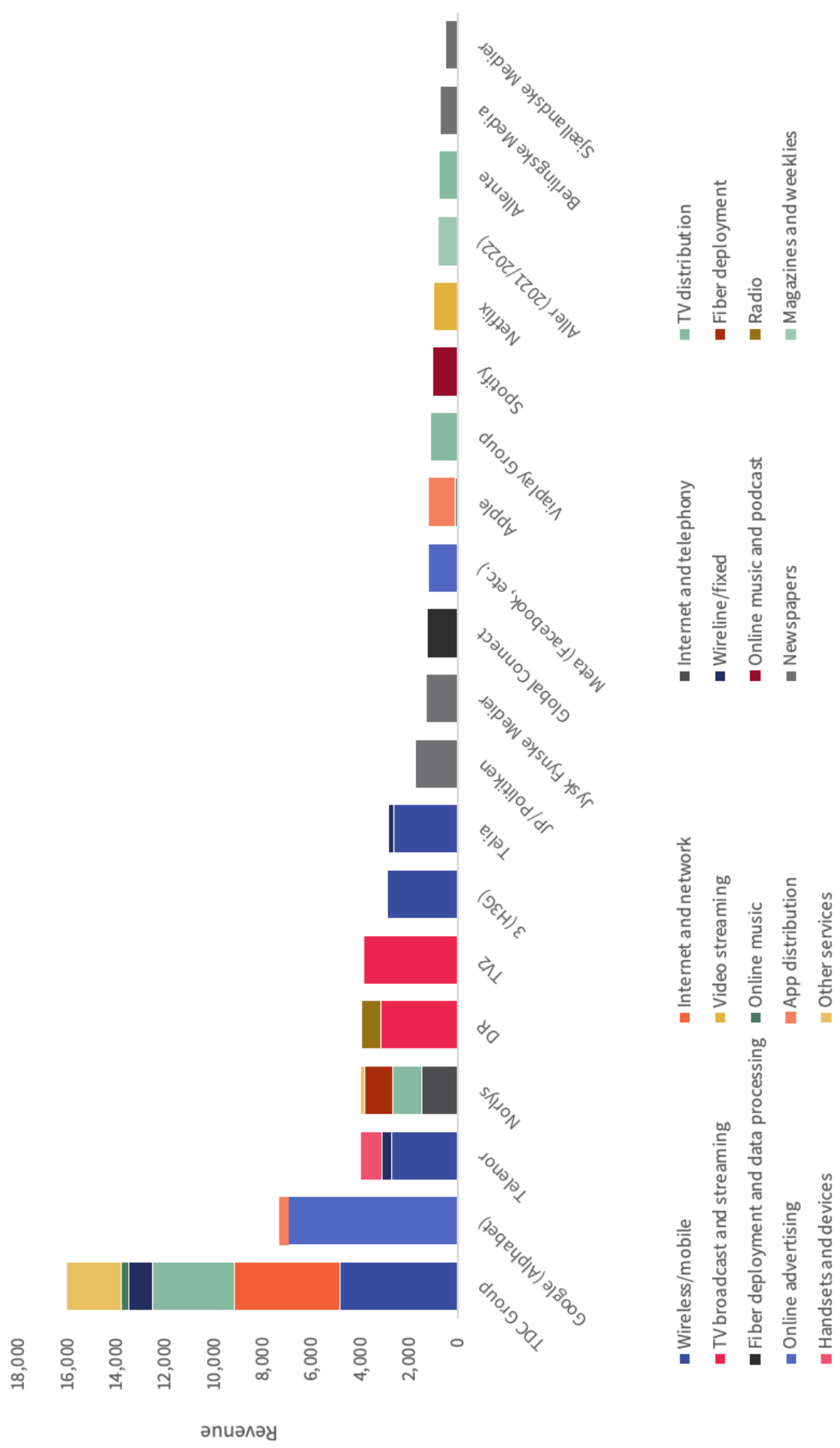
As can be seen from the list, the traditional telecoms companies and broadcasters are among the dominant players, and the Big Tech companies are forcefully on their way.

It can be difficult to calculate the revenues of Spotify and Netflix, as they do not publish any numbers on their Danish revenues. There are estimates of percentages of survey populations using these services, and when knowing the average household size in Denmark and the subscription packages they are offering, the revenues of Spotify and Netflix are estimated at being at the same level, namely 1000 million DKK in 2022.

The biggest question mark is Microsoft, going from 1.25 billion DKK in revenue in Denmark in 2018 to a staggering 8.3 billion DKK in 2022 and 10.6 in 2023. The annual reports, however, do not disclose how this revenue is made up apart from the remark that the main activities of Microsoft Denmark 'consist of distribution of software, IT services and hardware, as well as consultancy and support' and the information that 'services and other' contributed with 4.5 billion DKK and 'products' contributed with 2.7 billion DKK in 2022 (Microsoft Denmark, annual report 2022/2023). Of relevance for this report, Microsoft delivers several different products and services, e.g. operating systems (Windows), social network services (LinkedIn) cloud services (Azure), video conference systems (Teams and Skype), search engine (Bing), but the revenue sizes of these areas are not publicly known. We have, therefore chosen not to include Microsoft in the list of the largest companies, though it may well be among the very largest ones.

Another big question mark is the media corporation Egmont, which is truly a cross-media type of company. Egmont operates in several different media markets both with respect to media types and countries, but they do not publish revenue numbers for the Danish market. Their product portfolio covers many different media types, including magazines, TV broadcast, books, films, games, of which books and films are not covered in the present report. However, Egmont could very well be among the largest 20 media companies in the Danish market.

Figure 13: Leading Communications-Internet and Media Companies in Denmark, 2022



Sources: Annual company reports and estimates regarding companies that do not issue annual reports regarding their Danish operations

In addition to these question marks, there could also be areas such as cloud services (primarily Microsoft and Amazon) and CDN (Content Delivery Network) services. However, they are most likely smaller in size than the companies/brands listed.

As a last addition, a brief comparison with a group of diverse countries could put the Danish media concentration figures into perspective.

Figure 14: International comparison of CR and HHI figures

| | CR1 | CR4 | CR10 | Big Tech | HHI |
|--------------------|-------|-------|-------|----------|------|
| Denmark | 17.0% | 33.3% | 50.7% | 12.4% | 453 |
| Switzerland | 26.1% | 56.2% | 74.7% | 21.2%% | 1077 |
| France | 21.1% | 54.2% | 77.6% | 12.0 | 935 |
| Italy | 19.6% | 42.7% | 67.3% | 10.2% | 689 |
| Canada | 23.7% | 60.7% | 79.6% | 18.0% | 1137 |
| Australia | 26.0% | 56.0% | 80.0% | 15.0% | 1106 |
| South Korea | 15.4% | 40.9% | 56.0% | ... | 542 |
| USA | 11.3% | 35.1% | 56.4% | 19.4% | 432 |
| China | 17.9% | 42.0% | 65.4% | 29.6% | 648 |

Source: National reports from GMICP

CR1 means the market share of the one biggest company in the whole network media economy of the different countries; CR4 is the market share of the 4 biggest companies; CR10 of the 10 biggest companies; Big Tech is the market share of the companies that are often characterized as belonging to the Big Tech category; HHI is for the whole network media economy.

As can be seen, the figures, in some country cases, differ to a large extent. Denmark is with the US and South Korea the countries with the lowest CR and HHI figures among

the listed countries. Other countries, such as Canada and Australia have considerably higher CR figures, also resulting in high HHI figures. Especially, high CR1 and CR4 figures have a huge impact on HHI. The primary explanation for the differences between countries is that the countries with the highest CR and HHI figures have a higher degree of cross media ownership with large companies covering not only networking but also content and possibly core internet applications. In Denmark, the large telecoms operators generally have few services within the content area.

One could think that small countries would generally have higher CR and HHI figures than larger countries. Indeed, the US is the country with the lowest HHI figure in the country list. However otherwise, no such tendency can be observed. The most important factor seems to be the level of cross-media ownership.

Conclusion

The report has focused on the development of market sizes and levels of market concentration over the period from 2018 to 2022. The three areas dealt with are entitled 'Telecoms & Internet Access', 'Traditional and Online Media', and 'Core Internet Applications'. The report shows that there has been a stable growth with respect to 'Telecoms & Internet Access', and that this growth is primarily related to mobile and internet. The same applies to 'Traditional and Online Media', while 'Core Internet Applications' is the fastest growing area. At a point in time when convergence between IT, telecoms and the media was speeding up, there was a discussion as to whether content or networking was 'king'. As is indicated by this report, it is neither networking nor content that is 'king'; it is the management of networks and content, called Core Internet Applications in this report, that is going to dominate, which underlines the fact that in the convergence of IT, telecoms and the media, it is IT that dominates. And, with the very strong and almost total dominance of US-based Big Tech companies in the IT area, this constitutes an important issue for the development of the Network Media Economy in Europe and for policy and regulation in the field.

Concentration levels are obviously closely related to ownership structures, but it is not a 1:1 relationship, and ownership is not the primary focus of the report. The industrial areas dealt with comprise network industries, media in the traditional sense of the word (offline and online), and a group of Internet-based services entitled Core Internet Applications in this report. Often these industry areas are dealt with separately, however, convergence, technologically and economically between telecoms, IT and media, requires a more converged view.

The report is based on publicly available and mostly free statistics. Where possible, official statistical sources and annual reports from companies have been used, but in many cases, the report has had to rely on a diverse range of different kinds of sources, going from ministerial reports, industry association reports, consultancy reports, and other unofficial sources. This constitutes a problem, as many of the numbers provided in the report are estimations made on the basis of available sources. This reflects an unsatisfactory state of available statistics in this field. One can often find official statistics on numbers of users in different Internet and media areas, but economic figures including revenues and market shares are mostly not available. A strong recommendation would be that such official statistics be developed, which could also be necessary with the implementation of the new European Media Freedom Act.

For many of the companies included in this report, there are annual account reports published. Big Tech companies such as Google (Alphabet), Facebook (Meta), Apple, etc. are notable exceptions in this regard. These companies have administrative branches in Denmark, but if any accounts are published, they only comprise such administrative

and public relations activities and not their sales revenues. This is a legal issue and has the controversial effect, for example, that when a question was asked in the Danish parliament regarding the revenue of Netflix in Denmark, the responsible ministry was only able to answer with reference to scattered media reports (Altinget, 2020). No solid foundation can be provided, which limits policy initiatives. One should think that in what is normally considered as a well-organized society with a tradition for keeping good statistics, one should be able to find such information. But this is not the case.

The communications and media industry is, in a societal perspective, not among the biggest economic sectors in Denmark. It is, however, a very crucial area, as it constitutes the communications infrastructure in society. This applies to interpersonal communications as well as public communications and information provision and debate. This is the reason why it is important with better knowledge on the structures of the industry and its levels of concentration and internationalization and ownership.

Generally, the sub-sectors within the communications and media area are rather concentrated with a few dominating operators within each field. This level of concentration is partly based on network effects leading to the dominance of sometimes just one or a few companies. Network effects are known to implicate 'natural monopoly' tendencies, which would call for regulatory intervention. In Denmark, which is part of EU, and in other countries, this has traditionally led to regulation within telecommunications and lately also relating to the platform economy. With the growing importance of the internet-based platform economy, this is an area of much discussion regarding policy initiatives and regulation.

The core conclusions that can be drawn from the data and analysis provided in this report are the following:

- The traditional communications and broadcast companies are generally still among the biggest companies in the communications and media area.
- These companies are, however, either stagnating or decreasing in market revenues.
- The growth – and in some cases – strong growth is seen in areas related to the internet. This applies to internet services and applications and to content delivered via Internet. It also applies to networking, e.g. Internet Service Provision (ISP).
- While telecoms companies, when the internet grew with the World Wide Web, were not very interested in the developing network, these companies are presently the largest ISPs and their business models are very much based on the internet.
- Within interpersonal communications, traditional wireline telephony has almost entirely disappeared; wireless is by far the largest business area.

- Broadcasting is, to a vastly increasing degree, becoming based on streaming. The incumbent broadcast operator, DR, for instance, considers streaming as its primary platform.
- The individual sub-sectors of the communications and media industry are generally rather concentrated – with only a few large dominant companies. The individual sub-sectors would mostly be considered as either oligopolistic, duopolistic, quasi-monopolistic or monopolistic.
- The total network media economy is not concentrated as it comprises many different communications and media areas. However, both the 'Telecoms & Internet Access' area and the 'Core Internet Applications' area are either rather or very concentrated, respectively, while 'Traditional and Digital Media' are not concentrated.
- Within the 'Core Internet Applications' area, the search engine, operating systems and browser markets are very concentrated.
- The 'Core Internet Applications' area is totally dominated by US-based Big Tech companies.
- For the traditional media within publishing and broadcasting, the dominance of US-based Big Tech companies constitutes a major problem. Advertising, which is an important source of revenue in these areas, has to a large extent been taken over by Big Tech companies such as Google and Facebook.
- Though a large share of the population still finds their news via news media, an increasing degree of the population receive their news via social media.
- Technological convergence and regulatory liberalization has paved the way for cross-media companies. However, in Denmark, it is only few companies that are active in many of the sub-sectors discussed in this report.
- The big telecoms companies obviously have activities within mobile and wireline communications and in internet service provision. The TDC Group as the largest operator also has activities in TV distribution, but they have basically stayed within the networking areas. They have not significantly crossed the borderline into the media area nor the internet applications area. The same applies for the upcoming company within communications, Norlys.
- The communications and media companies in Denmark, to a large extent, tend to stay within their 'turf'. The degree of cross media ownership is small compared with a number of other countries.

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